PLAINTIFF'S EXHIBIT
G-399

HISTORY OF ASBESTOS TEXTILE INDUSTRY

Chapter	Title	Issue
I	The History of the Asbestos Textile Industry in the United States.	August, 1970
II	Johns-Manville Corporation	September, 197[illegible]
III	H. K. Porter Company, Russell Works	October, 1970
IV	Greene, Tweed & Company including Asbestos Spinning Company	November, 197[illegible]
V	Keasbey & Mattison Co. (missing pages 10 and 11)	February, 197[illegible]
VI	Garlock, Inc.	March, 1971
VII	missing	
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X	United Statse Asbestos Co. (now a division of Raybestos-Manhattan, Inc.)	June, 1971
XI	American Asbestos Company American Asbestos Textile Corp.	July, 1971
XII	Standard Brake Lining Company	August, 1971
XIII	Asbestos Textile Company, Inc. (division of Gatke Corp.)	August, 1971
XIV	Union Asbestos & Rubber Company (now Unarco Industries, Inc.)	September, 19[illegible]
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XVII	Asbestos Spinning & Weaving Corp.	November, 1971
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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

By John A. Bettes, Jr.

As related to the Staff of ASBESTOS

(Mr. Bettes retired in 1956 as Manager of the Asbestos Textile Department of Keasbey & Mattison Co. He had been with the company since 1909 and, during his many achievements had assisted in pioneering U.S. asbestos textiles. He was a past president of the Asbestos Textile Institute. Mr. Bettes is regarded as an authority on the subject of textile asbestos.

We are certain all who read the story of what Mr. Bettes has put into the series and know that there is needed in the asbestos textile industry appreciate his endeavors and will find the "History" a boon. Ed.)

Many asbestos textile manufacturers in the United States have their histories on file and several of these individual company histories have been published in booklet form. However, no one has, until this time, attempted to assemble these records, along with other available information into a single documentary which could rightfully be called a "History of the Asbestos Textile Industry in the United States." It should be recognized that this series is *intended to present a history* of the entire asbestos textile industry from its very beginning. It is *not* intended to include the complete history of any one asbestos product manufacturer except insofar as that company and its personnel contributed substantially to the start up and growth of the asbestos textile industry. In the interest of brevity the history will be confined to the founding and early activities of each company particularly to those developments beyond the memory of all but a very few currently active members of the industry, since little is to be gained by recording happenings well known to most members of the present day industry. It is hoped this compilation will give pleasure to the older members of the industry by calling to mind important events of the past and those men who made industry history in bygone years. Younger men may gain a better perspective of the industry by enhancing their knowledge of its pioneer days.

Before beginning the series, it should prove of interest

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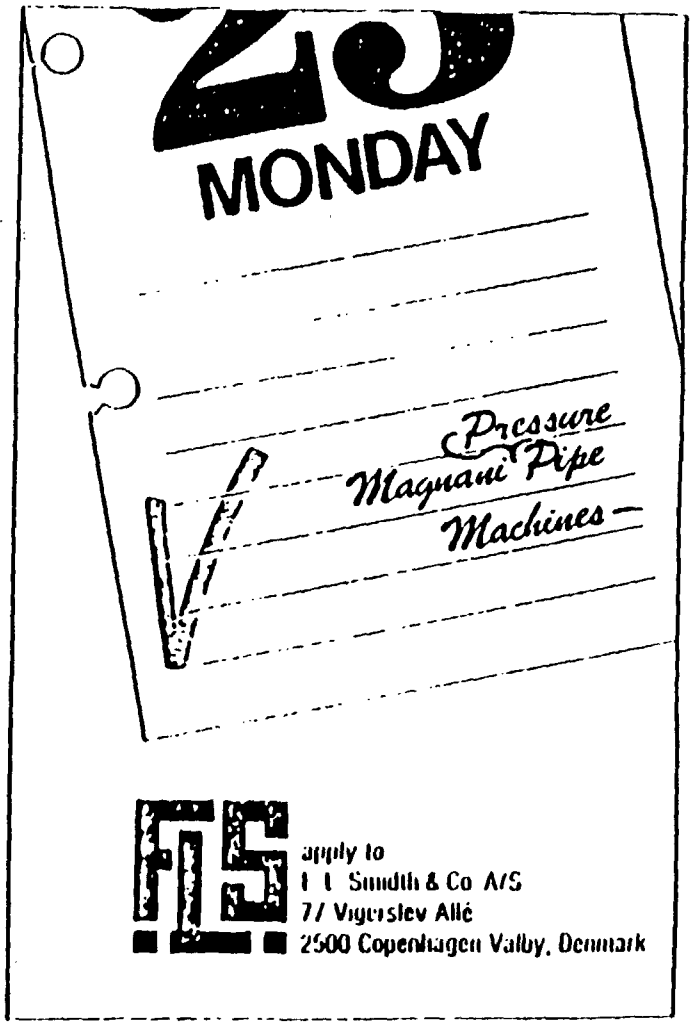
to review the developments which created the need for asbestos textiles in this country and in other parts of the world. It has been said, and rightly so, "The steam engine was the father of the asbestos textile industry." This being the case, then the automobile must surely have been the maternal parent. With the invention of, and subsequent improvements in, the steam engine, a need was created for improved packing materials. Thus was born the first commercial use for an asbestos textile specifically, asbestos packing. The advent of the "horseless carriage" led to a requirement for heat resistant friction materials and here again brake linings and clutch facings made from woven asbestos provided the answer to the need. These two milestones unquestionably were the major motivating factors in the development of the asbestos textile industry in this country and in Europe. It is important to recognize the role played by asbestos textile products in the continuing development of the steam engine, steam powered vehicles of all types and the present gasoline powered automobile.

It might be in order, at this point, to review the history of the steam engine. Prior to 1770 the Newcomen engine, a clumsy and inefficient machine, was utilized to pump water from coal mines in England. This engine used steam to create a vacuum in a cylinder. Atmospheric pressure caused the piston to reciprocate at about 15 strokes a minute. James Watt, a well educated mechanical genius from Glasgow, Scotland, recognized that a far more efficient engine would use steam to actuate the piston directly. This was the basis for his patent issued in England in 1769 and thus Mr. Watt is credited with the invention of the steam engine.

The original Watt engine operated at a mere seven pounds of steam pressure. This is equivalent to a temperature of only 230 F., which is safely below the critical temperature of cotton at 250 F.

Early models of the Watt engine used lubricated cotton packing for the piston rod and for the valve stems. As the refinement of the Watt engine progressed, tolerances were reduced. Operating temperatures and pressures were increased. Cotton packings proved inadequate. Engineers in several countries turned to the hard fibers: hemp, flax and jute in an effort to provide packings with improved heat resistance.



By the time operating pressures reached 150 pounds per square inch, temperatures were up to 366 F, well above the critical point for any cellulosic fiber. It was at this point engineers in several countries turned to asbestos as the logical base for packings which could withstand the higher service temperatures.

The earliest asbestos steam packings were apparently nothing more than a corded asbestos sheet with a braid of cotton jacket, lubricated by impregnation with oil or oil and graphite. Improved versions had braided asbestos or asbestos cloth jacket. In 1871 H. W. Johns Company, Brooklyn, New York, issued a catalog which offered several different asbestos packings and gaskets.

Although the U.S. cotton and woolen industries were undoubtedly imported from Europe (the great cotton mills at Fall River, Massachusetts, were carbon copies of their counterparts in Manchester, England), the asbestos textile industry in the United States apparently did not stem directly from any foreign country. The techniques employed to manufacture asbestos textiles in this country were adapted from standard practices already well established in the cotton and woolen industries.

As previously mentioned, this article is the first of a series on the many manufacturers that participated in the development of the Asbestos Textile Industry in the United States. As a start it should be useful to list the numerous companies at which asbestos textiles have been produced in the United States and to what companies. The writer will address himself to individual industry practices and duties as they relate to the manufacturer. As one who used asbestos rovings and yarns, asbestos cloth. The following list may not be complete but it does include all American companies and all plant locations at which the writer could find record. Obviously, some plants will have closed during the production increase that took place during the war. The following companies and plant locations will be covered in this series.

Allen-Bradley Company, Milwaukee, Wisconsin
American Asbestos Corporation, Newark, New Jersey
American Asbestos Textile Corporation, Newark, New Jersey and Milford Square, Pennsylvania, and Meredith, New Hampshire
Asbestos Fabric Specialty Company, North Walpole, New Hampshire
Asbestos Products Company, Waterford, New York

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Asbestos Textile Company, Reynoldsville, Pennsylvania,
North Brookfield, Massachusetts,
Aiken Hill Company, Philadelphia, Pennsylvania.

J. Franklin Burke and Company, Inc., Northfield, Vermont.

Carolina Asbestos Company, Davidson and Marshville, North Carolina.

Ferodo and Asbestos, Inc., New Brunswick, New Jersey,
Fiber and Metal Products Company, Downey, California.

Garlock Packing Company and Garlock, Inc., Palmyra, New York,
Gatke Corporation, North Brookfield, Massachusetts.
General Asbestos and Rubber Company, Charleston and North Charleston, South Carolina,
Greene, Tweed and Company, North Wales, Pennsylvania.

John Manville Corporation (including the former H. W. Johns Company), New York City and Brooklyn, New York, Manville, New Jersey, Marshville, North Carolina, Waukegan, Illinois.

Keasbey & Mattison Company, Ambler, Pennsylvania, Meredith, New Hampshire, New Brunswick, New Jersey,
The Kobar Manufacturing Company, Davidson, North Carolina.

Mossell Brothers Company, Walpole, Indiana,
Multibestos Company, Walpole, Massachusetts.

Philadelphia Asbestos Company, Norristown, Pennsylvania.
H. K. Porter Company, Charlotte and Davidson, North Carolina, Bennettsville, South Carolina, Middletown, Connecticut, St. Louis, Missouri.

The Raybestos Company, Bridgeport, Connecticut,
Raybestos Manhattan, Inc., North Charleston, South Carolina, Manheim, Pennsylvania, Bridgeport, Connecticut, Marshville, North Carolina.
Russell Manufacturing Company, Middletown, Connecticut, Northfield, Vermont, Bennettsville, South Carolina.

Southern Asbestos Manufacturing Company, Charlotte, North Carolina.
Southern Asbestos Company, Charlotte and Davidson, North Carolina.
Sunden Industries, Inc., Houston, Texas,
Stores Asbestos Company, Trenton, New Jersey.

Fulham McCluskey Fabrics Company, St. Louis, Missouri,
Thermoid Rubber Company, Charlotte and Davidson, North Carolina, Trenton, New Jersey.

Union Asbestos & Rubber Company, Cicero and Bloomington, Illinois, Davidson and Marshville, North Carolina, Paterson, New Jersey,
United States Asbestos Company, Manheim, Pennsylvania.



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Control, Inc. (formerly United States Rubber Company), Hogansville, Georgia, Person, New Jersey.

Waite Weld Asbestos Company, Inc., Leominster, Massachusetts

Due to their extreme importance to the industry, stories on the Asbestos Textile Institute and the American Society for Testing and Materials will also be included in this series.

The coming chapter of this "History of the Asbestos Textile Industry in the United States" will appear in future issues of ASBESTOS.

FIVE MEETINGS. The Sub National Meeting of the Thermal Insulation Association of Canada will be held at the Algonquin Hotel St. Andrews By The Sea, New Brunswick, September 8-12, 1970. Chairman of the Convention Committee is Mr. A. D. Goddard, President of Goddard's Limited, Dartmouth, Nova Scotia.

THE PRODUCERS' COUNCIL, INC. will hold its 19th Annual Meeting and Chapter Presidents' Conference at the Regency Hyatt House, Atlanta, Georgia, September 13-16. The theme of the meeting will be "Marketing to Meet a Decade of Change."

EASTERN ASBESTOS. The Eastern Asbestos Textile Fabricators Association, Inc. will hold its Fall Meeting at the Hotel du Pont, Wilmington, Delaware, September 17-18. For further details contact Mr. F. Goodin, Fund Talk Building, Philadelphia, Pennsylvania 19110 telephone (215) 440-3943.

WESTERN INSULATION CONTRACTORS. Western Insulation will hold its Annual Meeting at Highland Inn, Carmel, California, September 20-23.

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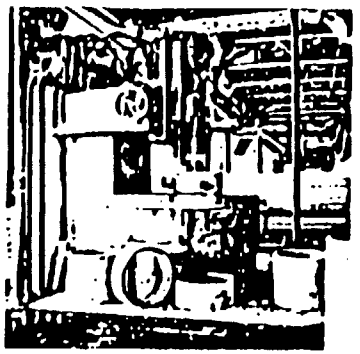
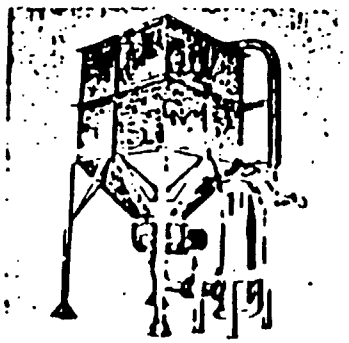


Hydraulic lathe for pipe couplings



Sheet cutting press 3,6 × 1,3 m / 12 × 4



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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter II John Manville Corporation

By John A Bettes Jr

As told to the Society of Asbestos

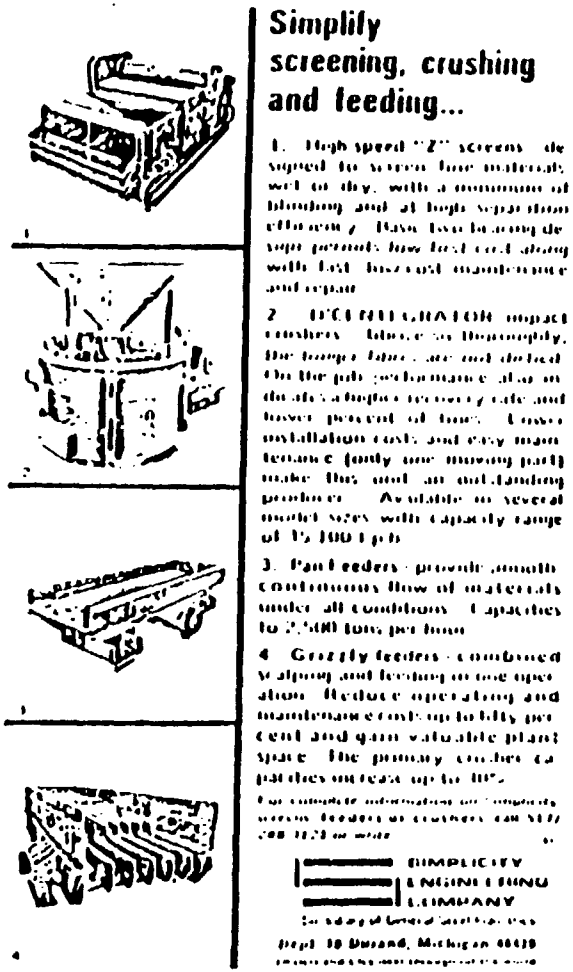
The history of Johns Manville Corporation starts with the establishment of a trade by one man one employee and one office at 120 Wall Street New York City in the year 1858. The 37 year old proprietor Henry Ward Johns was a man of vision and great capacity. He directed his firm from a humble beginning through boom times and panic to achieve the status of a major manufacturer in his own lifetime. He was still company president at the time of his death in 1870.

The original product made at 120 Wall Street on the heart of what is now New York's financial district was a laminated fire resistant roofing material containing asbestos. The company's first patent issued February 21, 1868 covered a product of this description. The company was formally incorporated as the H W Johns Manufacturing Company in 1871 with 1,000 shares and a capitalization of $250,000.

In 1874 manufacturing facilities were moved to a three level location on Broadway New York. This was to be a more convenient location for shipments until 1912 when much larger and more modern facilities were established at Manville New Jersey.

In those days the telephone was not yet in common use. Communication between the New York Office at 87 Maiden Lane and the factory in Brooklyn was maintained by messenger service. The first direct communication was by telegraph. Western Union messengers on both ends of the line similar to the present day FAX provided communications.

On March 11 1886 H E Manville founded the Manville Covering Company in Milwaukee Wisconsin. There was at that time no intention of proceeding with the H W Johns Manufacturing Company. The association between the two companies started a few years later with Manville becoming a distributor for Johns' products.



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In 1892 Mr. Johns realized one of his greatest ambitions. He consolidated five of the six major companies which at that time comprised the Asbestos Industry in the United States. The merger brought together H. W. Johns Manufacturing Company and Chalmers-Spence Company of New York City, Shields & Brown of Philadelphia, and two Boston firms, Asbestos Packing Company and C. W. Tramer & Company. The firm carried on under the name "H. W. Johns Manufacturing Company." The Manville Covering Company continued as western distributor for Johns' products.

It was not until 1901, three years after the death of H. W. Johns, that the Manville Covering Company merged with H. W. Johns Manufacturing Company and the present company was incorporated as the H. W. Johns-Manville Company. T. F. Manville became the new company's first President.

Now to pick up the thread of the asbestos textile story. Asbestos cards were installed in the Brooklyn plant between 1876 and 1880. Prior to that date H. W. Johns Company had sold asbestos cloth and other asbestos textiles imported principally from England.

There are preserved in the J-M archives two general catalogs, one dated 1883 and the other dated 1890. Both of these early catalogs offered surprisingly complete lines of asbestos textiles and asbestos packings. The catalog issued in 1883 included yarn, cord, twine, thread, cloth and print roller cloth. The 1890 catalog added asbestos mittens, screens, shields, covers, rugs and fireproof theater curtains.

Prices listed in the 1890 catalog for "pure" asbestos cloth are equivalent to present day prices for commercial grade cloth. The catalog description is interesting in itself:

STRICTLY PURE ASBESTOS CLOTH

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

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In 1892 F. W. Jewett was Superintendent of the Brooklyn plant. He designed the first asbestos theater curtain used in the Country. Company records show that for some years thereafter the asbestos curtains constituted the major market for asbestos cloth. This may seem difficult to believe, considering the relative unimportance of the present day market for such curtains. It should be remembered, however, that in 1892 most of today's major markets for asbestos cloth had not yet begun to be developed.

In the early days of the movie, the stage lighting was provided by open gas flames.

The asbestos curtain had both temperature and contact with them on every performance so there could be no more dependable material. Hence the curtain was most uncommon and many were of the utmost importance, modern municipalities and the public in general keenly aware of the need for improved fire protection in theaters. The duties of an asbestos curtain dropped between the footlights and the audience, to confine the fire to the stage and retain the audience from the flames was quickly recognized as an excellent safety factor and many cities passed ordinances making the use of such curtains mandatory. Consideration of the doors and of the stairways to be equipped and the number of exits used in each emergency we can visualize a very able market for a number of years.

Many of these considerations when the stars made use the audience was appointed at the fact the building in which they were located was duly equipped with an asbestos curtain. When the performance was ready to begin the special performance curtain was raised slowly revealing a second curtain with a large picture painted in the center of the curtain in letters at least a foot high. Over the years the Industries has had few such pictures to show.

Hardly should an Insurance agent call the proper portion of the performance to be for the theater curtain which was used to protect the lives of the audience. The performance was raised the curtain of one of the principal duties of the curtain was to be a fire material safety.

In 1877, the Johns Asbestos Mill in Brooklyn had started to use Canadian fibre only asbestos fiber. According to the

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best available information the prior source had been an asbestos mine on Staten Island, New York.

In 1910 the demand for friction materials led to expanded textile production, principally in asbestos-metallic cloth for folded and compressed-type brake linings.

In 1912 manufacturing operations including the textile mill were moved from Brooklyn to larger and more modern quarters at Manville, New Jersey. In the same year J-M opened its own headquarters building at 292 Madison Avenue, New York City.

In 1920 the company name became Johns-Manville, Inc. It was in that year that Stephen V. Dillon joined the J-M sales force as a male stenographer. For the next 38 years Steve Dillon participated in the sale of J-M asbestos textiles. He headed the Textile Sales Department from January 1946 to December 1955. Steve was an early member of the Sales Promotion Committee of the Asbestos Textile Institute (ATI). He materially assisted the author in the preparation of this history of J-M's textile activities.

In 1926 the Manville family sold its stock to J. P. Morgan & Company to pave the way for a complete corporate reorganization. It was at this time T. F. (Tommy) Manville, Jr., ended all official association with the company. However, his marital exploits continued to make headlines in the press and, while most J-M people deplored what they felt to be unwelcome notoriety, the fact remains that flamboyant Tommy Manville, the "Asbestos Heir," succeeded in making his family name synonomous with asbestos in the mind of the general public and, truth to tell, may have been J-M's most successful single publicity agent, and all at his own expense.

In 1935 John Manville stock was marketed by J. P. Morgan & Company to make J-M a publicly owned corporation after 69 years of private ownership. Since January 1, 1935 the company has been known as Johns-Manville Corporation. Theodore F. Merseles, former President of Montgomery Ward & Company, was elected the first President of Johns-Manville Corporation.

In 1929 Mr. Merseles died and his assistant, Lewis H. Brown, was elected President at the age of 35. Mr. Brown proved to be a man of great foresight and enormous accom-

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plishment. He succeeded in keeping the company in the black even during the bitter depression years of 1930-32. He was a great innovator. Space does not permit, in this brief history, a list of his many accomplishments but perhaps a few examples will suffice. 1931, J-M was the first company to offer building materials on a time-payment plan. 1934, Mr. Brown assisted in formulating the National Housing Act including FHA (the Federal Housing Administration) which stimulated home construction, modernization and ownership. 1937, J-M established the 40-hour work week and additional wages for overtime before either was required by law.

In 1950 the appointment of Francis J. Wakem as Product Manager of Asbestos Textiles ushered in a period of more aggressive selling of these products on the part of J-M. In January 1946 Frank Wakem was promoted to Vice President for Merchandising of all industrial products, including asbestos textiles. In January 1956 he was appointed a Vice President of Johns-Manville Sales Corporation and General Manager of the newly formed Packing & Friction Materials Division, which again included responsibility for asbestos textiles. Frank Wakem was a staunch supporter of ATI. He served as its sixth President in 1955 and 1956 and represented J-M on the Institute's Board of Governors from about 1947 until failing health dictated his retirement in 1957.

In 1933 J-M relocated its headquarters to the new Johns-Manville Building at 22 East 40th Street, New York City.

In 1940 fifty sets of cards and 21 spinning mules were in use at Manville. Monthly asbestos textile production was about [illegible] pounds.

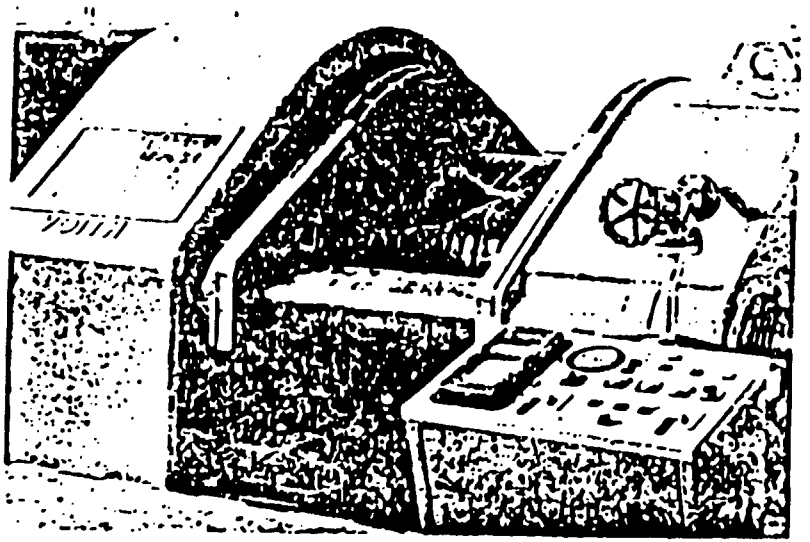
In 1941 J-M undertook operation of the Kansas Ordnance Plant. This was a shell-loading plant which eventually employed [illegible] people. Clinton B. Burnett was Plant Manager. Operations were discontinued by the Government in 1941.

On V. J. Day, May [illegible], 1945, the company roster of men and women in service totaled [illegible] people. Of these, 115 had died in the service of their Country.

In 1945 Louis R. Hoff was President of the J-M Sales Corporation. It was Roy Hoff who convinced the senior officials of the asbestos textile industry that the industry needed

Why destroy brand-new beautiful pipes ?

You know why and so do we!



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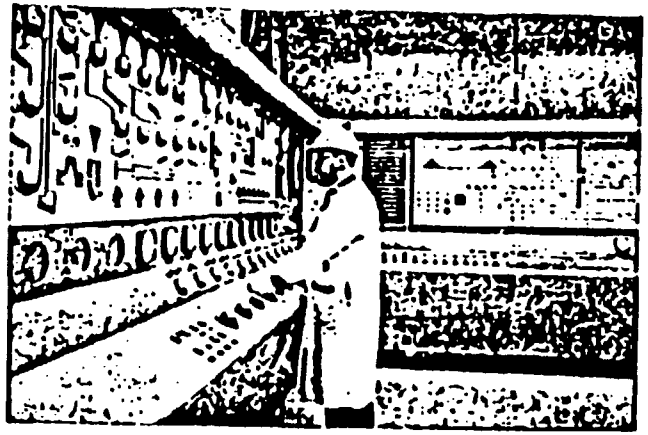
a trade association. This was a very considerable accomplishment in view of the bitter rivalries and animosities carried over from the depression years. Roy Holt was, to a very large extent, the father of the Asbestos Textile Institute, and a Charter Member of its Board of Governors. He retained his active interest in ATI even after his retirement from J-M in 1948.

Leslie M. Cassidy succeeded to the presidency of Johns-Manville in 1948. Upon the death of Lewis H. Brown in February 1951, Les Cassidy moved up to Chairman of the company and Adrian R. Fisher was elected President.

In 1951 construction was started on the largest asbestos fiber mill in the world at Jeffrey Mine, Asbestos, P.Q., Canada. Jeffrey Mine has been in operation since 1912 and is now the free world's largest asbestos mine. J-M also owns asbestos mines at Reeves Township, Ontario, and Coalinga, California. Additionally, J-M has a minority interest in an asbestos mine it operates at Baie Verte, Newfoundland (Advocate Mines Limited). All asbestos mining operations are under the supervision of Vice President Karl V. Lindell.

In January 1956 William S. Hough was appointed Product Manager for Asbestos Packings & Textiles. Bill Hough joined J-M in 1926 as a Research Chemist at the Manville plant. In 1929 he was transferred to a sales position. In 1936 he was appointed Staff Manager of Packings—Asbestos Textiles & Friction Materials, in 1943 to Manager of Aviation and Chemical Industries Sales, and from 1948 through 1955 he served as Chicago District Sales Manager. In 1963 Mr. Hough was instrumental in effecting the purchase by J-M of the Marshville, North Carolina, plant of the Union Asbestos & Rubber Company. Bill Hough served as President of ATI in 1961 and 1962. He retired from J-M in March 1967 and was succeeded by Roy M. Billings, General Marketing Manager, Packings and Textiles. (Bill Hough is currently Secretary-Treasurer of the Fluid Sealing Association, the former Mechanical Packing Association.)

In 1962 Edward A. Schuman joined J-M as Staff Manager for Asbestos Textiles under Steve Dillon. Ed Schuman deserves much of the credit for the development and expansion of the J-M line of asbestos textiles. In 1963 he was appointed Product Manager for Asbestos Textiles. He was



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It controls five floors of automated milling equipment. Closed circuit TV helps monitor the complex maze of milling circuits throughout the huge facility.

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Gold Bond
ASBESTOS FIBRES

for many years, an active member of ATI's Sales Promotion Committee. Mr. Schuman currently serves the industry as President of the Institute.

In 1957 Adrian R. Fisher was elected Chairman and President of Johns-Manville, succeeding Les Cassidy who retired due to ill health. Clinton B. Burnett was named Executive Vice President. Effective January 1, 1960, Mr. Burnett was elected President of J-M, the position he still holds.

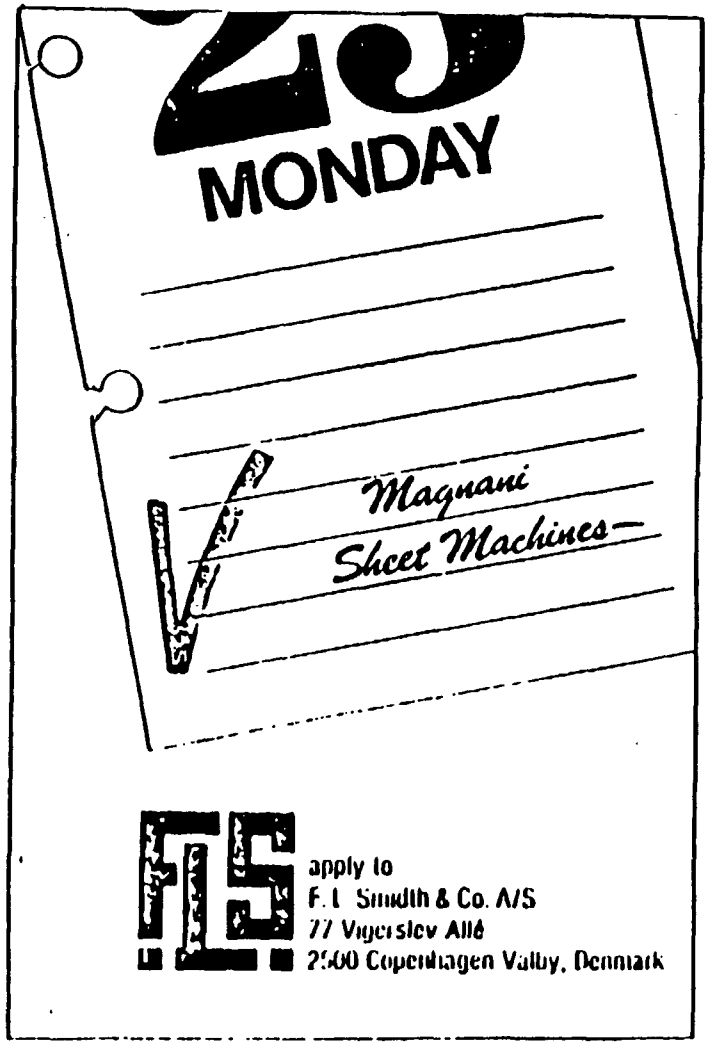
Most J-M veterans think of Phillip D. Cannon when they think of asbestos textile production at Manville. From the early 1920's through 1937 Phil Cannon was Manager of the asbestos textile mill and from 1938 to 1945 he managed the entire Manville factory. In 1946 he was elected a Vice President and supervised all J-M industrial products plants throughout the country. From 1956 through 1960 he was Vice President — Production of all plants in the Packing & Friction Materials Division.

From 1937 to 1957 Richard Jackson was Superintendent of the asbestos textile mill at Manville. He was succeeded by Walter C. Atkinson, a 1925 graduate of the Textile School of the Rhode Island School of Design. Walter Atkinson joined J-M in 1934 as overseer of spinning and twisting. He was for many years an active member of ATI's Air Hygiene & Manufacturing Committee.

In 1963 Edward H. Wells was appointed Vice President of the J-M Sales Corporation and General Manager of the Packing & Friction Materials Division. His responsibilities included the manufacture and sale of the complete J-M lines of asbestos textiles, packings and friction materials. Ed Wells retired in December 1968 and was succeeded by Henry B. Moreno as General Manager of the Division. Henry Moreno's current position at J-M is Corporate Assistant Vice President for the Industrial Division.

With 16 domestic manufacturing plants and annual sales in excess of a half billion dollars, Johns-Manville is today a very important factor in the national industrial economy.

Johns-Manville participates in almost every facet of the Asbestos Industry and is the largest producer of asbestos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based products in the United States. J-M research continually adds new and improved products to an already comprehensive line of products. It is progressive companies like J-M which enable the United States to lead the world in providing better products for the comfort and safety of all mankind.

Ensuing chapters of this "History of the Asbestos Textile Industry in the United States" will appear in future issues of ASBESTOS.

ASBESTOS is considering having reprints made either of individual chapters or of the complete series of articles in booklet form on "The History of the Asbestos Textile Industry in the United States." Knowing our readers' thoughts will enable us to determine the advisability of such an effort.

We would appreciate hearing from any of you who are interested in securing reprints of single chapters or complete booklets, including whether you would like only one copy or would order in bulk quantities.

NEW EMSI OFFICERS. At the annual meeting of the Friction Materials Standards Institute, Inc., held in June at Skytop Lodge in Pennsylvania, the following officers were elected for the year from July 1: President, Stephen S. Conway, Jr., Abex Corporation; Vice President, Joseph W. Greenen, Marmont Corporation; Treasurer, Allan F. Daly, Scandura, Inc.; and Secretary, Miss Harriet G. Duschek.

Other members of the Board of Directors are William Simon of Brasbestos Manufacturing Corporation, Frank T. Gates of Gates Corporation, James T. McGovern, Jr., of Raybestos Manhattan, Inc., John H. Kelly of the Krasne Division of Royal Industries, and Carl J. Weber of World Bestos Company, Division of The Firestone Tire & Rubber Company.

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter III: H. K. Porter Company, Russell Works

By John A. Bates, Jr.

As edited by the Staff of ASBESTOS

The Russell Manufacturing Company was a pioneer weaver of asbestos brake lining and asbestos clutch facings. Russell has earned a prominent place in the history of the asbestos textile industry. There are few American textile manufacturers with a longer record of continuous production.

The Russell family emigrated to America in 1639 and settled in Middletown, Connecticut. In 1678 Samuel Russell made a sizeable fortune in the early 1800's in the China Clipper trade. Together with Samuel D. Hubbard he founded Russell Manufacturing Company. The company was incorporated June 29, 1841. A mill was constructed on the banks of the Pamacha River. A water wheel furnished power to run the factory.

Right from the start Russell Mfg. Co. specialized in the weaving of narrow fabrics. Original products included harness web, molded leather and jute webbing. Over the years Russell has kept pace with the ever changing demand for narrow fabrics. Russell was for many years the nation's largest weaver of slide fastener (zipper) tape and of venetian blind tape.

Russell products contributed to victory in five wars. The list of products is much too comprehensive to enumerate in this brief resume. Russell cartridge belts were worn by soldiers in the Spanish American War. These belts had intricately woven cartridge loops. They were the granddaddies of the woven machine gun belts used during World War I. Russell were in excess of 22 million machine gun belts during World War II. The improved design of these cotton tapes enabled the Army to produce a lighter and more maneuverable weapon. The Russell cover for the famous Norden bomb sight was one of the most cleverly designed and fantastically complicated woven structures the writer has ever seen.

There are no records available to tell us precisely when Russell Mfg. Co. first started to weave brake lining tape

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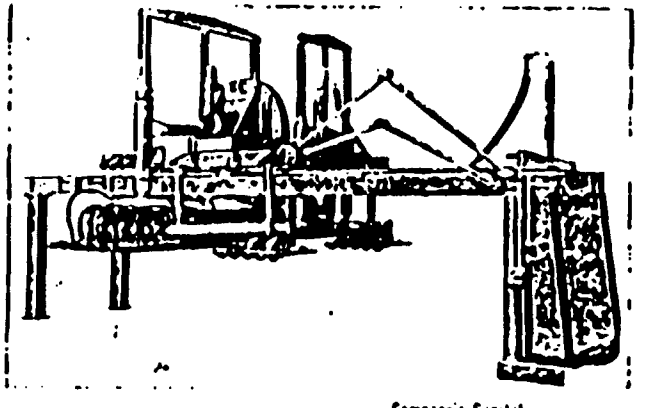

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from asbestos yarn. Shortly after the turn of the century, Rusco was sending brake lining tape to the Royal Equipment Company in Bridgeport, Connecticut, to be impregnated. As some of our readers may know, Royal Equipment Company was the original name of the Raybestos Company. It is uncertain whether these early types of brake lining tape were woven from cotton or asbestos yarns.

About 1905 Rusco set up to do its own impregnating. At about the same time Royal Equipment started to weave its own brake lining tape. These two pioneer companies thus became self-sufficient in their efforts to serve the needs of the rapidly developing automobile industry.

As has frequently happened in American industry, a company reaches a peak of manufacturing and sales efficiency and then starts to coast. The depression following the 1929 stock market crash found Rusco with an obsolete plant and heavy bank indebtedness. The company was forced into receivership in 1932. The need for new management was imperative. The management team of George Williams, Carl Sherer and Amor Smith came from the Marmon Motor Car Company to take charge. By 1936 they had succeeded in putting Rusco back on the track and in the black. By 1940, the year prior to the U.S. entry into World War II, Rusco sales had grown to $1,400,000. In the first year of the war, sales nearly doubled to $8,700,000. However in justice to the management triumvirate, it should be mentioned this remarkable growth in sales was not entirely the result of war demand for Rusco products. A program of modernization and new product development had added a wide variety of elastic fabrics, glass fabrics and endless cotton belts to the Rusco line.

No living Rusco veteran seems to recall when the company first started to spin asbestos yarn. Up until 1951 the asbestos yarn mill was located in the town of Rockfall, Connecticut. The Mill Superintendent was W. L. Truesdale (the father of W. H. Truesdale who was one of the Founders of Carolina Asbestos Company). In 1951 the receivers sold the Rockfall plant in order to conserve the capital assets of the company. For the next ten years Rusco was the world's largest buyer of asbestos metallic yarns. Raybestos Manhattan, Southern Asbestos, Carolina Asbestos and other mills actively competed for the business.

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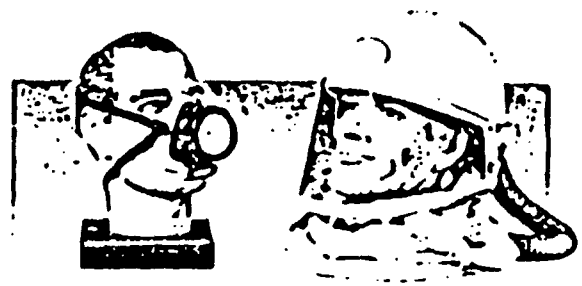
During World War II asbestos cloth became one of the most critical of all war shortage materials. The entire capacity of the industry was inadequate to meet the needs of the largest shipbuilding program in history. About 1941 or 1942 Mr. J. Franklin Burke started an asbestos spinning and weaving mill at Northfield, Vermont. The mill wove Navy specification asbestos cloths for the balance of World War II. At the conclusion of the war, in 1945, shipbuilding came to an abrupt halt. The J. Franklin Burke plant was left with no alternative market for its products. At about the same time, Mr. Burke died most unexpectedly. The mill was put up for sale by the administrators of his estate. Russell Mfg. Co. grasped the opportunity to again become self-sufficient in the manufacture of one of its basic raw materials, asbestos yarn. The Northfield plant was purchased by Rusco about 1945 and continued in operation until 1959.

In 1955 the company was again reorganized. Mr. Leslie R. Runton came from the Smith Carpet Company, Yonkers, New York, to accept the Presidency. He brought in R. W. Williams as Vice President. He also recruited Milton E. McCrosson, a 1925 graduate of the Philadelphia Textile Institute, as Manager of Textile Operations. In 1960 Milt McCrosson was elected a Vice President. Although his responsibilities did not include asbestos products, they are of interest to those of us in the textile industry. Old line products included a tremendous variety of cotton tapes and cotton belts. More recent products include a full line of woven glass tapes used in the electrical industry. Modern products include a patented, solid woven, cotton nylon conveyor belt used in coal mines. Drive tapes are currently furnished to computer manufacturers, photo copy machine manufacturers and the U. S. Post Office.

In 1951 Mr. H. Clifford Morton graduated from Wesleyan University with an M.S. in Chemistry. He immediately joined Rusco as a research chemist and served in that capacity until 1956. Cliff Morton left Rusco in 1956 to accept a position as Chief Chemist of Ferodo and Asbestos, Inc., at New Brunswick, New Jersey. The New Brunswick plant was at that time an important manufacturer of top-quality, woven brake lining. In 1945 Cliff Morton returned to Rusco as Director of Research. Soon afterward he was appointed Superintendent of Manufacturing and, in 1960, Vice Presi-



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dent of the Friction Materials Division.

Under Clif Monroe's supervision, the sale of brake lining and clutch facings exceeded the spinning capacity of the Northfield plant. Carolina Asbestos Company furnished most of the additional yarn requirements. Concurrently, the Russo plant at Bennettsville, South Carolina was standing idle. This plant had previously woven venetian blind tape, for which there was a greatly-reduced demand. In 1959 it was decided to transfer the asbestos carding and spinning equipment from Northfield to Bennettsville. This move proved a boon for expanding yarn production. About 1961 the asbestos tape looms and the glass tape looms were moved from Middletown to Bennettsville. The woven tapes still had to be returned to Middletown for treating and finishing.

During the years 1956 through 1963 Russo went through a period of reorganization, modernization and improved profitability. In 1963 the H. K. Porter Company was desirous of expanding its position in the friction materials industry. Porter already owned the Diamond Company and its several brands plants, including the Southern Asbestos Works at Charlotte, North Carolina. In 1963 Porter made its Russo management what was considered an attractive offer. The Board of Directors sold Russell Manufacturing Company to H. K. Porter Company, Inc., who promptly made Russo a part of the Diamond Division operations.

In many chapters of this "History of the Asbestos Textile Industry in the United States" will appear in future issues of ASBESTOS.

[illegible]

[illegible] "History of the Asbestos Textile Industry in the United States" by John A [illegible] Jr.

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter IV: Greene, Tweed and Company, including Asbestos Fibre Spinning Company

By John A Bolton Jr

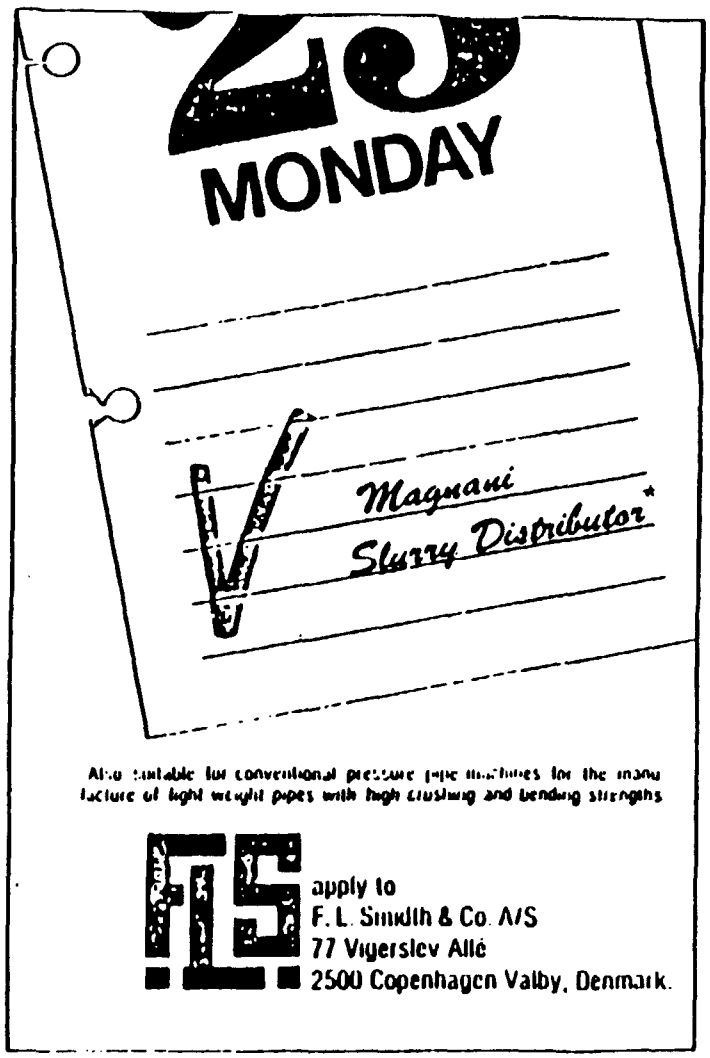
[illegible]

The Greene, Tweed story is excerpted from a fascinating little booklet published by the company and entitled "1865 1965 A Short Account of 100 Eventful Years." The reading of the commemorative booklet in its entirety is recommended to all members of the industry, especially those associated with the asbestos packing business.

The history of Greene, Tweed underscores the premise that "the steam engine was the father of the asbestos textile industry." The company was founded in New York City [illegible] 1865 not as a packing manufacturer but as a jobber of hardware and mill supplies. The original partners were J Ashton Greene, John W Greene and Henry A Tweed. The original location at 17 Murray Street was then, and still is, in the center of New York's wholesale hardware district.

The company's anniversary booklet points out that 1865 was not a propitious time to start a new business. The war between the States was in its second year and the tides of war were running against the Union. The atmosphere in New York was one of apprehension. The newly-formed company found the going rough until the great Union victory at Gettysburg in July 1863 restored the morale of the North. By the time the war ended on April 9, 1865, salesmen for Greene, Tweed were covering the entire industrial North. As soon as the war was over the aggressive G T sales force established sales distributors in all of the 36 States and 10 Territories which then comprised the Union.

By 1868 the company had expanded its general hardware line to include marine hardware and solid brass hand



were used by builders. Leather belting and harness were important lines of products. A company specialty was the white cotton fringe which decorated "the surrey with the fringe on top."

Of more immediate interest to our textile story was the development relationship between Greene, Tweed and the Manhattan Packing Manufacturing Company. The latter company was formed in 1872. Starting in 1873 Greene, Tweed became an important distributor of Manhattan packings. By 1880 Manhattan packings were a major portion of Greene, Tweed's mill supply business.

The most popular styles of packing in 1880 were square braided flax, cotton duck and rubber. The square-braided packings were lubricated by immersion in hot tallow. Naturally, the external surface was excessively lubricated while the center was inadequately lubricated. Manhattan claims credit for the first internally-lubricated cotton packing, surely a major improvement at the time. The next logical step was the development of "Palmetto" packing, a brand which was destined to make the company world-famous. The original Palmetto packing consisted of Sea Island cotton yarn, pre-lubricated with mineral oil and graphite and then braided.

In August, 1880 Greene, Tweed purchased the Manhattan Packing Manufacturing Co. It is therefore in order to say Greene, Tweed has been in the packing business since 1872, the year Manhattan was organized.

During the period just prior to 1900 steam packing manufacturers were seeking ways and means to cope with the ever increasing temperatures of the steam engine and other steam activated equipment. Several companies turned to asbestos yarns as the logical improvement over cotton or flax. Many of these early asbestos packings were inadequately lubricated resulting in scored piston rods and a bad image for asbestos packing. In general Palmetto packings can claim credit for having developed asbestos packings from their initial unpopularity. Greene, Tweed utilized its already developed process of pre-lubricating braiding yarns. The improved Palmetto packing was made using a hemp core and an outer jacket of asbestos yarn. As asbestos yarns became more

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available and lower in cost, the packing was braided entirely from prefabricated asbestos yarns. It was this construction which provided a long-lived resilient packing and built the Palmetto reputation for a quality product. It is interesting to note the Palmetto brand name was selected because the braided construction was thought to resemble the overlapping scales of bark on the trunk of the palmetto tree. At no time, however, did the palmetto tree contribute an integral part of Palmetto packings.

At this point we must depart from the Greene, Tweed story to record the establishment of the Asbestos Fibre Spinning Company (AFS) at North Wales, Pennsylvania. AFS was started in 1899 as a partnership, with the following officers: Christopher Huber, President; George Schafenacker, Vice President; and Dr. W. H. Huber, Secretary-Treasurer. Manufacturing operations started in 1899 with one set of cards and one mule. George Schafenacker had been in the woolen business from the time he was 12 years of age. He had charge of manufacturing. Dr. Huber devoted his time principally to sales. The business was incorporated in 1903.

In 1920 George Schafenacker died and his son, George Jr., took over as Vice President and General Manager.

By 1924 manufacturing facilities had been expanded to 16 sets of cards and related equipment. The mill specialized in asbestos fine yarns (finer than 20 cm) and was logically one of the earliest weavers of asbestos fine tapes for insulation of electric motor windings.

Green, Tweed purchased the major portion of its asbestos yarn requirements from AFS right from the start (1899). This was the beginning of a close association which eventually resulted, in 1945, in the consolidation of the two companies.

We now return to the Greene, Tweed story. In 1901 Henry S. Demarest left his position as Purchasing Agent for the Henry R. Worthington Company (now Worthington Corporation) to devote full time to the sale of Palmetto packings. Mr. Demarest was a salesman with a flair. About 1908 he purchased a Rolls Royce and called on the trade using his chauffeur driven car. His favorite sales pitch was

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to don a pair of coveralls and pack the pump of the most troublesome piece of equipment in the prospective customer's logs. Despite the flamboyant front, Mr. Demarest was a man of great ability. He was elected a member of the American Society of Mechanical Engineers even though he did not hold an engineering degree. During World War I he was a member of the Government-sponsored Hardware, Metals and Allied Trades Committee. After the war Poland conferred on Mr. Demarest the "Order of Polonia Restituta" for his effective efforts in promoting the cause of an independent Poland.

Henry Demarest was in large measure responsible for guiding Carey-Ewell through the latter depression following the 1929 crash. In 1932 he assumed the Presidency and directed Carey-Ewell for two of its most successful years. Mr. Demarest died in 1937.

In 1940 Carey-Ewell was sold by the Manufacturers' Trust Company, trustee for the estate of Henry Demarest, to Max Dellheim. Mr. Dellheim had recently arrived from Europe as a refugee from the Nazi occupation of Austria. He was a prominent industrialist and banker and had many years of experience in the textile industry. While he could handle spool English when he arrived, and knew nothing of the packing business, he recognized the promising potential of Carey-Ewell and purchased the business.

In June 1940 the company hired Walter S. Josephson as a sales engineer. He rose rapidly through the ranks and was named vice president in charge of sales. Next he was elected to the Board of Managers. Next he was elected to the Board of Managers. Next he was elected to the Board of Managers

World War II. The demand skyrocketed for asbestos textiles and almost everything made from asbestos yarn. Demand for Cabanto packings exceeded the capacity of the Bronx plant. In 1942 Mr. Oscar Trumbull came from the Asbestos Textile Company of North Brookfield, Massachusetts, to become General Manager of Greene, Tweed. By 1943 asbestos textiles had become a critical war material. In order to assure a continuing and dependable source of supply Greene, Tweed purchased the Asbestos Fibre Spinning Co. Oscar Trumbull moved to North Wales and assumed the active management of the asbestos textile mill.

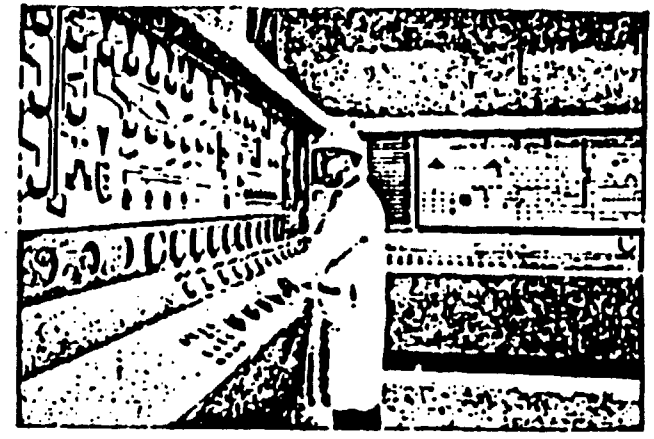
Following the war Greene, Tweed's need for asbestos textiles was greatly reduced. The equipment in the textile mill was largely obsolete and it would have required a considerable expenditure to modernize the plant. At the same time the packing business had outgrown the capacity of the Bronx plant. It was therefore decided to phase out the textile mill and move the Bronx operations to the considerably more spacious plant at North Wales. This was accomplished in 1946 and 1947.

When textile operations were discontinued at North Wales Oscar Trumbull returned to the Asbestos Textile Co. as Plant Manager.

Greene, Tweed is today an important manufacturer of asbestos packings and rubber packings. It all started back in 1939 when Greene, Tweed recognized the need for improving the heat resistance of cotton and jute packings. The talent of the asbestos textile industry, the hard working steam engine had once again created the requirements.

Don't Forget . . .

to let us know if you plan to reprint all "The History of the Asbestos Textile Industry in the United States," by John A. Feltes, Jr.



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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter V: Keasbey & Mattison Company

By John A. Bettes, Jr.

Associate, the Study of ASBESTOS

Recording the earliest history of Keasbey & Mattison Company is like writing the obituary of an old and respected friend. Keasbey & Mattison was sold, piecemeal, by Eaton & Newell Ltd. in 1962. Nevertheless, a history of the asbestos textile industry in the United States would not be complete without the K&M story. Keasbey & Mattison held second place in a highly competitive industry for a period of perhaps forty years.

It all began in 1873 when Henry G. Keasbey and Koch and V. Mattison, upon graduation from the Philadelphia College of Pharmacy, formed a partnership for the manufacture of pharmaceutical preparations and opened a modest laboratory at 532 North Front Street in Philadelphia, Penn.

Items One of their most important products was carbonate of magnesia made from imported kieserite.

A few years later the partners discovered they could extract a superior quality of basic magnesium carbonate from a high grade dolomite that was available in large quantities at Antelope, Pennsylvania. In 1882, Messrs. Keasbey and Mattison built their first plant at Antelope.

It should be remembered that during this period the use of steam power was developing at a prodigious rate creating a need for efficient thermal insulations. In 1882 Hiram Hamilton of Philadelphia, an independent insulation contractor, was impressed by the extremely light weight of magnesium carbonate which he saw being sold as a dry powder. He purchased some of the material, applied it like plaster to a steam boiler and found it to be an excellent heat insulation far superior to the plaster of Paris then in general use for this purpose. Hamilton obtained a patent on the use of magnesium carbonate as a thermal insulation and applied

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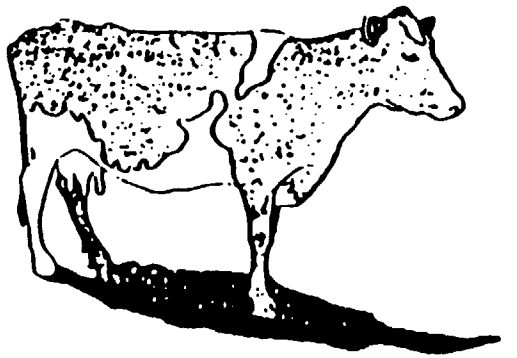

large quantities of the material on steam plants in the Philadelphia area. Dr. Mattison, curious to learn what was being done with the relatively large amounts of magnesia being purchased by Hammore, contacted him and, recognizing the value of the product, entered into an arrangement to manufacture and sell insulating materials in accordance with the Hammore patent. K&M modernized the manufacture of molded pipe covering and block insulation as well as magnesia cement. As a reinforcement for the brittle magnesium carbonate, Hammore had used shredded hemp which deteriorated rapidly at the temperatures encountered in service. It was Dr. Mattison who conceived the idea of using heat resisting asbestos fibres as the reinforcement and thus was born "85% Magnesia" insulation which was destined to become the standard high-temperature thermal insulation for many years to follow. The importance of these events can hardly be overestimated since they were directly responsible for K&M's subsequent growth into a leading manufacturer of asbestos-based products including asbestos textiles.

Although the new insulation proved a most profitable venture for the young associates, the partnership was not to last for long. In 1892 the business was incorporated and shortly thereafter Mr. Keasbey retired due to ill health. From that time on Dr. Mattison directed the affairs of the company.

The vast trading success of 85% Magnesia insulation encouraged Dr. Mattison to devote a major portion of his time to the development of other asbestos based products. By 1898 Keasbey & Mattison Co. had developed a line of asbestos textiles including roving, yarn, cord, cloth and tape.

A Textile Department was established in 1901 to manufacture high pressure packing from various combinations of asbestos textiles and rubber. Thus the company was in position to supply industry in general as well as the needs of its own plants.

Within a few years K&M was a major purchaser of asbestos fiber and sought to acquire its own source of supply for this basic commodity. The company acquired the Bell Mine at Thetford Mine, Quebec, Canada, then and now, one of the world's finest sources of asbestos spinning fiber. However, like most asbestos mines, the Bell Mine produces

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all grades of fiber from long spinning to short floats. As the new owner of this productive property, Keasbey & Mattison was faced with the challenge of developing new uses and new markets for the full range of asbestos fiber grades.

In due course asbestos paper, aircell pipe covering and millboard were added to the K&M line of products, followed by a line of asbestos-cement products including shingles, flat and corrugated sheets, water pipe and sewer pipe. However, these utilitarian product groups have no place in this "textile" story except as a demonstration of K&M's creativity and its historic place in the Asbestos Industry.

As stated before, the writer's contention is that although the steam engine is the father of the asbestos textile industry, the automobile is the maternal parent—and the K&M story supports this premise. As far back as 1900 K&M furnished cloth and tape for the manufacture of early types of friction products used by the horseless carriage. By 1909 K&M was merchandising its own woven asbestos brake lining under the "Autobestos" brand name.

In the years following World War I, K&M suffered from internal difficulties, gradually began to lose its distinction as an innovator and acquired the reputation of being a very reliable but backward member of the industry. During the bitter depression years of 1930-1931 when new construction was pretty much at a standstill, K&M was in acute financial trouble. Dr. Mattison lost control of the company to the creditor bank, and the business continued under a receivership headed by A. S. Blagden.

Although Mr. Blagden tried to sell K&M to several other members of the domestic asbestos industry, he was unsuccessful as the potential buyers already owned plants that were idle during those desperate years.

Finally, in 1933, Mr. Blagden announced the acquisition of controlling interest in K&M by Turner & Newall Ltd. of Manchester, England.

On October [illegible], 1933, under Turner & Newall ownership, Ernest Meckler was appointed President. He continued in that capacity until March 31, 1952. William C. Scott was named Treasurer. William S. Acult, Jr. was ap-

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pointed General Sales Manager and held that position until 1944. He was replaced by D. W. Widmayer. After 42 years with K&M, Mr. Widmayer retired on December 31, 1959, as Vice President, Director and Marketing Consultant. It was during the period 1953-1954 that Web Widmayer served two terms as President of the Asbestos Textile Institute. Bill Scott was the first Treasurer of ATI and served six consecutive terms as its financial guardian, 1945-1950. He retired from K&M in December, 1950, as Vice President and Director.

Soon after Turner & Newall took over K&M, the Brake Lining Department was moved to a new building in New Brunswick, New Jersey. The plant operated under the name of Ferodo and Asbestos, Inc., with Walter Dodge as President. "Ferodo" was then, and still is, a world famous brand name of the Turner & Newall organization. The business operated at New Brunswick for just a few years and then was moved to Montreal, Quebec, to become a part of Atlas Asbestos Company, another subsidiary of T&N.

It frequently happens in business that when a young executive has the courage to criticize his superiors he is told, "Let's see what you can do!" It was under these circumstances that A. F. Whitfield took charge of K&M's Textile Department in 1939. At that time the Textile Department handled a be-tos paper, millboard and packings, in addition to a complete line of asbestos textile products. During Andy Whitfield's 25 years as K&M's Textile Sales Manager, the Textile Department enjoyed an enviable reputation for quality products. K&M specialized in lightweight textile fabrics and was for many years the major weaver of .010"-.030" gauge decimal tapes.

We are indebted to Mr. Whitfield for a major portion of [illegible] & Martin's story. He was for many years a [illegible] supporter of ATI. He served on several committees including two terms as Chairman of the Sales Promotion Committee. He was [illegible] of the Institute in 1961 and 1962.

Shortly after assuming the Presidency of K&M, Ernest Muchleck started spending his vacations at Lake Winnipe

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the largest stockholder in that company, and thus exercised a continuous investment in America and only as part of a more complex business operation, but also as the capable development banking group whose interests are concentrated in this way. Keasbey & Mattison entered operations in 1892 and was subsequently wound up.

Thus came to an end a business founded in 1873, incorporated in 1892 and liquidated in 1962.

Dear Reader,

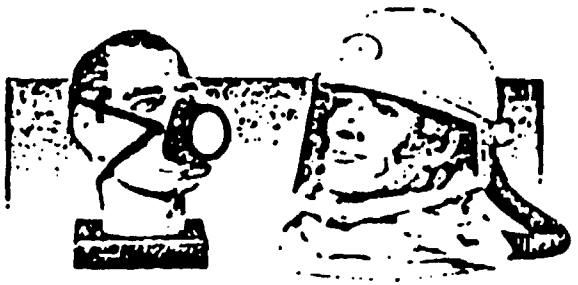
We have received your free copies of "The History of the Asbestos Textile Industry in the United States," by John A. Bates, Jr.

TURNER & NEWALL—GOLDEN JUBILEE

Turner & Newall Limited—The First Fifty Years has been published by T&N to commemorate its Golden Jubilee. The account tells of the formation of the firm in 1920 through the amalgamation of four established companies. As the title would suggest, it was then Turners pioneered the Company in 1825, that Turners Asbestos Cement was formed in 1903 and that Turners Asbestos Fabrics was established in 1913. Also portrayed is the importance of Turner Brothers Asbestos, TAC Construction Materials and the T&N Asbestos Fibre Laboratory.

T&N entered into the asbestos mining industry in 1911 and the two sections of T&N's interest in Canada Asbestos Corporation at the establishment of Jeffrey Canadian Asbestos Mine and at the development of Lake Asbestos Corporation at Black Lake in Quebec Province and the Bell Asbestos Mine at Havelock, Swaziland and the Bell Asbestos Mine at Msauli, Rhodesia.

Although T&N has diversified its manufacturing activities to include materials other than asbestos, asbestos still plays a vital part in the Group's activities. The final chapter of the T&N printed history looks to the future as the company anticipates the growth of markets for its many products.



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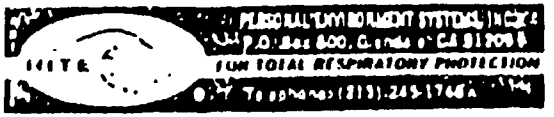

THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter VI: Garlock Incorporated

By: John A. Bettes, Jr.

As [illegible] by the Staff of ASBESTOS

Garlock Packing Company was established in September 1887 as a partnership of Olin J. Garlock, Frederick W. Griffith and Eugene Nichols. Founded in Palmyra, New York, on the banks of the old Erie Canal, the company began as a manufacturer of mechanical packings including asbestos packings.

In the early days Garlock obtained much of its business from the saw mills in the surrounding area. The mills used steam power and fed their boilers with the flashing from their own operations. This is just one more bit of evidence to support the contention "the steam engine is the father of the asbestos textile industry."

From a modest beginning Garlock grew steadily. The company was incorporated in 1905 and has paid a dividend to stockholders in every succeeding year.

In 1910 George E. Abbott graduated from Hamilton College and joined Garlock as Secretary to Fred Griffith, at that time Vice President and Treasurer of the firm. George Abbott rose rapidly through the ranks to become General Manager in 1926 and President in 1928. While he was not a founder of Garlock, it was his executive ability that guided the company through its earlier growth years to become a major factor in the industry.

In the development of Garlock, George Abbott had two principal associates. Cecil R. Hubbard joined Garlock in 1925. He was elected Vice President of Manufacturing in 1939 and served the company for 33 years. Robert M. Waples was the third member of George Abbott's management triumvirate. He joined Garlock in 1915 as a file clerk and telephone operator in the Philadelphia office. Following military service in World War I he returned to Garlock as a Sales Representative in the Baltimore district. In 1925 Bob

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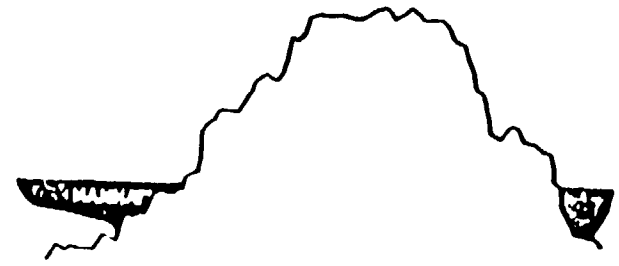

Waples was called to the home office at Palmyra as Manager of the Service Department. He was elected Secretary in 1929, Vice President in 1948, Executive Vice President in 1952 and President in 1955. At that time George Abbott stepped up to Chairman of the Board.

In order to secure additional capital necessary for further expansion, Garlock went public in 1929. The company's stock was first listed on the New York Stock Exchange in 1961.

As stated earlier in this chapter, from the very beginning Garlock was a manufacturer of steam packings including, of course, asbestos packings. In 1916 the company installed its own asbestos textile mill to spin the yarn needed for its braiders and to weave the cloth required for the manufacture of asbestos packings. For some years Garlock's output of asbestos textiles was confined to materials for use in its own end products and its entire output was consumed in making such products. It was not until 1961 that the company offered a limited line of asbestos textiles, principally asbestos cloth, for sale to the trade.

J. Donald Roe, Garlock's Manager of Public Relations, has aptly described the history of Garlock as divided into three phases: the era of the founders, the long growth period under George Abbott, and finally the present operations under President A. J. McMullen.

In 1955 Garlock purchased the U.S. Gasket Company, Camden, New Jersey, a pioneer in the manufacture of packing and seals made from fluorocarbons, an important new development at that time. Rick McMullen was President and principal executive officer of the subsidiary company.

In 1959 George Abbott retired. Bob Waples was elected Chairman and Rick McMullen was elected President of the parent company. This was the start of a reorganization program which has achieved phenomenal results. Garlock is today an international company with subsidiary companies in Canada, England, France, Japan and Mexico. In addition the firm has acquired ten domestic companies, none of which are manufacturers of asbestos textiles.

In the ten years under the Presidency of Rick McMullen, Garlock sales have increased from $33,[illegible] in 1959 to $61,780,000 in 1968. This remarkable growth record

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was achieved partially through the acquisition of domestic and foreign companies and also by expansion and development of traditional product lines.

When Rick McMullen became President of Garlock he retired G. Parry Wiess, a key member of his former staff at U.S. Gasket. Parry Wiess is currently a Vice President of Garlock and heads the Mechanical Products Division. Activities of this Division include the manufacture and sale of asbestos textiles and the majority of Garlock's packing materials. Parry Wiess serves the Industry as a member of the Asbestos Textile Institute and has been a member of its Board of Governors. Garlock, in fact, is well represented in Institute activities. Alexander Kuzmuk, President of the company's Mechanical Rubber Division, is the current Treasurer of ATI and G. Ellwood Houghton, until his recent retirement from Garlock, was an active member at ATI's Technical Committee.

Ellie Houghton, a veteran of the asbestos textile industry, joined Garlock in 1939 and was appointed Superintendent of the Textile Department in 1945. In 1959 he transferred to process engineering as Senior Engineer.

Garlock Inc. is today a highly diversified manufacturer, selling principally to other manufacturers. While the firm currently operates 11 plants in 13 cities, it does not fit the description of a "conglomerate." All of the many Garlock product lines have a cohesive bond, either through similar manufacturing facilities or via common fields of sales activity.

Next Issue . . . .

Chapter VII: General Asbestos & Rubber Company

Chapter VIII: The Raybestos Company

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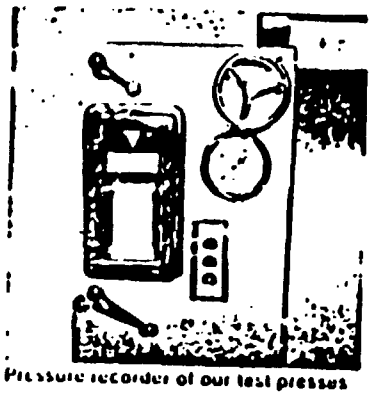

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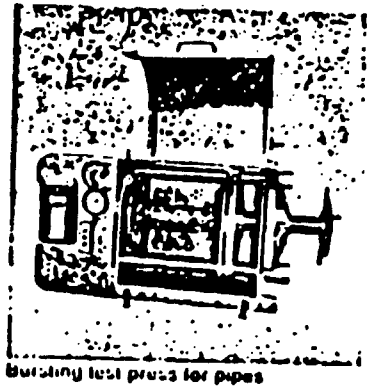
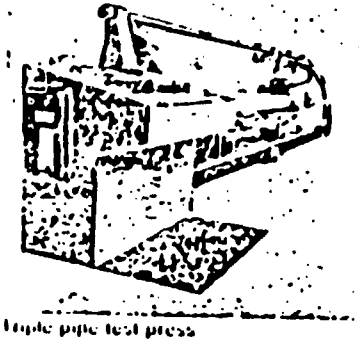


Bursting test press for pipes



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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter VII: General Asbestos & Rubber Company (now a division of Raybestos-Manhattan, Inc.)

by John A. [illegible], Jr.

[illegible]

The history of the General Asbestos & Rubber Company is a prime example of the premise that the steam engine is the father of the asbestos textile industry.

In the year 1901 there was in the City of Charleston, South Carolina, a busy industry known as the Charleston Iron Works. This company manufactured pumps and steam engines for the phosphate industry in South Carolina.

The predecessor company of General Asbestos & Rubber Company was the Charleston Metallic Packing Company. The founders were Samuel Hughes and George W. Williams. The State Charter issued July 18, 1905, described the firm as "manufacturers of steam, hydraulic and other packings used in the mechanical arts." Its original and primary account was the Charleston Iron Works.

The original factory was located on Cumberland Street near Meeting Street in downtown Charleston. The business grew steadily and it was recapitalized several times. Four additional downtown locations were used. By 1907 the management decided to produce its own asbestos yarn and cloth and Building #5 at Columbus and East Bay Streets was rented from the American Tobacco Company to house the original cards, spinning frames, twisters and looms.

On February 1, 1910, the Secretary of State authorized the change of the name of the firm to General Asbestos & Rubber Company. The new Charter was issued to C. Russell Jenkins, Sr., M. B. Barker, J. P. Thomas and W. E. Taylor, being a majority of the Board of Directors.

By 1911 the business had outgrown the five downtown locations and Lockwood Green was commissioned to build a new plant on the present site at North Charleston, adjacent to the Charleston Naval Shipyard.

On May 1, 1916 Samuel Hughes II, son of the original founder, joined the company as an engineer. He was largely responsible for the continuing development of the General line

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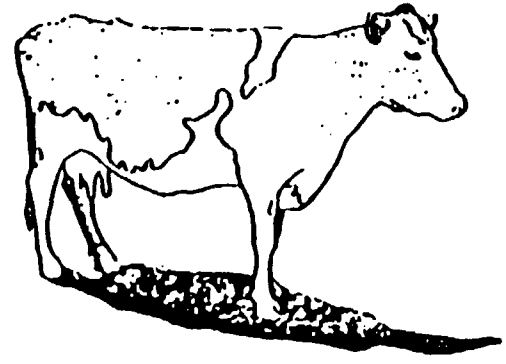
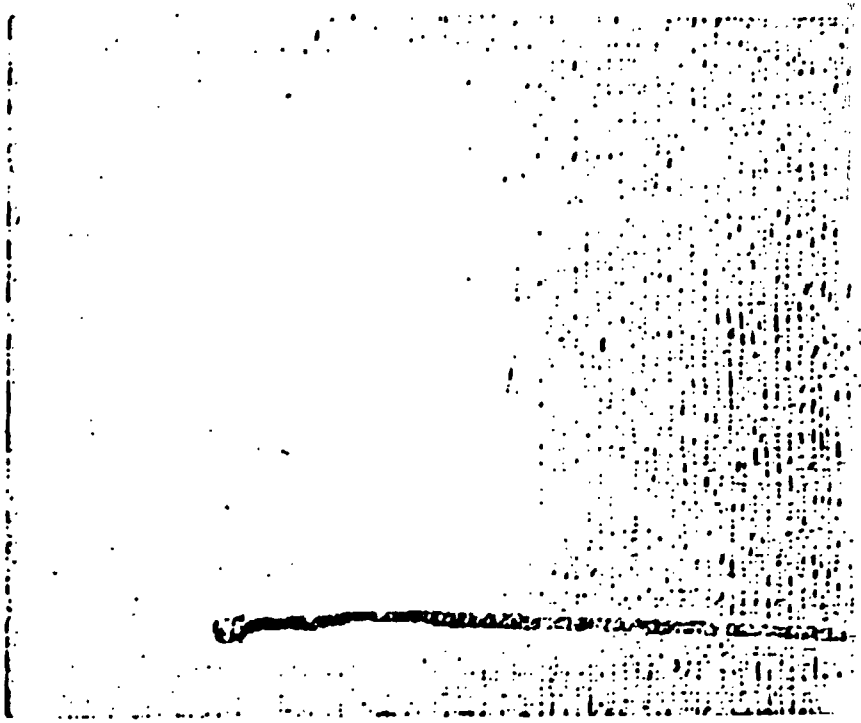


of perhaps the largest abrasive of the ever-changing needs of industry. Many Hagihara also invented numerous improvements in the manufacturing process and facilities. He served the client well for 41 years.

On October 1, 1922, Mont P. Hagihara joined Carter as a cost accountant and rose through the ranks to Assistant General Manager and later to General Manager of the plant. He was elected a Director of Raybestos-Manhattan, Inc. in 1956 and a Vice President of the corporation in 1961. M. Hagihara was much more than a Factory Manager to the town of North Charleston. He was a member of the School Board for many years and played a major position in the economic growth during the difficult days of World War II. The Charleston Naval Shipyard brought hundreds of people to North Charleston as temporary residents. The school system was expanded on a two-platoon basis with children attending classes either in the morning or in the afternoon. M. Hagihara also had a keen interest in vocational education. He was an athlete, a sports enthusiast and the Carter baseball team won several industrial league championships. In recognition of his years of service and leadership, the North Charleston High School stadium is named the "Mont P. Hagihara Stadium." M. Hagihara was for many years a factor in local politics and will be found time to serve on the Boards of the First National Bank and the South Carolina Electric & Gas Company. Over the years he made friends that came to build Carter Asbestos & Rubber into a major factor in the industry that did not exist when he died. His death on July 13, 1956, terminated his association with Carter after 45 years of service to the firm.

By 1921 Carter had become a major supplier of asbestos metallics yarns to the rapidly expanding brake lining industry. The Charleston mill was also an important supplier of impregnated brake lining tape. The Raybestos Company of Bridgeport, Connecticut, was a major customer. To insure a continuing source of supply for these essential components Raybestos purchased a controlling interest in Carter in 1921. In 1924 Raybestos purchased Mr. Jenkins' interest in the company and thus achieved complete ownership of Carter. Raybestos-Manhattan was incorporated July 5, 1929, combining U.S. Asbestos Company of Manheim, Pennsylvania, and the Manhattan Rubber Company of Passaic, New Jersey. Carter Asbestos automatically became a division of R-M.

Asbestos processes naturally or unnaturally.



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On January 1, 1930, George F. Ducker joined General as a cost clerk. He rose to cashier, then Comptroller, and on August 9, 1956, he was appointed General Manager of the General Asbestos & Rubber Division. The following year George Ducker was elected a Vice President of R/M.

On June 16, 1935, Joel W. Frampton joined General as a bookkeeper. He was paymaster during the hectic days of World War II and was transferred to the Sales Department in 1945. Joel Frampton is well known in the trade as Southern District Manager of the Asbestos Textile Division. He is recognized in local art circles as a talented painter in oils.

In 1952 extensive facilities were added to the plant for the manufacture of the giant, rubber covered rolls used in the paper industry. Facilities were also added for rubber *tanks, pipes and tanks used in the paper and chemical industries.* While these operations have no direct relation to asbestos textile manufacture they are very much a part of the complex manufacturing operations known as the General Asbestos & Rubber Division.

In 1939 Frederick Hughes, grandson of the founder of General Asbestos & Rubber, graduated from Clemson University and entered Garco's employ as a laboratory technician. In December 1941 Fred Hughes joined the U.S. Army Transportation Corps as a 2nd Lieutenant. After the war Major Hughes returned to the company and currently manages the Sales Service Department. Colonel Hughes has devoted his entire career to the Army and to the company founded by his grandfather in 1895.

In May 1941 Marion W. Oliver joined General as a clerk in the Supply Department. That same year he joined the U.S. Army and advanced to the rank of Captain. He returned to Charleston in 1946 to work in the research laboratories and later in the control laboratory. He was appointed Factory Manager in 1961 and Assistant General Manager in 1967. Marion Oliver has long been active in the affairs of the Asbestos Textile Institute.

In July 1942 Ernest W. Heinsohn joined Garco as a time study clerk. He was appointed Production Manager in August 1945, Assistant Factory Manager in May 1951, and Works Manager in October 1961. In addition Ernest personally supervised the Revolute Department. This department resin impregnates asbestos cloth and converts the resinated

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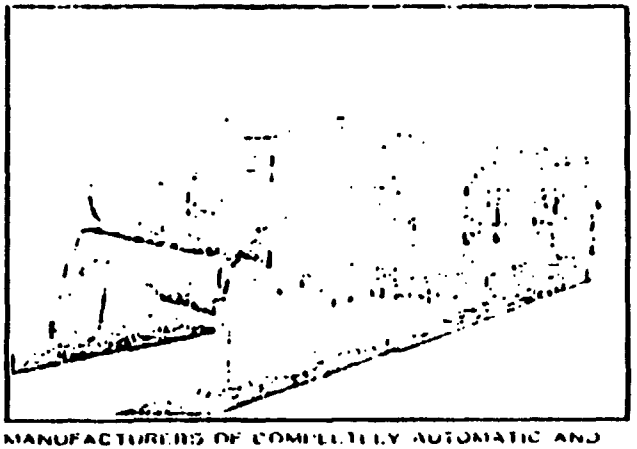
November 25, 1942, was a proud day at Charleston. Here was the first Admiral Wm. F. Halsey presented the Army-Navy "E" Award to the General Tire & Rubber Division for "excellence of production". It was the first Army-Navy "E" earned by any R.M.A. plant and one of the earliest to be presented in the Charleston area. The Honorable J. Mendel Rivers was Master of Ceremonies. Mr. Rivers had been a member of the U.S. Congress for 10 years. He represents South Carolina and he presented the Navy Record Ceremony, December 8, 1942. The Navy awarded the "E" for the energy we produced and the Navy Yard had added to the excellence.

The record of Samcoa participation in World War II proved invaluable at North Charleston. The needs of the Navy Yard expanded from a facility to produce 50 tons of cable cement each month to a maximum of 250 tons during 1944. Obviously it was necessary for the Yard to draw heavily from local industries in order to enable the vessels expanded role. The result of the situation was that a major portion of Samcoa production during the war years went directly into the Navy's vast shipbuilding program. The Charleston facility was called on to set the then current Navy specifications for many cables. In 1943 cable production totalled 2,000,000 lbs., of which about 70% was used in Navy specifications cable. In the same year the Charleston facility also produced 2,000,000 lbs. of Navy specification cable fillers. The impregnated cable was used to provide uniformity of cross section in lapped cable in the same manner that jute cord is used in ordinary power cable.

Despite these seemingly large Navy commitments Charleston was never able to cope with the backlog of demand of the Navy Shipbuilding program in its busy Magnesia days. Shortages prevented most departments from operating more than two shifts. Many departments operated 110 hours weekly on two 55 hour shifts. Hundreds of Samcoa people worked a regular 10 hour day plus 5 hours on Saturday as their

asbestos cement products





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personal contributions to the war effort.

During most of World War II, textiles were under heavy allocation by the War Production Board. Earlier, Manhattan utilities were seriously concerned over what they could do at war's end to provide employment for the war-pooled work force. Fortunately, the customers got up-to-the-minute textile products, kept the mill busy during the post-war period. Many employees who had accepted jobs in the mill as a wartime obligation chose to remain as permanent workers. The transition from a war economy to a modern economy was made less painful than had been suspected, and the General Tire and Rubber Company was able to continue its progress and operation under the most modern economical conditions.

In June 1941, John W. Hawkins graduated from Lowell Textile Institute and immediately joined the research staff at North Charleston. During the war years, he was engrossed in the substitution of various synthetic fibers for cotton fibers in numerous industrial fabrics. The new combinations of fibers provided improved physical properties to the fabric, such as greater strength and heat resistance. Numerous coated cloths were developed under John Hawkins' direction, to enhance the appearance and/or the wear resistance of asbestos fabrics.

Under Mr. Hawkins, as Director of Textile Research, the Division developed a new line of extruded asbestos yarns identified by the NOVATEX® brand name and a line of fabrics woven from this yarn and also known as NOVATEX®. Both yarns recently have been introduced. Such fabrics have an ash content of 90 lbs./sq. yd. which has the strengths higher than those of conventional asbestos fabrics of twice their weight per square yard as well as improved thermal characteristics and exceptional resistance to high temperatures.

Here we have an example of a company that was a pioneer in the asbestos textile business which survived the vicissitudes of two great wars and the depression of the 1930's and, albeit under a different name, is still contributing heavily to the technological advancement of a modern era.

Next Issue . . . .

Chapter VIII The Raybestos Company

Chapter IX Mitchell Brothers Company

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter VIII: The Raybestos Company

(now a division of Raybestos-Manhattan, Inc.)

By John A. Bettes, Jr.

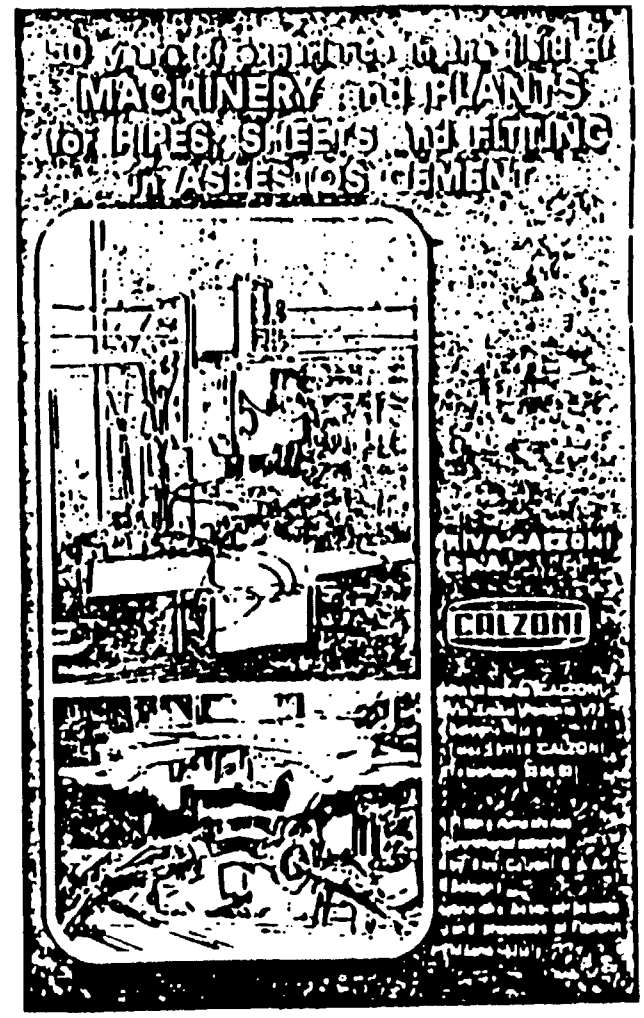
[illegible] by the Staff of ASBESTOS

In writing the history of asbestos textiles it will be established that the development of asbestos packings for steam engines constituted the start of the industry. This basic demand was soon followed by a need for heat resistant friction materials. The history and development of The Raybestos Company is, therefore, very much a part of the history of the asbestos textile industry in the United States.

The immediate predecessor of The Raybestos Company was the Royal Equipment Company of Bridgeport, Connecticut, founded in December 1900. Royal's predecessor was the A. H. Raymond Company, started in January 1902. Royal Equipment was originally a manufacturer of automotive brakes rather than brake lining. Mr. Raymond is credited with having developed the wrap-around brake band, i.e., the external contracting brake. U.S. Patent #691,785 was issued November 29, 1901, to Mr. Raymond and described a steel band over a steel drum.

Early model brake bands were unlined, steel against steel. They over-heated, grabbed and screeched- but they stopped the automobile. It was in an effort to overcome these deficiencies that brake bands were first lined. Numerous organic materials such as cotton duck, leather and camel's hair belting were tried as brake lining, but as might be expected all such materials deteriorated rapidly from excessive heat.

It is probable that in 1905 the first solid woven, multiply asbestos tape used in the United States as brake lining was woven on Keasbey & Mattison's looms on order from the Royal Equipment Co. The tape was woven using brass wire-



invented asbestos yarns, a major improvement at the time, but it wore out at an unsatisfactory rate and absorbed oil, water and grime. Royal Equipment next developed oil and water-resistant binders for the asbestos metallic tape. This was the best seal brake lining tape as we understand the term today. As a matter of fact, it was the only such material on the market for several years. (It is interesting to note, however, that the earliest well-substantiated use of asbestos as a lining for brake bands is a patent granted March 27, 1897, to Robert Hutchings of Grosvenor Chambers, Bournemouth, England.)

"Raybestos," a contraction of Raymond and asbestos, was adopted as a trade name in 1907. Royal Equipment purchased its first four-spoke brake lining loom from Schaum & Uhlinger (now the Fletcher Works) on June 19, 1909.

In 1909 Sumner Simpson joined the company as an accountant. He was elected President and General Manager in 1911 and was largely responsible for the formation of Raybestos Manhattan, Inc. He was elected the first President of R-M in 1929 and served as Chairman of the Board from 1948-1953. Mr. Simpson passed away June 13, 1953.

Royal Equipment moved in 1912 to a substantially larger plant at Bridgeport. An enlarged weaving department produced woven brake linings for cars and trucks, woven clutch facings, and woven cotton lining for Ford transmission bands.

In 1915 Robert B. Davis joined the company as a salesman and rose steadily through the ranks to become General Manager of The Raybestos Co. He was elected a Vice President of Raybestos-Manhattan, Inc., in 1929.

The business outgrew the Bridgeport plant and in 1916 a new factory was built in the neighboring town of Stratford for the manufacture of asbestos wet machine products (millboard) and compressed asbestos sheet packing. The company name was changed that same year to The Raybestos Company. Around this time, during World War I, Raybestos wove tremendous footages of olive drab webbing on its brake band looms for the U.S. Army.

In October 1920 Raybestos purchased an Arizona asbestos mine (the Sierra Ancha property) from the American Gem & Asbestos Company, Globe, Arizona. Also in 1920 Raybestos established Canadian Raybestos Limited at Peterborough, Ontario, Canada.

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In 1922, in partnership with Bell's United Asbestos Co. Ltd., London, England (now a member of the Turner & Newall organization), The Raybestos Co formed Raybestos-Belmo Limited to distribute Raybestos products in Europe.

Raybestos purchased General Asbestos & Rubber Company, of North Charleston, South Carolina, in 1924.

In April 1925 James L. McGovern, Jr., joined the Raybestos sales team under Sales Manager Morton F. Judd. Mort Judd subsequently moved up to General Manager and was succeeded as Sales Manager by Dale Davis, a dynamic man who led the Raybestos team to a commanding position in the automotive after market replacement parts field. In 1945 Jim McGovern took over as Sales Manager and headed the Raybestos replacement sales team for 23 years until his retirement in 1968. He achieved one of the largest and most successful sales administrations in the history of the friction materials industry.

Starting in 1907 and continuing until 1930 the weaving operations were transferred from Bridgeport, Connecticut, to North Charleston, South Carolina, and to Manheim, Pennsylvania. The departments that remained at Bridgeport concerned with molded brake linings and molded clutch facings were moved to Stratford, Connecticut, in 1950.

Mr. William S. Simpson, son of the former President, joined R. M. in 1939. He served in various sales and marketing capacities and as Director of Personnel and was elected Secretary and a Director in 1948. In 1951 Mr. Simpson was named General Manager of the Raybestos Division and a Vice President of the corporation and in 1965 he became President, succeeding John F. D. Rohrbach.

In 1941 Raybestos commenced the manufacture of sintered metal products including clutch facings for automatic transmissions and for heavy earthmoving equipment.

During World War II the Raybestos Division produced parts for airplanes, anti-aircraft guns, tanks, jeeps, trucks, motorcycles, PT boats and submarines.

The Raybestos Division continues today as an important supplier of woven asbestos brake lining, brake blocks and clutch facings despite the fact that a major portion of the friction materials now in use are of the molded type.

Chapter IX: Mikesell Brothers Company

There are not many people left in the asbestos textile industry who can remember the Mikesell Brothers Company as a competitor. The President of the company for many years was Harry S. Mikesell, with Neal Mikesell as Sales Manager and Daniel Mikesell in charge of Manufacturing.

The Perfection Tire & Rubber Company, with plants at Fort Madison, Iowa, and Wabash, Indiana, was the predecessor company. Perfection made "balloon" automobile tires prior to the time automobile tires had treads. In those early years (1905-1910) automobile tires had a "smooth" construction of several layers of rubberized cotton duck. Tires of this construction were not very reliable and a motorist did not expect to take a trip of any great length without having to change a couple of flats."

Perfection Tire & Rubber was among the first to realize that tire failure was caused in part by heat. The firm, therefore, made tires using an open weave asbestos fabric weighing one pound per square yard. This pioneer development is all the more intriguing considering the current success of glass yarns in the automobile tire industry.

The textile mill at Wabash made a specialty of burlap cloth. This is a jute fabric, similar to burlap bagging, used to seal off the opening of mine shafts not currently in use. Dan Mikesell made a business of selling burlap cloth to the hundreds of soft coal mines in Southern Illinois and Indiana.

Mikesell Brothers Co. were originally jobbers in Chicago, Illinois, and handled the Perfection Tire & Rubber Co. line. Mikesell Brothers took over the textile mill at Wabash in 1930.

Arthur R. Barnes was employed as a salesman by Mikesell Brothers about 1921. In later years he was in charge of textile and packing sales for the Union Asbestos & Rubber Company. We are indebted to Art Barnes for this story on the Mikesell Brothers Co.

Although Mikesell Brothers Co. went into the hands of a receiver late in 1925, the firm contributed materially to the growth of the asbestos textile industry in the United States. The company is credited with an important industry first—weaving an asbestos herringbone cloth using 18 cut, 2 ply

yarns in both warp and filling. Art Byrnes sold the fabric to all the asbestos safety garment manufacturers in the Chicago area. This fabric became the quality standard of the safety garment industry and it was soon duplicated by all other asbestos textile mills serving the safety garment trade.

The Plant Manager at Wabash was Richard J. Evans. This is the same Dick Evans who in later years ran the Asbestos Manufacturing Company's plant at Huntington, Indiana. AMICO was founded by the Thermoid Company and became a part of H. K. Porter Company, Inc., when Porter purchased Thermoid in 1955.

Next Issue . . .

Chapter X United States Asbestos Company

ON THE PHILIPPINES, where warding off the scorching heat of the sun from the interior of buildings is a perennial problem, fresh approaches to the question of sun-shading devices have come to the fore. *Asbestos-cement sun baffles* have gained unprecedented popularity as light, flexible, economical and effective sun deflectors. They have proved to be highly durable and particularly adaptable to tropical conditions.

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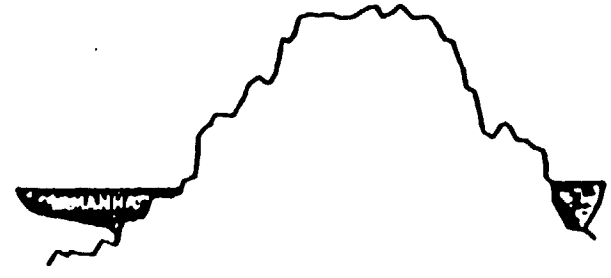

THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter X: United States Asbestos Company (now a division of Raybestos-Manhattan, Inc.)

By: John A. Bettes, Jr.

As edited by the Staff of ASBESTOS

The United States Asbestos Company was incorporated August 24, 1906, with an authorized capital stock of $60,000. The company was founded in Manheim, Pennsylvania by eight local businessmen who constituted the Board of Directors. It is interesting to note that no direct descendant of any of these families continued for long in the management of the company. George H. Danner was the first President and Chester Hill came from Keasbey & Mattison Company to supply manufacturing know-how.

Products made by the original mill included asbestos yarn, cloth, brake lining tape and listing tapes. Several styles of high pressure packing (cloth roll-up) were produced by hand. Rubber coating the asbestos cloth was accomplished in a simple dip tank containing a solution of latex and gasoline and after passing through squeeze rolls the rubberized fabric was laid out on long tables to air dry. The ever present danger of fire was an accepted hazard.

The business grew rapidly from the start, constantly requiring additional capital funds. In 1910 the company was reorganized with a paid in capital of $[illegible]. S. R. Zimmerman assumed the Presidency at that time and Chester Hill was appointed Vice President and General Manager.

In 1911 fire severely damaged the original wooden factory building. It was replaced with a 120 foot x [illegible] foot brick building and the following year a two-story, 100 foot x 200-foot brick building was added. These were the original units of a plant which now comprises over [illegible] square feet of floor space. By 1914 a milestone was passed when employment exceeded 200 people. Present employment averages above 1000 people.

In 1919 B. Weber Lautenberger returned from service in World War I to take charge of the card room at Manheim. He rose through the ranks to Textile Superintendent, Factory Manager and finally Works Manager of the entire U.S.

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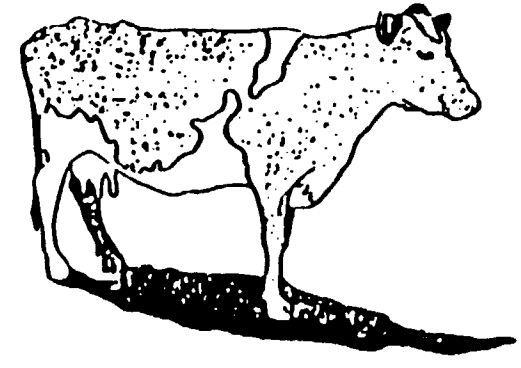

Asbestos Division. Web Luttenberger served several terms as Chairman of the Air Hygiene & Manufacturing Committee of the Asbestos Textile Institute.

In March 1920 Osborn Hewes Cilley was engaged as Plant Superintendent. He came from C. G. Sargent & Sons Company, a manufacturer of textile machinery. In 1928 "O. H." Cilley was made Assistant General Manager and in 1931 he became a Director of Raybestos-Manhattan, Inc. In 1947 he was elected a Vice President of the corporation. His manufacturing and executive ability was in large measure responsible for the continuous growth and very successful operation of the U.S. Asbestos Division over a period of more than 30 years.

In November 1921 the company was again recapitalized and reorganized. Chester Hill left the firm and Samuel R. Slaymaker came in as General Manager. Mr. Slaymaker was also President of the family owned Slaymaker Lock Company, Lancaster, Pennsylvania. At the same time, George R. Weber joined the organization as Treasurer. On December 1, 1921, he was also elected General Manager and retained that position until his death in 1953. George Weber represented R/M at the organizational meeting of the Asbestos Textile Institute, November 16, 1944. He also represented his company during the preliminary discussions which resulted in the formation of the asbestos textile industry's trade association and therefore was one of the founders of ATI.

In 1923 Rudolph Wilde joined U.S. Asbestos as Textile Superintendent. He had had considerable experience in processing Crocidolite and Amosite asbestos fibers. Under Rudy Wilde's direction a small and separate manufacturing operation was set up to produce turbine blankets, principally for the U.S. Navy. The unit was commonly referred to around town as "the blue."

When Rudy Wilde joined U.S. Asbestos he brought with him his Card Room Foreman, Herbert L. Palm. Herb Palm progressed in the organization to Textile Superintendent, then to Factory Manager and at the time of his death was Works Manager. Herb Palm served two terms as Chairman of ATI's Air Hygiene & Manufacturing Committee.

One of U.S. Asbestos Company's earliest major accounts was the Manhattan Rubber Company of Passaic, New Jersey. U.S. Asbestos sold Manhattan large tonnages of open weave

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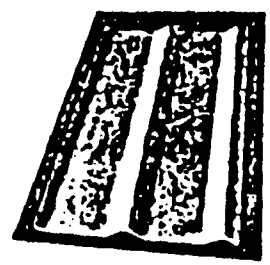

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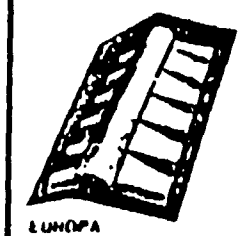

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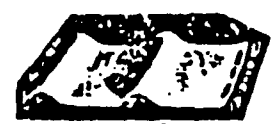

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asbestos-metallic cloth for conversion into folded and compressed brake lining. HYCO brake lining consisted of impregnated asbestos cloth, folded to the desired width and thickness, then stitched, and finally cured. This was a popular style of brake lining, prior to 1926, when automobiles had external contracting brakes on the rear wheels only.

U S Asbestos Co also sold tremendous quantities of impregnated brake lining tape to the Raybestos Company at Bridgeport Connecticut. Raybestos was simultaneously purchasing large tonnages of impregnated brake lining tape and large tonnages of asbestos yarn from General Asbestos and Rubber Company, North Charleston, South Carolina. These three well established buyer-seller relationships were largely instrumental in the formation of Raybestos Manhattan Inc. in 1929. The four mills—U S Asbestos, Manhattan Rubber, Raybestos and General Asbestos—comprised the foundation of Raybestos Manhattan Inc.

Prior to 1926 U S Asbestos sold "private brand" brake lining to almost any wholesaler who could purchase in adequate quantity. Numerous branding wheels were carried in stock for product identification. In 1926 the company decided it would be more advantageous to offer a full line of brake linings and clutch facings under its own brand name and the "Cave-Rock" brand name was selected. A small sales organization was established under Sales Manager Paul Jean, to sell Cave Rock brake lining to jobbing jobbers in almost all major marketing areas. Carl Sachs was Marketing Manager. The year 1929 saw the introduction of "Cave Rock Cycle" brake lining woven from protected yarns—an important improvement at that time. In 1932 Franklin Miller took over as Sales Manager. Together, he and Carl Sachs built Cave Rock into a major factor in the automotive after-market.

In June 1932 S R Zimmerman, Jr. graduated from the Stevens School at Yale University. In September he joined U S Asbestos Corporation as engineer working in the mill and in the Development Laboratories. In 1937 he was appointed Assistant Sales Manager of the Original Equipment Department. In 1945 he was appointed Director of Research for Friction Materials for the entire corporation. Mr Zimmerman was appointed Assistant General Manager of the U S Asbestos Division in 1953, Vice President of R/M in 1955 and General Manager of the Division in 1965. He had been Executive Vice President of the corporation since 1967.

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and was elected Chairman of the Board in April 1970. He retired as Chairman effective January 1, 1971. Mr. Zimmerman is presently a Director of Raybestos-Manhattan, Inc., Raybestos-Manhattan (Canada) Ltd. and Cassiar Asbestos Corporation Ltd.

During the early 1930's General Electric Company operated an insulated-wire plant in the neighboring town of York, Pennsylvania. Especially the U.S. Asbestos Co. furnished the major portion of the asbestos requirements of this wire mill. The Plant Manager at the time was E. H. Lewis, who later went to Ed Lewis was President of Western Insulated Wire Company, Los Angeles, California. He conceived the idea of *weaving* wire by *blowing* asbestos directly on to the wire. This, of course, eliminated the two costly steps of producing asbestos *roving* and then serving the roving on to wire. Ed Lewis presented his idea to Web Luttenberger who devised the *machine* to accomplish the desired results using a standard 50 inch asbestos card. It was immediately recognized this was a *means of thinning* rocks with a sledge hammer. The next step was to take the little Davis & Furber 10 inch wool sample card and *convert it to a machine* for carding asbestos directly on to wire. The refinement of these procedures resulted in the Lewis-Luttenberger U.S. Patent #1,920,537, issued February 3, 1933. A concurrent development was the manufacture of an asbestos tape to cover the *small* DAF card. Web Luttenberger used 250 grit sheets from a standard 50 inch asbestos card and *fed the sheets through a* 16 ply doubler.

A blessed relief to a tortured day was the recorded fact an *average* of *twenty years* 750 to 900 cranes per year flew over the area. It became the standard method of tipping asbestos to wire. Practically every wire mill in the United States and Canada uses the Lewis-Luttenberger method of applying asbestos to wire. The importance of this invention is best measured by the success reached by the asbestos textile industries alone. The low cost process helped to lead a textile revival that grew to national proportions. The introduction of composites in coating materials. The fire proofing provided a low cost means of making the basic insulating products safe for today's Computing world. I have not been able to research the explosive at comparable cost.

The year 1933 saw the development of one of the company's *most* successful products and a major move for us in the decade. The Vertical shaft fanner is made from tempered asbestos *cement* in the shape of a cone. The shaft is slip into narrow

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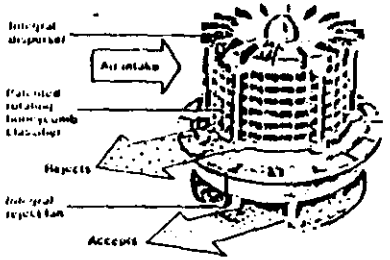

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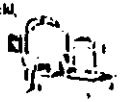

BAUER

ribbons which in turn are wound into pads having roughly the same inner and outer diameters as the finished clutch facing. A patented feature of the process (U.S. Patent #2,006,692 October 29, 1935) calls for creasing the ribbon as it is wound so as to provide a "Chevron" cross-section. The wound pad is then hot-pressed and finally surface-ground to its final dimensions. The interlocking Chevron construction provides a facing having exceptionally long wear and the greatest spin strength (burst strength) of any clutch facing construction. The U.S. Asbestos Division has furnished literally millions of Ver-Lock clutch facings to automobile manufacturers and to the replacement trade during the past 30 years. It is still one of U.S.'s major products.

Now to return to the story of U.S. Asbestos. The Raybestos Company purchased Central Asbestos & Rubber in 1924 in order to have an assured source of asbestos metallic yarns. Central also sold a full line of asbestos packing through jobbers under the Garco brand name. Similar lines of products were manufactured by the U.S. Asbestos Co. When Raybestos-Manhattan was formed in 1927 the two competing mills became a part of the same corporate family. Nevertheless, the competitive relationship was permitted to continue until 1935. In this year the Board of Directors decided it would be more efficient to have one Sales Division for all brake lining and asbestos packing for both mills. George W. Marshall Jr. was appointed General Manager of the Industrial Sales Division. In later years George Marshall became a Vice President of the corporation. He served as the second President of the Asbestos Textile Institute in 1937 and 1938.

The Industrial Sales Division proved highly successful right from the start. George Marshall soon recognized the need for additional help and in January 1937 he hired Nathan W. Pusher as New York District Manager. In September 1941 Mr. Pusher went to Washington D.C. to head the Asbestos Section of the Coal and Fibrous Oils Division of the War Production Board. He served in this capacity until April 1942 when he was given a commission in the U.S. Air Force. After the war Captain Pusher returned to Manhattan as Assistant Sales Manager of the Asbestos Textile Division. He served two terms as Chairman of the Sales Promotion Committee of ATI.

By July 1937 George Marshall decided he needed a new sales engineer to promote and develop the company's full line

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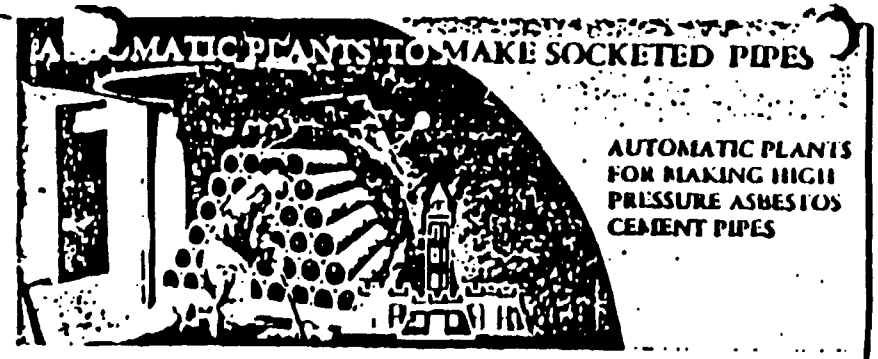
of asbestos textile products. John A. Bettes, Jr., a graduate of the Philadelphia Textile Institute, was hired as Textile Sales Manager. Together he and Art Bystrom organized a team of specialty salesmen which led the industry in textile sales volume. Jack Bettes served as the seventh President of the Asbestos Textile Institute in 1957 and 1958. Ill health dictated his early retirement in 1966. At that time he was Manager of the Asbestos Textile Division.

In 1960 the Asbestos Textile Division issued the most comprehensive catalog of asbestos textile products ever published by any member of the industry. Jesse M. Weaver was the principal author of this volume, reflecting more than 30 years of experience in the industry. Jesse Weaver served several terms as Chairman of the Technical Committee of ATI and was for many years a mainstay of the industry's trade association.

In 1960 the U.S. Asbestos Division began marketing the line of Perpex asbestos felts. These felts are of a type commonly referred to in the textile industry as "non-woven." Perpex felts are furnished in all of the ASTM Grades from Underwriters' up to and including Grade AAAA. They have been used for years as standard base materials by practically all manufacturers of built-up and plastic laminates. Starting in 1961 a suitable felt was developed for Grade AAAA Perpex felt. It was found to be an ideal material in combination with heat resistant phenolic resin for the molding of gaskets and other components.

In 1941 John A. Bettes, Jr. was loaned by Keasbey & Mattison to the Cook Asbestos and Johns-Manville Division of the War Production Board. During this service he was in close association with Art Bystrom and with George Marshall. George Marshall spent 2 days a week at his Washington office during the latter part of World War II. In 1942 Jack Bettes was given a commission in the U.S. Air Force and was ordered to report for work in Washington D.C. At the conclusion of the war Major Bettes was appointed Philadelphia District Manager of the Asbestos Textile & Packing Division of K-M. In 1952 he was promoted to Assistant Sales Manager of the Asbestos Textile Division. When Jack Bettes retired in 1966 Jack Brown headed the Department as Sales Manager. He is currently Product Manager for Asbestos Textiles, U.S. Asbestos Division. Jack Brown served ATI as Chairman of the Sales Promotion Committee in 1961 and 1962 and as President of the Institute in 1965 and 1966.



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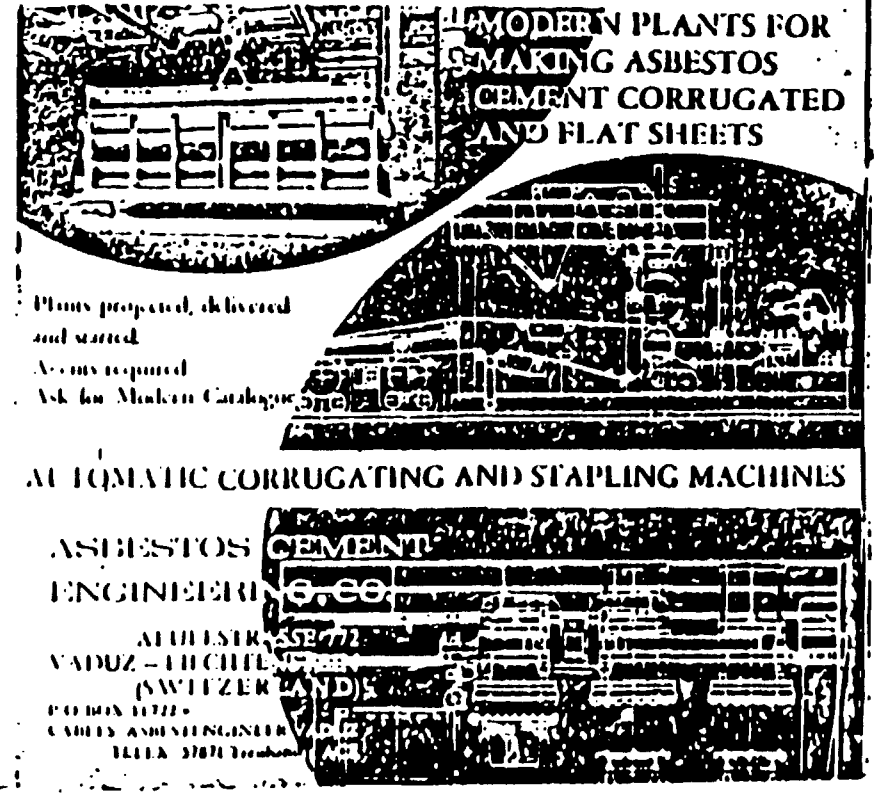

February 4, 1944 was a proud day at Manheim On this day the Army-Navy "E" (for Excellence) award was presented to the Division At stated intervals the war record of each recipient of an Army-Navy "E" was reviewed If the record was unsatisfactory, the pennant was withdrawn; if satisfactory, a star was added to the flag The U S Asbestos Division earned three additional stars during World War II

It will be of interest to our readers to know what war products won the foregoing recognition for the Division Textile products included tape, roving and cable fillers used in stranded cable Several styles of Navy lagging cloths were woven in substantial yardage The Friction Materials Department wove brake lining for passenger cars jeeps and trucks Heavy duty woven brake blocks controlled the tracks of the famous Sherman tanks The Packing Division furnished 101 different items used in a wide variety of war equipment including special packings furnished to "The Manhattan Project" the code name for the then secret development of the atomic bomb

In 1937 Malcolm G Stowell graduated from the Textile School of the Rhode Island School of Design He immediately joined the Asbestos Textile Division of K W Muth as a New England salesman under District Manager Thomas Otis Cobb In 1938 Walt Stowell succeeded Tom Baker as New York and New England District Manager In 1940 he joined the head quarters staff as Assistant Sales Manager and in February 1947 was promoted to Sales Manager of the Asbestos Textile Division Walt Stowell served as Chairman of the Sales Promotion Committee of ATI in 1948 and 1949 and is currently Vice President of the Institute and a member of the Board of Governors

In 1955 the Textile Division of Atlas Powder Company in Dover was merged with the K W Muth textile account Manufacturing activities at the Dover plant which Textile inherited on the split of the two companies included cotton and asbestos yarns and cords for industrial and commercial purposes North Carolina was the site of the cotton fabrics which Atlas terminated and converted to roll goods In 1955 K W purchased the Textile Division from Atlas William V Muth continued to run the Division as Sales Manager W J MacLall moved up to Sales Manager when Bill Muth retired in 1962

Promptly on graduation from the Philadelphia College of Textiles and Science in June 1953, James C Williams joined the U S Asbestos Division as a textile technician In May 1956 he was promoted to Textile Superintendent and in

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October 1969 was transferred to Marshville, North Carolina, as Plant Superintendent of the newly-acquired asbestos textile manufacturing facility. He served as a member of the ATI Fiber Testing Committee from 1957 to 1963 and was Chairman of the Air Hygiene & Manufacturing Committee in 1964 and 1965.

In 1959 Joseph P. Wronski joined the laboratory staff at Manheim as Head of the Physics Section. Joe Wronski had just completed three years with the Atomic Power Division of Westinghouse Electric Corporation. This was the Department created to develop the atomic reactor that powers the NAUTILUS type submarines. Joe Wronski served as Chairman of the Fiber Testing Committee of ATI in 1965 and 1966.

Until September 1970 the U.S. Asbestos Division was under the supervision of the then General Manager, Dr. Eugene P. Steff. Doc Steff graduated from Franklin & Marshall College in 1942 with a B.S. Degree in Chemistry. He was elected a member of Phi Beta Kappa. He earned his Ph.D. at the University of Pittsburgh in 1946. Dr. Steff entered the employ of the Division as Head of the Chemistry Section of the Manheim laboratories under Director Robert L. Moore. In 1953 he was promoted to Assistant Director of Research, in 1960 to Assistant General Manager, and to General Manager in 1967. He was elected a Vice President of the corporation in 1968 and Group Vice President of Operations in 1970.

The Division is currently under the direction of Kenneth A. Gamer. He joined the laboratory staff at Manheim in 1949 as a chemical engineer. For many years Ken specialized in quality control. His expertise in this field materially contributed to the successful manufacture of rocket and missile components based on R. M. Pyrotex, the non woven asbestos felt. In 1966 he was appointed Product Manager of Friction Materials. Promotions followed in rapid succession and in September 1969 Ken Gamer was named General Manager.

In common with all members of the asbestos textile industry, the U.S. Asbestos Division manufactures products essential to the industrial economy. Most of these products are based on asbestos. In recent years the Division has broadened its activities and is now heavily engaged in plastics, notably fluorocarbons. The basic importance of these products to the overall industrial economy assures a steady growth in partnership with American industry.

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XI: American Asbestos Company
American Asbestos Textile Corporation

By John A. Bettes, Jr.

As edited by the Staff of ASBESTOS

In recording the history of American Asbestos Company and American Asbestos Textile Corporation it should first be made clear that the latter company is not a direct descendent of the former, even though they successively occupied the same buildings at Norristown, Pennsylvania.

The original American Asbestos Co. was organized July 21, 1909 by J. Gillmur Tyson. He had the financial support of several local businessmen, including his father-in-law, W. L. Jacoby and Isaac C. Weber. The first officers included Mr. Jacoby as President, Mr. Weber as Treasurer and Mr. Tyson as General Manager. In 1911 and 1916, respectively, Mr. Jacoby and Mr. Weber withdrew from the company, leaving Gillmur Tyson as the only original member of the firm.

Gill Tyson served his apprenticeship in the industry under Harry Everham, who was at that time Secretary of Keasbey & Mattison Company. When Gill Tyson left K&M to found the American Asbestos Co. he took with him several K&M employees including Jesse Zearfoss, who became Factory Superintendent of the company. It would, therefore, be fair to say that American was an offshoot of K&M.

It is interesting to note that the main manufacturing building at Norristown was originally the car barns of the local trolley company. Trolley cars in those days were drawn by horses and were commonly referred to as "horse cars."

American Asbestos Co. was originally and primarily a manufacturer of asbestos packings. This again confirms the premise that "the steam engine is the father of the asbestos textile industry." The company soon installed asbestos carding, spinning and weaving equipment in order to produce its own base requirements for asbestos textiles.

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It should be recalled that in 1909 the automobile had just emerged from the days of the horseless carriage. Calhoun Tyson was quick to recognize the growth potential in the automotive industry and was in a favorable position to undertake the manufacture of woven asbestos brake lining, under the brand name of "TexTherTos."

In 1915 J. Carroll Johnston joined American as a salesman. According to Mr. Johnston, by 1915 the firm's principal sales effort was in woven brake lining and woven clutch facings and the packing line was rather neglected.

Mr. Johnston moved up to Assistant General Manager in 1916 and served in that capacity until 1922. In that year he resigned to found the Atlas Asbestos Company in Northampton, Pa. The business soon outgrew the original quarters and in 1924 moved to the present location at North Wales, Pa. Atlas was also a weaver of brake lining tapes. In addition it specialized in asbestos fire tapes (fill, cord gaskets and for many years has been a major weaver of so-called thermal tapes. In more recent years Atlas also has been an important weaver of the glass tapes used in the electrical industry and of asbestos and glass-core webbing.

The war years 1941-1945 saw a greatly expanded demand for asbestos textile products of all kinds, necessitating a substantial addition to the original American Asbestos Corp. plant at Norristown.

In 1940 J. Calhoun Tyson, Jr., joined the company as Assistant Treasurer. He succeeded his father as head of the firm in 1947. Very little is known of the operations of the company in the period between World War I and World War II. The second world war created an unprecedented demand for asbestos textiles. Mr. Tyson saw an opportunity to dispose of the company which had been operating with modest profits since 1919, during this period of peak demand. He sold the plant to the Philadelphia Asbestos Company, Norristown, PA 1942.

In the 1950's Tyson once more returned to the picture and revived the founding of a thermal insulation contractor which is still very much a going concern.

In 1921 Edmund K. Faulkner, Jr., was Philadelphia District Manager for Keasbey & Mattison Co. On October 21 of that year he founded the Philadelphia Asbestos Co. with the

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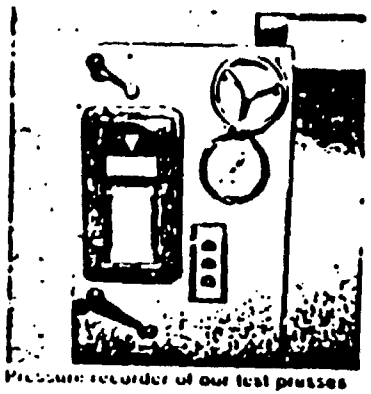

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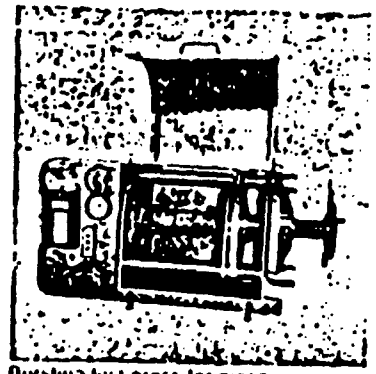
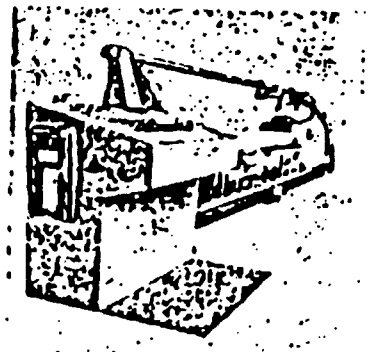
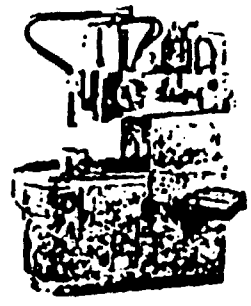


Bursting test press for pipes



Triple pipe test press



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backing of John J. Lucy and John Davis. Ed Tedmon was President right from the start. The company, then as now, was an insulation contractor specializing in marine applications.

World War II saw the nation embarked on the greatest shipbuilding schedule in the history of the maritime industry. Two of the largest shipyards in the Philadelphia area were the New York Shipbuilding Company, Camden, New Jersey, and the Sun Shipbuilding & Dry Dock Company, Chester, Pa. Philadelphia Asbestos Co. was the major shipboard insulation contractor for both of these war expanded shipyards. As a matter of fact, Philadelphia Asbestos had its own warehouses and assembly areas on the premises of both of these shipyards.

During World War II asbestos cloth was used as lagging over thermal insulations by the shipbuilding industry much as it is today. Philadelphia Asbestos' requirements for asbestos cloth increased by leaps and bounds and the company found it difficult if not impossible, to obtain adequate supplies from its established suppliers most of whom were also competitors. In desperation Ed Tedmon decided to purchase the plant of the American Asbestos Co. at Norristown, Pa. even though he fully realized it was not a depreciable asset at the present. In November 1942 the Norristown plant became a part of Philadelphia Asbestos Corporation.

The new company was operated by Anthony J. Scanlan, Vice-President and head of the Sales Department and John W. Weber, Vice President. Ark Scanlan served as Treasurer of the Asbestos Textile Institute in 1953 and 1954 and as Vice President in 1955 and 1956. He was better known to the general public as head football coach at Holy Cross College, Worcester, Massachusetts.

John Weber had been selected to rebuild and re-equip the Norristown plant because of his intimate knowledge of textile equipment and processes. He is a naturally inventive type of man whose ideas, coming and good ideas were essential to the success of textile operations. Without good, modern, high speed machines, carding and spinning, twisting and weaving and finishing, it would be impossible to obtain Mr. Weber soon had the mill in commercially good condition to weave asbestos cloth to meet U. S. Navy and Coast Guard specifications. John Weber is currently Chairman of the Board and Chief

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Executive Officer of American Asbestos Textile Corporation

Following World War II the shipbuilding industry came to a standstill. Philadelphia Asbestos had to turn to industry in general to keep the Norristown plant in operation. By 1950 it became apparent the textile mill would have to operate as a separate entity if it were to successfully compete in the general market. American Asbestos Textile Corporation was formed October 23, 1950. Ank Scanlan continued as President until his death, February 13, 1965. Shortly thereafter, John Weber was elected President.

In 1962 Joseph W. Christenbury came from the Southern Asbestos Works of H. K. Porter Company to head American's Textile Sales Department. He assembled a team of asbestos textile salesmen and succeeded in keeping the Norristown plant operating at near capacity. Joe Christenbury is now Vice President in charge of Sales. He is also active in ATI and currently serves as a member of the Board of Governors and the Asbestos Advisory Committee.

By 1962 Turner & Newall Limited had decided to liquidate the venerable Keasbey & Mattison Co. K&M's asbestos textile mill was located at Meredith, New Hampshire, at the southern end of beautiful Lake Winnipesaukee. American contracted to purchase the textile mill. In so doing they acquired the able services of John L. Ramey, Andrew Whitfield, D. F. Quealy and numerous other men with experience in the asbestos textile industry.

In 1957 Michael J. Scanlan, son of the President, joined the company. After serving his apprenticeship in the Norristown office, Mike was assigned to the Chicago territory as a salesman. He currently serves the company as Vice President and Treasurer at Norristown headquarters.

The year 1962 also saw American Asbestos Textile embark on its first foreign venture. An affiliate company, also a manufacturer of asbestos textiles, was formed in Tolmo, Mexico. Known as Hilados Y Tejidos de Asbesto, S.A.

In 1967 John Ramey arrived at the Norristown headquarters as Vice President of the corporation. He was elected Executive Vice President in 1968 and President in 1970. He served as President of the Asbestos Textile Institute in 1967 and 1968. Dan Quealy became Superintendent of the Meredith plant. He served several terms as Chairman of ATI's

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Technical Committee

In 1968 American further expanded its asbestos textile operations by starting up a new plant in the neighboring town of Milford Square, Pa. The new plant is primarily a spinning mill and is unique in several respects. It has an ultra modern system for removing asbestos dust from the air in the working areas. The spinning equipment is of the latest type and produces unusually large yarn packages at very high spindle speeds.

Today, American Asbestos Textile Corporation is a dynamic company growing steadily and serving a broad segment of American industry.

Next Issue . . .

Chapter XII: Standard Brake Lining Co.
Chapter XIII: Asbestos Textile Co.

THE COVER

Beginning with this issue, a photograph will be printed on each front cover of ASBESTOS. In the series of illustrations, we will endeavor to cover many facets of the Asbestos Industry such as mining and milling operations, manufacturing facilities, dust control techniques, grading, testing and research methods, various applications of asbestos fiber and asbestos based products, etc.

This issue's front cover is a view of National Gypsum Company's asbestos operation at Thetford Mines, Quebec, Canada. Does National Gypsum believe in the value and effectiveness of its product? Indeed it does! All of the buildings at the asbestos operation are covered with Gold Bond corrugated asbestos cement panels, including the 5-story mill (left) and the 10,000 ton rock storage building (right). And National is its own biggest customer for its middle Grades of fiber—for use in the manufacture of asbestos cement building products. With three plants, National is the largest U.S. producer of asbestos cement siding, flat sheets, plain and prefinished panels, and corrugated panels.



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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XII: Standard Brake Lining Company

By John A. Bettes, Jr.

As edited by the Staff of ASBESTOS

This multi-million dollar company was founded in 1913 at Gleasondale, Massachusetts, by Charles W. Hanslip and his two brothers, Arthur and Joseph. The original capitalization was less than one thousand dollars. By 1920 Charles Hanslip had acquired control of the firm.

The plant wove and impregnated large sizes of industrial brake lining. The principal use for the giant asbestos metallic tapes is to line brake bands on oil-well rigs. Common sizes run as large as 10" wide x 1¼" thick, up to 12" wide x 1½" thick. These are external contracting brakes similar to those used on the rear wheels of most American-made automobiles and trucks up to about 1925.

During the years before World War II Standco purchased its yarn requirements from several asbestos textile manufacturers, principally from Carolina Asbestos Company at Davidson, North Carolina, and from Southern Asbestos Company at Charlotte, North Carolina. Charles Hanslip was sufficiently foresighted to realize that asbestos textiles would become a critically scarce commodity in the event of a prolonged war. In preparation, he began to install asbestos carding and spinning equipment in his weaving mill at Houston, Texas. Starting with one set of cards the Department grew to eleven sets. Whitin L frames were used for spinning. The Texas location had the advantage of being close to the market for the product but it proved a difficult area in which to start up a textile mill. At that time there was not a pool of experienced textile workers from which to draw. Each employee had to be taught his or her job.

There is a second and quite separate Department at Houston which provides a unique service to the oil-well industry. Standco produces giant sized cap screws and hexagon nuts which are milled from solid bar on oversized lathes. Standard bolt sizes run ½" to 6" in diameter and up to 30" in

Asbestos down on the farm.

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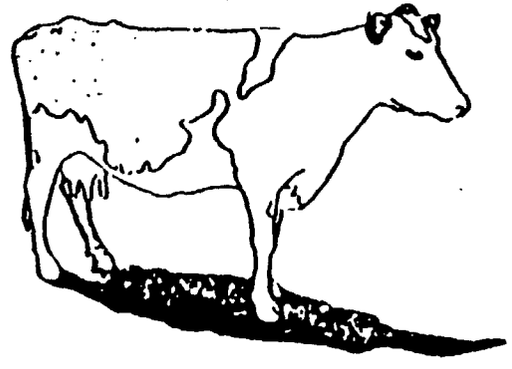


length, with gargantuan-sized nuts to match.

The company experienced a bonanza during World War II. On orders from the War Production Board, Standco's looms operated 24 hours per day and wove nothing but oil-well brake lining. Petroleum fueled the American war machine and Standco brake lining was essential to the operation of most wells.

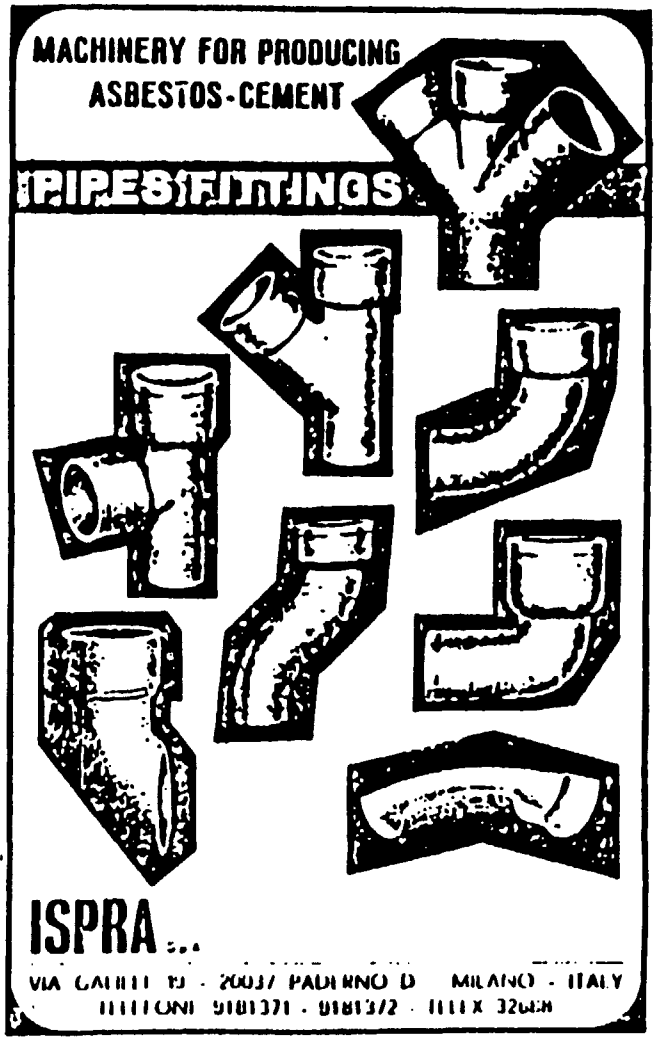
By 1940 the "Standco" brand name had become the well-known company identification and the name of the firm was changed to Standco Brake Lining Company. In 1954 the name was again changed—to Standco Industries, Inc.—in recognition of the company's diversified activities.

The officers of Standco in 1965 included C. W. Hanslip as President and Chairman, James M. Dunn as Executive Vice President, R. V. Hanslip (son of the President) as Vice President and B. Q. Stephens as Secretary-Treasurer.

In 1966 cloth looms were added to the Textile Department and George Griswold was engaged to promote the sale of asbestos cloth and tape to the industrial trade. [Mr. Griswold is now Project Manager for Nicotex, Inc., a subsidiary of Nicolet Industries, Inc.]

In 1968, at the age of 77, Charles Hanslip decided to retire. He sold the company to a group of investors headed by Alfred J. Simmons, President of Plymouth Plastics Company, Sheboygan, Wisconsin. Robert Hanslip left the firm shortly thereafter. The present officers are Alfred Simmons, President and Chairman of the Board; Foster W. Irish, Vice Chairman; Joseph A. Hitchner, Executive Vice President; George M. Johnson, Vice President and Treasurer; Marian Clemmons, Vice President-Fasteners and Assistant Secretary; James Dunn, Vice President-Friction Materials; Cora Simmons, Secretary, and Gordon M. Munson, Controller.

Under Vice President Jim Dunn, a warehouse distributor chain has been established in most major oil fields. Standco was providing brake band exchange service to the on-producing industry long before the practice became standard in the automotive industry. The success of the Standco organization is based on its woven and molded brake blocks that are tailor-made for oil-well service. Standco brake blocks have assisted in the drilling of every well over 20,000 feet deep on the North American continent and, in fact, are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currently in operation in Oklahoma, at the world's deepest projected well (28,000 feet).

Chapter XIII: Asbestos Textile Company, Inc. (Division of the Gatke Corporation)

The Asbestos Textile Company is one of the oldest asbestos textile manufacturers in the United States. Arnold Koehler, after disposing of his family-owned brewery, founded the company in 1915. The original mill at Reynoldsville, Pennsylvania, was operated by Harry and Max Greenblatt. Principal products were asbestos roving, yarn, cloth and tape.

Edwin Waite and Rudolph L. R. Wilde were associated with the Asbestos Textile Company prior to 1917 but in that year they resigned to form the Waite-Wilde Asbestos Company at Framingham, Massachusetts.

In 1920 the mill was moved to its present location at North Brookfield, Massachusetts. At that time Massachusetts was a center of textile mill activity.

Herbert Walker came to this country from England in 1922 to set up and operate a compressed Asbestos Sheet Department. About 1925 he and William Forbes left Asbestos Textile to found the Allpax Company at Mamaroneck, New York. This veteran packing manufacturer is still in operation.

Oscar Trumbull joined Asbestos Textile Company in 1927 as Plant Manager. He had been with Belmont Packing Company. Five years later, in 1932, he was appointed General Manager and held that position until 1936. In October 1936 he left Asbestos Textile and went with Crane Packing Company. From 1939-1940 Mr. Trumbull was with Ray-Bestos-Manhattan, Inc., at Manheim, Pennsylvania. From 1942-1947 he was associated with Greene, Tweed & Company at North Wales, Pennsylvania. He returned to North Brookfield in 1947 and ran the mill until his retirement in 1958.

Thomas Gatke purchased the Asbestos Textile Company in 1952 and the mill has operated as a Division of the Gatke Corporation since that time. Under Gatke management the line of products manufactured at North Brookfield was enlarged with the addition of molded brake lining for passenger

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cuts, brake blocks for trucks and buses and oil well brake lining.

Herbert B. Smithers had a short tour of duty with Asbestos Textile Company. He served as Factory Manager from October 1939 until March 1941. (The reader of this history of a small industry will no doubt be impressed with the constant interchange of personnel between the various companies comprising the industry.)

Frank P. Cutler was employed at the North Brookfield plant from 1937 to 1947. Under his supervision the company installed a modern dust collecting system. It is believed to be the first system which removed airborne dust from the mill as well as maintaining a constant and adequate supply of moisture in the plant.

During World War II the Asbestos Textile Company wove several million feet of .5" x .015" asbestos tape for the New England Tape Company of Hudson, Massachusetts. New England Tape impregnated the asbestos fabric with a water and flame-resistant compound. The impregnated tape was then used to wire and cable manufacturers in the construction of shipboard cable. Specifically, the asbestos fabric was spirally wound over the insulated and paired conductors so as to form the heart of fire wall or Navy specification cables.

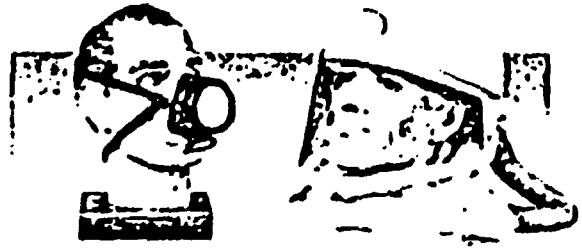
During the years of American participation in World War II the production of the asbestos textile industry was under tight allocations by the War Production Board. At the Textile Company hundreds of pounds of asbestos yarn went to the wire and cable industry for use as a component of shipboard cable. Navy asbestos cloth was used in the Essex and the Forrestal Naval Shipyards as thermal insulation. Navy sheet packing found its way into a variety of steam applications.

In Spite of the Heavy Demands for Asbestos Textiles for the Production of Textile Components and Military Equipment

The Asbestos Textile Company has continued to produce asbestos packing and various materials to be manufactured as part of the components. Next time ....

Next Issue ....

Chapter XIV Union Asbestos & Rubber Co



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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XIV: Union Asbestos & Rubber Company (now Unarco Industries, Inc.)

By John A. Bolles, Jr.

As told to the Staff of ASBESTOS

The history of Union Asbestos & Rubber Company is the life story of H. Lewis Cohen (born in Chicago, Illinois, on May 1891). Lou Cohen began his remarkable career at the tender age of 11 as a special delivery boy for Perham to Busse (Mr. Busse later became Mayor of Chicago). At 16 Lou Cohen was Secretary to the Vice President in charge of the operations of the Harriman Lines and traveled extensively on the Southern Pacific, the Union Pacific and the Alton Railroads. This "railroad experience" was to be a major factor in the shaping of Lou Cohen's business career and of the policies of the company he was later to direct. He gave up railroading when he was 22 to become a salesman for Johns Manville Corporation in a territory encompassing the West and Southwest areas of the country.

Two years later he returned to Chicago and with Carl Mosser organized and founded the railway supply firm of Union Supply Company.

In March 1915 Union Supply was dissolved and the successor company Union Asbestos & Rubber Company was co-operated. Union Asbestos was also a jobber of railway supplies in addition to assembling finished products for manufacturers under their own brand names.

Joseph H. Boles left Republic Rubber Company in May 1916 to join Union Asbestos as Vice President in charge of factory railroad sales.

In 1922 Walton R. Collins developed INSULVIPE a thin slit tube for the connection of a rubber gasket and a soft packing gasket. The material proved to be advantageous for insulating "hard to get at" pipes on steam locomotives. INSULVIPE achieved almost universal acceptance among railroads and was an important factor in the growth of the

Asbestos in the Arctic.

When the SS *Manhattan* explored a year 'round tanker route to the Alaskan North Slope oil fields, asbestos was aboard.

Asbestos fibers added increased strength and fire safety to J-M Metal Ons (aluminum jacketed calcium silicate pipe insulation) used to protect the ship's external deck piping.

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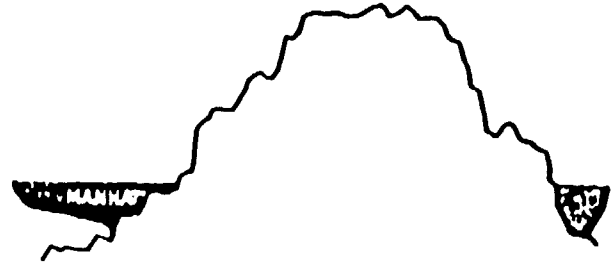

fledgling Union Asbestos & Rubber Company.

By 1926 the rapidly-expanding business warranted the company erecting its own manufacturing facilities. Chester L. Hill supervised the construction of a plant in Cicero, Illinois, for the production of asbestos textiles, insulations, packings, gaskets and rubber products. The plant was considered one of the finest asbestos textile plants in the Mid West.

Arthur K. Barnes joined Union Asbestos in 1927. He specialized in the sale of textiles and packings and in later years he supervised the sale of these two product groups.

In 1928 Rudolph Wahl was busy promoting the sale of NOX-SCOK wood-lath lining. This product earned a portion of the original equipment business on the famous Model "A" Ford. The same boom that made these lath linings also made several million feet of specially treated patchouli molding during World War II.

In 1929 Robert E. Green joined Union to work in the Research Laboratories. In 1931 he was appointed Manager of the Waterloo, Illinois, plant and in 1943 he returned to Cicero as Manager of the Research Laboratories.

In 1932 Bill Collins and Oscar Rudolph developed WOVENSTONE pipe covering, a unique product that gained wide acceptance as steam line insulation.

In 1933 Rudolph Wahl developed UNIBESTOS pipe insulation and INSULBESTOS wood lath for the U.S. Navy. These lightweight concrete insulations were used on most naval vessels constructed during World War II.

John H. Eckels was elected Secretary of the Corporation in 1935. At the time of his retirement in 1967 he held the offices of Senior Vice President and Treasurer.

During most of World War II asbestos textiles were in critically short supply. Early in the War the standard Navy Specification fireproof cloth weighed 24 oz. per square yard. About 1943 Union Asbestos developed an asbestos-glass cloth that weighed only 14 oz. per square yard and which served the same purpose. Only one pound of asbestos yarn was required to produce a yard of the asbestos-glass cloth. The development came in a period of the war when cloth could be produced more easily than yarn. The cloth and glass fabric developed by Union Asbestos is still included in the Navy's specifications and is regularly woven

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by all major manufacturers of asbestos textiles.

In 1940 Navy demands for UNIBESTOS pipe insulation and INSURESTOS woven Amosite lolts necessitated opening a separate plant in Paterson, New Jersey, to augment the production of these products. Bob Cryor was appointed Manager of the Paterson plant in 1941.

In 1944 Bob Cryor returned to Cowee to manage the main plant. In 1946 he was elected Vice President and General Manager and in 1948 became a Director and Member of the Executive Committee. He served as the fourth President of the Asbestos Textile Institute in 1951-52.

Unique Asbestos' contribution to the war effort of high temperature Navy thermal insulations and of other asbestos textile products was substantial. The first Army Navy "E" awarded in the Asbestos Industry was in 1942 to the Unique plant at Paterson, then managed by Bob Cryor. Subsequently the Cowee and Paterson plants were honored with a total of seven additional "E" awards. Immediately after VJ Day in 1945 Bob Cryor was nominated by the War Production Board as the representative of the asbestos textile industry to investigate asbestos and asbestos textile developments in Germany. In the end of August 1945 he was sent to Germany for three months as a member of the Technical Industrial Intelligence Committee of the Joint Chiefs of Staff. He returned with the rank of Colonel.

Lee Cohen continued as the moving spirit of Unique Asbestos became Chairman in November 1941 and held that office until his untimely death in October 1946.

In January 1947 Unique purchased the two asbestos textile mills operated by Carolina Asbestos Company at Hendersonville and Marshville North Carolina. C. H. Carbaugh, President of Carolina Asbestos, became a Vice President of the parent company and the asbestos textile operations at Cowee were thereafter referred to the Southern plants.

The Hendersonville plant was re-acquired by Herb Carbaugh in 1950 and Unique's asbestos textile operations were concentrated at Marshville.

A large plant at Bloomington Illinois was acquired in 1950 and equipped to manufacture a variety of thermos products. In 1954 Bloomington became the headquarters for all asbestos textile operations, under Vice President Emil Johnson

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and Sales Manager Erle (Mickey) Plummer. Emil Johnson served as a member of the Air Hygiene Committee of the Asbestos Textile Institute in 1952-53 and Mickey Plummer was a member of the Sales Promotion Committee. It is interesting to note here that Union Asbestos was a Charter Member of ATI and was represented by Lou Cohen and Rudi Wild at the Organizational Meeting on November 16, 1944. The company resigned its membership of the Institute on January 1, 1956.

Between 1937 and 1950 Union Asbestos acquired six additional plants for the manufacture of products unrelated to asbestos textiles. This diversification program materially altered the objectives of the management and as a result Union's thermal insulating materials lines were acquired by Pittsburgh Corning in 1962 and in 1963 the Marshville plant was sold to Johns Manville.

Since the name "Union Asbestos & Rubber" no longer adequately described the business of the company, the name of the firm was officially changed April 17, 1963, to Unarco Industries, Inc.

Under President Edwin E. Hokin, Unarco is today a widely diversified and successful company. Nevertheless, a considerable portion of the sales emphasis is still devoted to the railroad and transportation industries, as originally envisaged by co-founder Lou Cohen in 1918.

Next Issue . . . .

Chapter XV. Multiple-to-Company

THE COVER

Simplicity Engineering Company, Durand, Michigan, introduced a new and improved DCENTEGRATOR Pulverizer, more fully used in the milling of asbestos ores. The new design as illustrated on our front cover, is fully described in the article by Mr. H. C. Jessen which begins on page 10 of this issue.

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XV: The Multibestos Company

By: John A. Bettes, Jr.

As edited by the Staff of ASBESTOS

The Multibestos Company was founded in Walpole, Massachusetts, in the year 1916. The original name of the firm was Standard Woven Fabric Company and its major products were woven brake lining and woven clutch facings.

William Lowell Putnam, the founder of the firm, was a man of many talents and financially interested in several manufacturing enterprises. At the time of his death in 1924 at the age of 62, a tribute was paid to him that said, in part, "He had the steady, sound and reliable qualities we are brought up to consider as New England virtues . . . His success in the management of companies was to select men with sound fundamentals and then to stimulate these men to unusual effort."

One of Mr. Putnam's "sound selections" was Eugene O. Christiansen, General Manager of Multibestos, who, in turn, engaged Thomas H. Bateson in 1919 as Plant Superintendent. Tom Bateson retained this position until the company was sold in 1930 to Dewey & Almy Chemical Company. He was then appointed Resident General Manager.

The plant at Walpole previously had been used by the now defunct Walpole Tire & Rubber Company, a manufacturer of tires, rubber heels and sheet rubber. In its first year of existence the new company disposed of the Banbury mixer, sheeter, presses and a complete rubber reclamation plant. The next step in 1917, was to install the textile equipment necessary to produce varnished lining and clutch facings. The original mill included twelve sets of woolen-type cards, six mules and tape looms of various capacities—totaling 210 spaces. In addition, of course, there was the requisite fiber preparation department and the finishing department for

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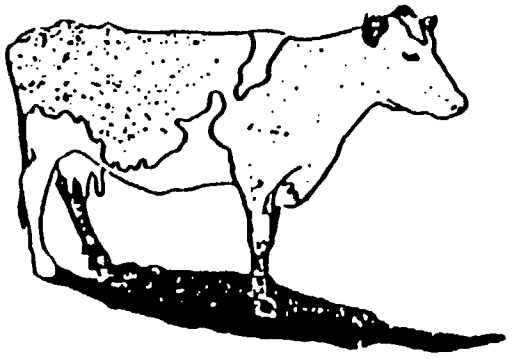


brake lining and clutch facings. The latter included vacuum treaters, drying ovens, Blanchard grinders, multiple spindle drills, etc.

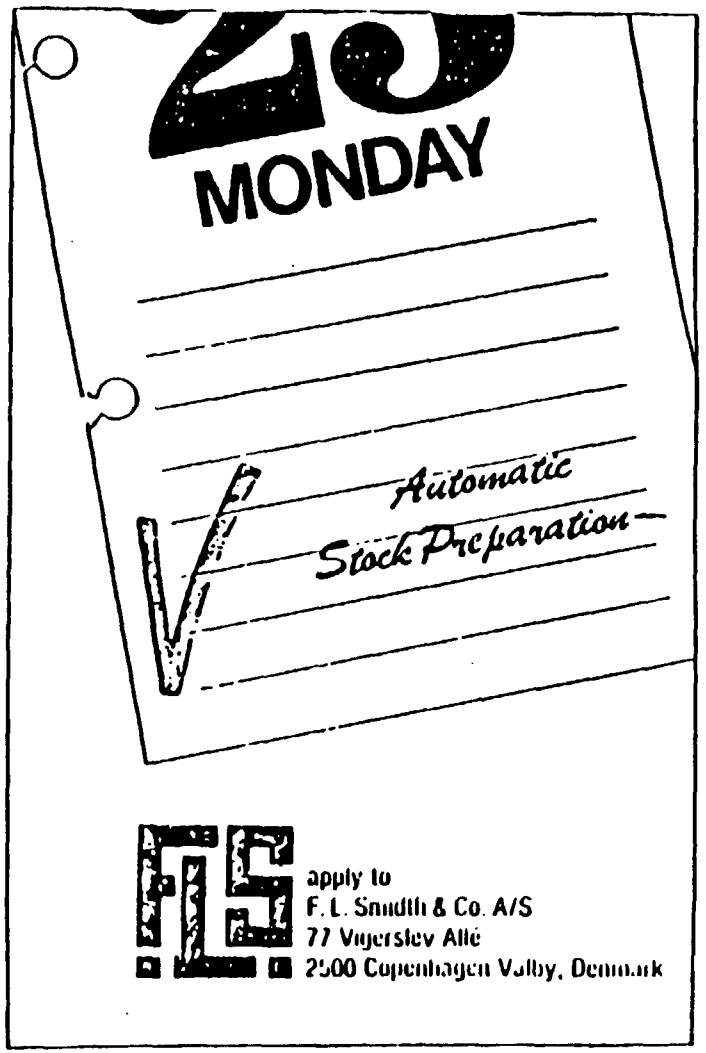
Mr. Christiansen had a quite sizeable staff of engineers and department heads including Ernest E. Waite who was employed in the Research Department. It was this same Lal Waite who in later years helped found the Waite-Wild Company. A promising young foreman at Multibestos was Herbert E. Sunbury. Herb Sunbury left the company in February 1927 to become Production and Mill Manager with the Asbestos Spinning and Weaving Corporation at Waterford, New York. Today he is Executive Secretary of the Asbestos Textile Institute.

In 1922 the company announced its officers as Stoughton Bell, President; C. W. Bunker, Treasurer; E. C. Benway, Assistant Treasurer; and T. J. Daley, Secretary. At the same time it was announced that General Manager L. O. Christiansen and Sales Manager J. C. Donnelly had resigned.

Multibestos was an important factor in the friction materials industry prior to 1926 when woven brake linings and woven clutch facings were standard equipment on most cars. Thomas Daley was Detroit Representative and is credited with having sold to most of the important original equipment accounts during that time.

Prior to 1930 in an effort to up-date its manufacturing equipment, Multibestos installed asbestos paper machines and heaters for the manufacture of molded brake linings and molded clutch facings. Possibly these efforts were made too late as the business was sold to Dewey & Almy in 1930.

Although not specifically concerned with the "textile" side of the story, it may be of interest to some readers that an important contribution made in 1951 by Multibestos to the brake service trade was its chain of Multibestos Brake Service Institutes located in such cities as Chicago, Detroit, Boston, New York, Los Angeles and Philadelphia. The Institutes were established with two main purposes in mind: (1) to create a source of information concerning the latest developments in braking mechanisms, brake lining equipment and materials, and (2) to afford an opportunity to jobbing and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service station people to gain the proper advice and training of experts on brake servicing, brake service merchandising, trouble shooting, cost control and shop management and arrangement. The idea was enthusiastically received by both the public and the trade as an effective means to reduce automobile accidents caused by faulty braking mechanisms. Also in 1931 the company published a Brake Service Manual titled "A Merchandising Manual for Profitable Servicing Equipment," which, in essence, was a compilation of the standard practices of successful brake service stations and departments.

Dewey & Almy operated the plant at Walpole until the sale of the business to Raybestos-Manhattan, Inc., in 1935. The usable equipment was then absorbed into the Raybestos Division plant at Stratford, Connecticut. R/M still utilizes the Multibestos brand name in the export market.

Next Issue . . . .

Chapter XVI: Southern Asbestos Company

Chapter XVII: Asbestos Spinning & Weaving Company

THE COVER

Union Carbide Corporation is the only source of pelletized asbestos essentially dust free and readily bulk handled. The front cover of this issue shows a comparison of "Calidria" Asbestos Open Fiber and Pellets.

Details of the asbestos pellets and other "Calidria" products are given in the feature article which begins on page 8.

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XVI: Southern Asbestos Manufacturing Company (now Charlotte Works, Thermoid Division, H. K. Porter Company, Inc.)

By: John A. Bettes, Jr.

As edited by the Staff of ASBESTOS

In order to begin the history of the Southern Asbestos Company it is first necessary to identify two men—W. H. Truesdale and C. H. Carlough. In 1914 Bill Truesdale came from a cotton mill in Lincolnton, North Carolina, to become Superintendent of Manufacture of the General Asbestos & Rubber Company at North Charleston, South Carolina. Herb Carlough had already entered the employ of Garco as a clerk in 1912. Bill Truesdale was a business-generation older than Herb Carlough.

In June 1919 Bill Truesdale left Garco and founded Southern Asbestos Manufacturing Company at Charlotte, North Carolina, incorporated with a capital stock of $300,000. The first President of the company was Capt. C. E. Childs (Bill Truesdale's father-in-law).

The original manufacturing staff at Southern Asbestos was drawn from Garco and included Herb Carlough, Hurd Knox, Charles Marshall, Pete Velme and Walter K. Medernach (Bill Truesdale's brother-in-law).

Southern Asbestos Mfg. produced a limited line of asbestos textile products. The company sold roving, yarn, cloth and tape to a variety of industries. From 1919 until about 1920 automobiles and trucks were equipped with two-wheel external contracting brakes. This type of brake required a woven asbestos brake lining. And in those days all cars used multiple clutch discs with a woven asbestos facing on each steel disc. Friction material, therefore, represented by far the largest [illegible] for asbestos textiles during that period of time. Southern's two largest accounts were the Thermoid Rubber Company of Trenton, New Jersey, and the Russell Manufacturing Company of Middletown, Connecticut. Thermoid purchased untreated brake lining tape in carload lots.

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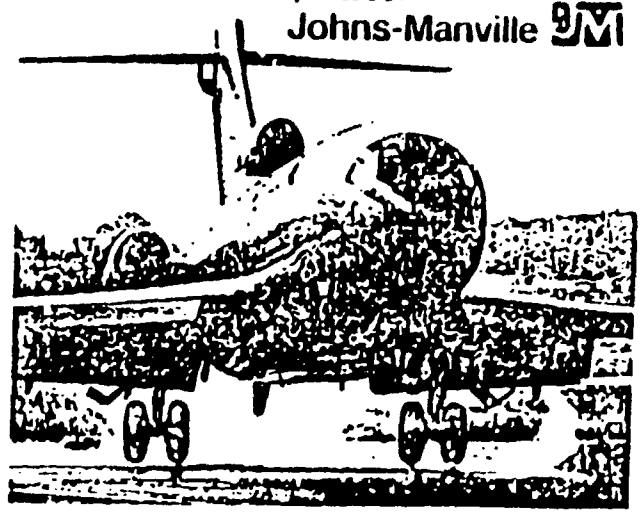

Russell bought metallic yarns in like quantity and wove its own brake linings, which were sold under the RUSCO brand name.

The year 1926 saw the introduction of the internal expanding brake for trucks and automobiles—and the start of the four wheel brake. It was soon demonstrated that a molded brake lining was at least equal to a woven lining for use with the four wheel brake. Size for size, a molded lining is substantially cheaper to manufacture than is a woven lining. Bill Truesdale could see the "handwriting on the wall" and became concerned about the future market for his products.

In 1927 Southern Ind was sold to Schluter & Company, new investment bankers, and Bill Truesdale, Herb Carbaugh and Ed continued to operate the plant. The name of the company was changed at that time to Southern Asbestos Company.

In 1929 Schluter purchased a controlling interest in the Thermoid Rubber Co. from the Stokes family of Trenton. Frederick Schluter, President of Schluter & Co., wanted Southern Asbestos to purchase 10,000 shares of Thermoid stock at $40.00 per share. Bill Truesdale did not consider this a good deal and declined the offer. Disagreement resulted, causing a serious rift between the two executives. Fred Schluter pushed the deal through anyway and Southern Asbestos Co. became an affiliate of the Thermoid organization.

Matters went from bad to worse and by January 1930 Bill Truesdale and Herb Carbaugh decided to leave. Southern Ind. purchased a small cotton textile mill in the neighboring town of Graham, N.C. known as the Kahn Manufacturing Company. Bill Truesdale was Chairman of the Board and Herb Carbaugh was President and the active head of the firm. This was the start of Carolina Asbestos Company. The history of Carolina Asbestos will be covered in Chapter XVI.

The two mills, Southern and Carolina, produced similar but not identical and were at times competitive in the same market. Since Carolina and Davidson are only 15 miles apart the mill drew customers from the same labor market. In the early days of the industry there was considerable pirating of personnel and under the circumstances it is not difficult to see why an intense rivalry developed between the two companies.

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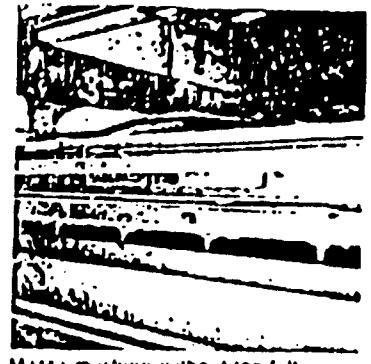
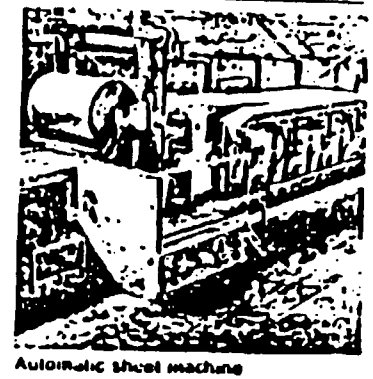
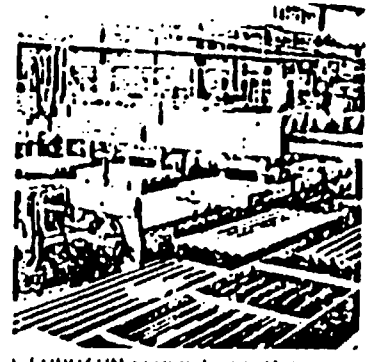


Mazza machine without top felt



Automatic sheet machine



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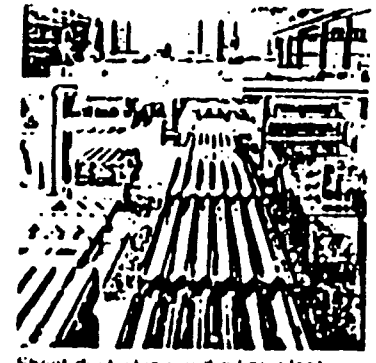

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The situation was worsened by the great stock market crash that had occurred in 1929. By January 1930 business activity in general was slowing down at an alarming rate and the normal tempo of competition in all lines of business sharpened considerably. As might be expected, a bitter conflict developed between Southern and Carolina resulting in the prices of asbestos textile products being driven to loss levels affecting the entire industry.

When Bill Truesdale and Herb Carlough left Southern in January 1930, Thermoid did not have a textile executive to manage the business, although the manufacturing staff was still largely intact. Thermoid, therefore, sent one of its most seasoned all-around executives to Charlotte to supervise as General Manager. George S. Label had had years of experience in the friction materials industry and in mechanical rubber goods. His most ardent detractor would have to admit that George Label was one of the greatest salesmen ever to operate in this industry. He set about at once to build up a sales organization to market asbestos textiles from coast to coast.

Jesse T. Griffis supervised the Order Department at Charlotte and handled most of the sales correspondence. George T. Harris, operating out of Stamford, Connecticut, was responsible for the territory encompassing New York and New England. Oscar Ferens, formerly with Keasbey & Mattison, covered New Jersey and Pennsylvania. Robert Snyder had offices in Cleveland and handled Ohio and Michigan. John A. Bettes worked out of Chicago and high-spotted the Midwest. His territory was outlined by Duluth, Chicago and Detroit on the North and by Kansas City, St. Louis and Louisville on the South.

Many members of the industry will recognize that since [illegible] the members of the small sales team have been very [illegible] of the industry. George Label was the third [illegible] of the Asbestos Textile Institute in 1949-50 and [illegible] a member of the Board of Governors. [illegible] President in 1957-58, Jesse Griffis took his turn in the same chair in 1959-60. George Harris has served as Chairman of the Institute's Sales Promotion Committee. He also capably represented the industry for many years as a member of ASTM Committee D-13 for Textile Materials.

The sales team at Southern hired and trained by George

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Fabel succeeded in lessening the dependence of the mill on the friction materials industry. A line of specialty fabrics was developed for the safety garment industry, the laminated plastics industry and for thermal insulation contractors. Yarn, roving, lap and cable filler were sold to a long list of wire and cable accounts and several styles and grades of asbestos yarn were sold to a large number of asbestos packing manufacturers.

By 1941 Southern Asbestos had developed a very comprehensive line of asbestos textiles. It was only natural, therefore, that Southern was called upon to furnish large footages of many products during World War II. Southern was a vast vantage of all the Navy specification lagging cloths. The enormous ship building program undertaken during the war called for prodigious footages of shipboard cable. Southern furnished lap, roving and cable filler used to insulate Navy specification cables. Brake lining tape went to Thermoid Rubber, the parent company, at Trenton for conversion into brake lining and brake blocks for Army trucks.

Post war, Southern embarked on a program of replacement and modernization. Under the direction of Factory Manager J. L. (Jerry) Mitchell, the mill was brought to peak efficiency. Unfortunately, however, this was not the case with the parent company. Thermoid's main plant at Trenton was a hodgepodge of old buildings and was unavoidably inefficient. The business fell upon difficult times. To protect his heavy investment, Fred Schluter took over the Presidency of Thermoid in 1951. Effective December 11, 1958, the Thermoid Company merged into H. K. Porter Company and thus became an integral part of Porter's new Thermoid Division, headed by Warren F. Hill, former Thermoid President. Southern, as a part of Thermoid, automatically became an H. K. Porter property.

Jesse Griffis was Manager of the Charlotte Works from January 1961 to April 1965, during which time he hired Lawrence E. Moody to work on product development. Larry Moody had been assistant to Walter C. Atkinson, Manager of Johns Manville Corporation's textile manufacture. In short order Larry Moody was promoted to Manager of Manufacturing and then to Manager of the Charlotte Works. As Works Manager at the Charlotte Works of Porter's Thermoid Division, he currently has the responsibility for all of Porter's textile operations. Larry Moody represents his com-

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pany as an active member of ATI. He currently serves as President and a member of the Board of Governors, and has been re-elected for the 1971-72 term.

And so it was that Southern Asbestos Company, for 36 years a respected name in asbestos textiles, faded from the industry's roster.

Chapter XVII Asbestos Spinning & Weaving Corporation

Asbestos Spinning & Weaving Corporation, Waterford, New York, was started in the early 1920's by Edward Slade. It was founded primarily to exploit the potential of a patented asbestos fabric; the warp consisted entirely of .008" brass wire; the filling was a bestos roving twisted with brass wire to provide a soft yarn which would be readily saturable.

The firm's original plant was an old wooden mill that had five sets of 48" cards, ring twisters, 30" looms, and so forth. Power was generated by a water wheel turned by water from a canal originating from the Mohawk River.

The major market for the patented fabric was the Glendenning Brake Lining Company, Billerica, Massachusetts. Glendenning saturated the fabric with an asphalt base brake lining compound. The fabric was then slit to tape widths, folded and stitched with brass staples into standardized brake lining tapes. This was a popular type of brake lining used prior to 1926 when automobiles and trucks had exterior contracting brakes only on the rear wheels.

ASAWCO is remembered in the trade principally because of the association with some of the noted veterans of the asbestos textile industry. O. H. Cilley, formerly with U.S. Asbestos Company, joined Asbestos Spinning in December 1925 as Factory Manager. During this period R. M. [illegible] as President of ASAWCO with offices at 16 Beaver Street, New York City. His letterhead identified the company as a manufacturer of fiber and theater curtain cloth as well as of ASAWCO's lac lining. Mr. Cilley later became General Manager of the U.S. Asbestos Division of Raybestos-Manhattan, Inc., and a Vice President of the Corporation.

In 1926 Herbert L. Sanbury accepted the position of Factory Manager with Asbestos Spinning & Weaving. During his tenure, the plant was equipped to handle its own im-


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preparing and to produce finished ASAWCO brake lining.

Edward Slade sold his interest in the company in 1924 and founded the Slade Products Corporation at Waterviet, New York. In 1928 the company was refinanced as The Slade Asbestos Corporation. The firm later became The Marshall Asbestos Company and is now the Marshall Eclipse Division of the Bendix Corporation.

Asbestos Spinning & Weaving Corporation was liquidated in 1932. It had been a one-product mill and the folded and stitched brake lining it manufactured was not suitable for use with the newer internal expanding brake. By 1930 the internal brake had become standard equipment on almost all automobiles. This ended a company which failed to keep pace with the technological advances occurring in the industry of which it was a part.

The Next Two Chapters . . . .

will be published in the February 1972 issue of ASBESTOS and will cover the histories of Asbestos Corporation and the West Coast Asbestos Company, including Emsco Asbestos Company and its subsidiary, [illegible] & Metal Products Company.

PREPRINTS FROM ASBESTOS CONFERENCE

Preprints of the papers presented at the 2nd International Conference on "The Physics and Chemistry of Asbestos Minerals" held in September 1971 at Louvain University are obtainable at [illegible] per set from any of the members of the Conference Committee. Those of our readers who would like a complete set of the preprints should directly contact any of the following: Dr. G. Poncelet, Institut des Sciences de la Terre, Heverlee, Belgium; Mr. A. [illegible], Eternit S.A., Kapelle op den Bos, Belgium; Dr. [illegible] Hodgson, Cape Asbestos Fibre Research Laboratory, [illegible], Middlesex, England; Mr. B. Lincoln, Turner & Newall Asbestos Fibre Laboratory, Manchester, England; Dr. [illegible] Whittaker, Department of Geology, The University, Oxford, England; or Prof. J. Zussman, Department of Geology, The University, Manchester, England.

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XVIII: Allbestos Corporation

By John A. Bolter Jr.

Assisted by the Staff of ASBESTOS

Oldtimers in the trade will remember the Allbestos Corporation of Germantown Pennsylvania (a section of Philadelphia) as a minor factor in asbestos textiles and a major weaver of brake lining.

The founder President and Treasurer was William G. Lueken a member of an old Philadelphia textile family. Bill Lueken was also President of Joseph Scatchard & Sons Co Philadelphia mill that continues to this day as a spinner of fine quality woolen yarns. He was also Senior Partner of the Philadelphia wool brokerage firm of James G. Lueken Company. John F. Bolger became Vice President and Sales Manager of Allbestos.

The Allbestos Corporation was chartered in 1921 with a paid-in capital of $250,000. The original plant was at Belfield Avenue and Usher's Lane, in the Logan section of Philadelphia. Production started in May 1921 with eight sets of cards. The mill wove all sizes of brake lining from the smallest automotive sizes up to 12" x 1¼" for oil-well drilling rigs. Allbestos never made a serious effort to develop a line of asbestos textiles; however, the firm did sell asbestos yarn to selected accounts.

The business was an immediate success, due in part to having recruited experienced foremen from other companies in the industry. In October 1925 Allbestos moved to larger quarters at 21st Street and Godfrey Avenue, Germantown.

Herbert F. Sunbury joined Allbestos as General Superintendent in 1931 and in 1934 was promoted to Vice President.

During the 1930's Allbestos developed Cobalto, an oil bonded weaving asbestos material that was slit from whole cloth. The fabric consisted of a bare wire warp, usually galvanized steel wire. The filling was composed of a soft spun glass roving plied with the same wire. The fabric was im-

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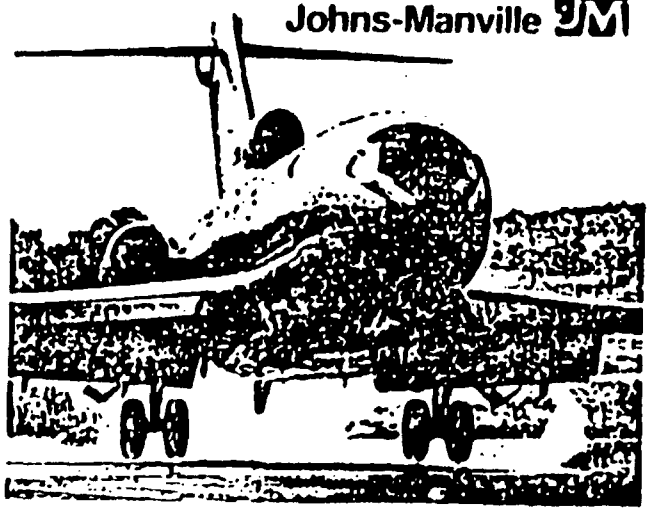


impregnated with resin, cured and then slit to the desired widths. The rolls were packaged and sold to hardware jobbers under the Glasbestos brand name, a name that subsequently was acquired by Raybestos-Manhattan, Inc.

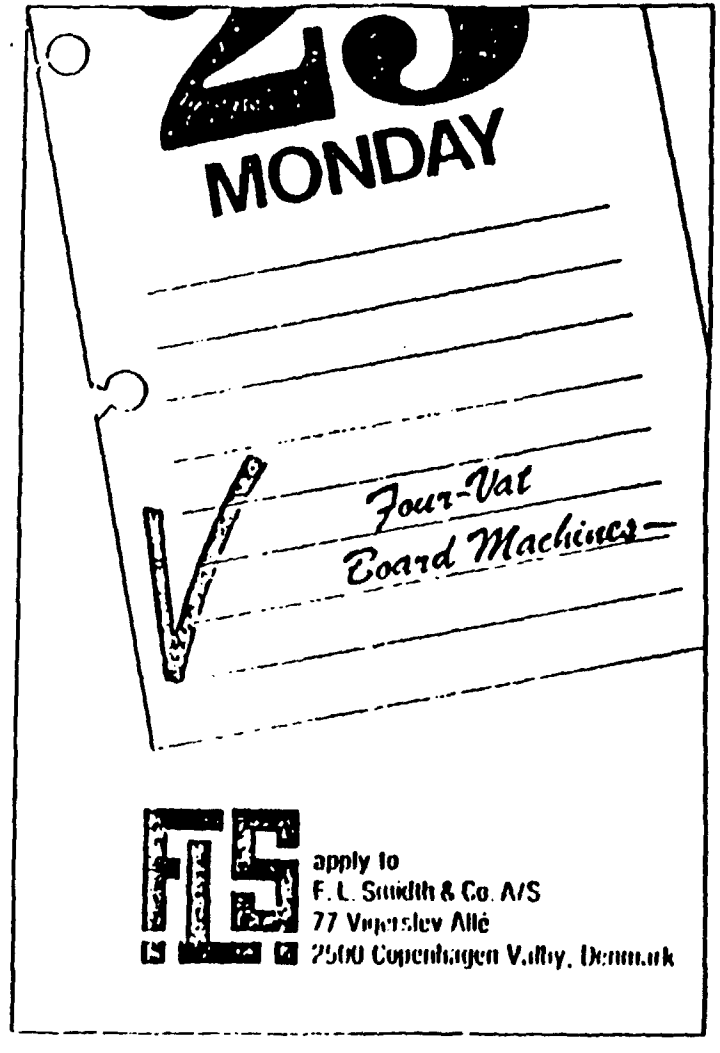
According to Herb Sunbury, Bill Kitchen was a man of great compassion. No employee was ever refused who asked for financial assistance in a family emergency. This was indeed remarkable generosity when one considers that President Kitchen's administration encompassed the bitter depression years.

Albestos can be credited with assisting toward the development of drafted asbestos yarns. Bill Kitchen encouraged Roswell H. Foster, of U.S. Rubber Company (now Uniroyal Inc.) to pursue his experiments in drafting fine yarns. He permitted Superintendent Herb Sunbury to furnish Foster with the asbestos roving needed to carry on his experiments in the laboratories of U.S. Rubber at Passaic, New Jersey. The experiments eventually led to the issuance of U.S. patents covering the process and to U.S. Rubber's entry into the asbestos textile business.

Albestos' best-known product was Albestos woven brake lining. During the 1930's Herb Sunbury developed Kore-Pin woven brake lining. U.S. Patent #1,940,881 was issued jointly to H. E. Sunbury and Timms Olsen Machine Company. Kore-Pin lining had heat dissipating pins of highly-compressed graphite and metallic composition inserted from face to back. In addition to heat dissipation, the pins polished the surface of the brake drum and contributed to longer useful life of the woven brake lining. This was one of the earliest efforts to deal with the universal problem of heat build-up in automotive brakes.

Albestos was promptly engaged to produce woven brake lining. Perhaps logically, the company resisted the trend toward molded brake lining. This trend began about 1935, with the introduction of four-wheel internal expanding hydraulic brakes. Subsequently, yielding to steady pressure from customers and its own Sales Department, Albestos purchased molded brake lining from a competitor and added the product as a supplementary line, but this expedient did not prove effective in maintaining a satisfactory sales volume or adequate profit.

President Kitchen had been failing in health for a year or two prior to his death January 26, 1939, from a heart ailment. He still hoped and believed that woven brake lining



would ultimately be restored to common use by automotive engineers. This faith was not shared by the executors of the Barbour estate who decided to liquidate the business in November 1939.

(ACKNOWLEDGMENT: THE MAJOR PORTION OF THIS CHAPTER WAS TAKEN FROM DATA FURNISHED BY MR. HERBERT E. SUNBURY AND FROM THE FILES OF ASBESTOS MAGAZINE.)

Chapter XIX: West Coast Asbestos Company (subsequently Emsco Asbestos Co. & its subsidiary, Fiber & Metal Products Co.)

A primary purpose of this series is to identify each and every company that has manufactured asbestos textiles in the United States. Therefore the History would not be complete without recording the story of the West Coast Asbestos Company which was established about 1921. The plant was equipped to manufacture asbestos textiles and packings and it is probable the technical know how was supplied by Chester J. Hall. Mr. Hall had been General Manager of the United States Asbestos Company from 1910 until November 1921. (U.S. Asbestos is now the Manheim, Pennsylvania division of Raybestos-Manhattan Inc.)

The name West Coast Asbestos Co. was changed in 1924 to Emsco Asbestos Company. Since the Emsco brand name was a contraction of E. M. Smith it seems likely that E. M. Smith gained control of the company at about that time. The Emsco brand name was used to identify a line of woven asbestos brake lining and woven asbestos clutch facings. Logically, because of the firm's location, the Emsco dealer and principal distribution were largely confined to the West Coast.

In 1925 Emsco reportedly purchased an asbestos mine near Globe, Arizona. It probably then actually acquired operating rights as the mine was on the San Carlos Indian Reservation and owned by the Apache tribe. At that time the Arizona asbestos mines were important suppliers of fiber to many of the larger asbestos textile manufacturers. The mine was described as "the only major mine operating in the area employing 17 people." For this reason may be interesting to those who are more familiar with the large scale operations of the Canadian asbestos mines and other like facilities around the world. As a matter of interest, Metate Asbestos Corporation took over the Emsco Mine in 1939 and operated it for approximately three years. Metate then closed it due to high

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costs resulting in an unsatisfactory profit picture.)

In 1938 Unico's Asbestos Textile Department was enlarged to provide spinning capacity for non-ferrous asbestos yarns, a logical move in view of the firm's operating the Unico Mine at Globe. The mill also wove non-ferrous asbestos cloth.

In 1941 Fiber & Metal Products Company was established as a subsidiary of Unico and Donald W. Fether, the nephew of E. M. Smith, was named President. FMP then took over the manufacture of the Unico line of friction materials. It is interesting to note that Richard Smith, nephew of E. M. Smith, operated the Grizzley brake lining plant at Pabbitt, Ohio, for many years. This plant is now the property of Detail Division of the Marmon Corporation, of Chicago.

The November 1945 issue of ASBESTOS published the information that Marmon (Mrs. E. M.) Smith had purchased all of the capital stock of Unico and had been elected President. Apparently this move was in preparation for voluntary liquidation as shortly thereafter Mrs. Smith sold Unico to the Thermoid Rubber Company, of Trenton, New Jersey. Thermoid transferred the equipment to its plants at Trenton and at Charlotte, North Carolina. Thus ended the only company to manufacture asbestos textiles on the West Coast.

About 1948 Don Fether founded Fether & Company at Santa Clara, California, and began the manufacture of a line of friction materials identified as "Fether Smooth." In 1950, Don Fether sold the company to U.S. Spring & Bumper Company. It is operated today as the Friction Materials Division of Silver Line Products, Inc., of Los Angeles. It will therefore be noted that Silver Line is not a direct descendent of Unico although Don Fether successively served as President of the company at Downey, California and of the plant at Santa Clara.

[ACKNOWLEDGMENT: DATA FOR THIS CHAPTER WAS SUPPLIED BY PATRICK T. RAFFERTY, PRESIDENT OF SILVER LINE PRODUCTS, INC., LOS ANGELES AND BY H. A. HEAD, PRESIDENT OF PICACHO ASBESTOS CORPORATION, GLOBE, ARIZONA.]

Next Issue . . . .

Chapter XX Raybestos-Manhattan, Inc.
Chapter XXI Carolina Asbestos Co.



THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XX: Raybestos Manhattan, Inc.

By John A. Bettes, Jr.

As told by, or Staff of ASBESTOS

The history of three of the major manufacturing divisions of Raybestos Manhattan, Inc., has been covered in individual chapters of the History of the U.S. Asbestos Textile Industry. It will no doubt be of interest to the reader to learn who these several companies banded together to form Raybestos Manhattan Inc.

The company was incorporated July 5, 1928. The four original manufacturing units were: The Raybestos Company, Bridgeport, Connecticut; General Asbestos & Rubber Company, Charleston, South Carolina; The Manhattan Rubber Manufacturing Company, Passaic, New Jersey, and United States Asbestos Company, Manheim, Pennsylvania.

Sumner S. Simpson was President of The Raybestos Co. in 1927. It was largely his executive ability which had built Raybestos during the prior 20 years. Sumner Simpson was the prime mover in working out the mutual arrangements which led to the formation of R/M, Inc.

General Asbestos & Rubber was founded July 18, 1895. Raybestos purchased controlling interest in Gatco in August 1921 to assure a continuing supply of asbestos yarn for its brake lining looms. Complete control was purchased in April 1924. Gatco thereafter entered the corporation as a subsidiary of Raybestos.

Manhattan Rubber was by far the largest of the original R/M units. Its business was incorporated October 25, 1893. Prior to 1921 the company made a rolled and molded brake lining that was marketed under the CARDINAL brand name. It consisted of two layers of red rubberized asbestos cloth and a back up layer of cotton duck. The product was manufactured in Manhattan's Belting Department, of which John Harry Mathews was Manager. (Later, Matty Mathews was elected Executive Vice President of R/M.) Buick Motor Company was a major user of CARDINAL brake lining in 1917.

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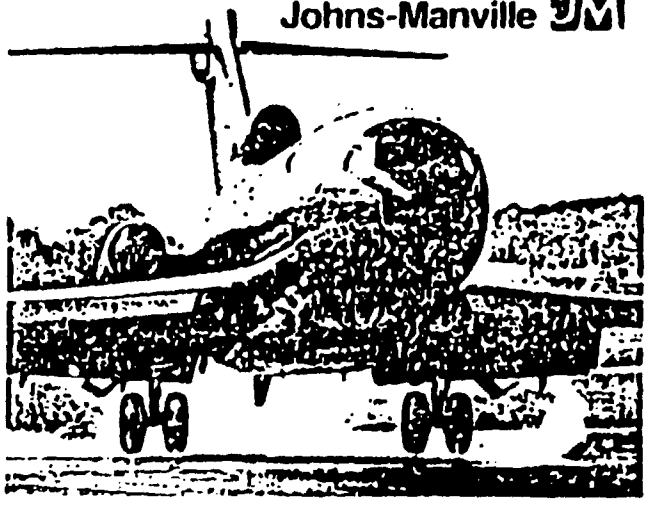

In 1920 the U.S. Post Office Department invited all friction materials manufacturers to a conference in Washington, D.C. The purpose of the meeting was to establish brake lining standards that could be used as a purchasing department specification. Johns-Manville Corporation used the PRONY brake at the conference to demonstrate that meaningful test results could be developed as a basis for a specification. As Manager of the Belting Department, Matty Matthews represented Manhattan Rubber at the conference. He returned to Passaic and convinced General Manager Arthur J. Townsend that Manhattan needed to embark on a brake lining development program. A dynamometer and other essential equipment were procured and a development program was initiated. The end result was HYCOL brake lining, a frictioned asbestos cloth, folded to size and stitched.

HYCOL brake lining was introduced to the trade in 1924. In the following five years it captured a large portion of the original equipment brake lining business, a field that had been dominated by The Raybestos Co. for some years. HYCOL brake lining, therefore, was an important reason for the formation of Raybestos Manhattan.

U.S. Asbestos was a major supplier of asbestos cloth to Manhattan Rubber and of asbestos yarn to Raybestos. It was this long established buyer-seller relationship which prompted the formation of the corporation. George R. Weber was President of U.S. Asbestos in 1929 and S. R. Zimmerman, a corporation lawyer and a former President of U.S. Asbestos, was a Director.

Both U.S. Asbestos and Garco produced a complete line of asbestos packings in 1929. Manhattan Rubber made many styles of rubber packings. The eventual consolidation of these three lines was a third reason for the merger of the four mills.

The executive heads of the several mills which joined together to form Raybestos-Manhattan, Inc., logically became the executives of the new corporation. The original slate of officers consisted of: Chairman, Arthur Larragut Townsend (Manhattan); President, Sumner S. Simpson (Raybestos); Vice Presidents, Henderson M. Green (Manhattan), George R. Weber (U.S. Asbestos) and S. R. Zimmerman (U.S. Asbestos); Secretary, Morton F. Judd (Raybestos); Treasurer, Fred L. Curtis (Manhattan), and Assistant Treasurer

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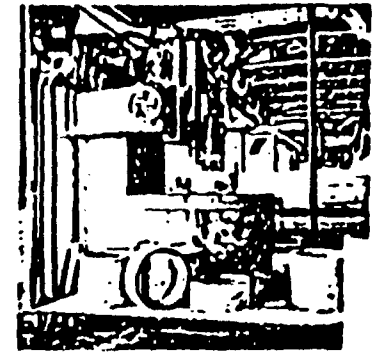
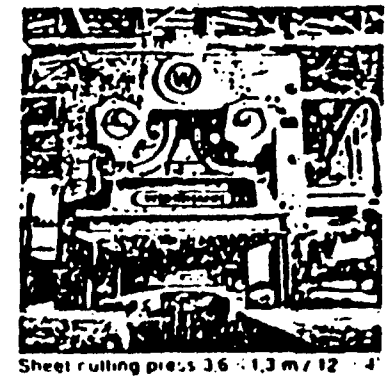
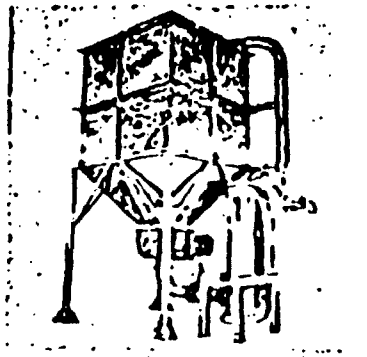

Hydraulic lathe for pipe couplings


Sheet cutting press 3.6 × 1.3 m / 12 × 4'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--William H. Dunn (Manhattan)

The original officers managed the company very successfully until 1929. Sumner Simpson had been in poor health and wished to be relieved of the burdens of the Presidency. None of the other officers wished to take over as they were all approaching retirement age. It was, therefore, mutually agreed to bring in John F. D. Rohrbach as Vice President. He already had a broad knowledge of R/M affairs which he accepted the offer in 1929 as he had been President of Lee Rubber & Company, auditors for R/M, since 1916. Mr. Rohrbach served as President of Raybestos-Manhattan for 19 of the company's most successful years--from 1918 until 1937. In 1937 Mr. Rohrbach became Chairman of the Board of Directors. At that time, William S. Simpson, son of the founder, was elected President and Chief Executive Officer. Mr. Simpson is presently Chairman of the Board and President of Raybestos-Manhattan, Inc. Company headquarters are located at Bridgeport, Connecticut.

Chapter XXI: Carolina Asbestos Company

The Carolina Asbestos Company, Davidson, North Carolina was founded in January 1930 with Clarence Herbert Carbonell as President and principal stockholder. W. H. Trimble although Chairman of the Board was never active in the day to day management of the company.

Carolina Asbestos was an offshoot of Southern Asbestos Company which in turn was an offshoot of General Asbestos & Rubber Company. The reader is requested to consider the accompanying history of Southern Asbestos in order to have a better understanding of the history of Carolina Asbestos and of the long time relationship between Herb Carbonell and his mentor, Bill Trimble. A relationship much closer than perhaps of employer-employee. Through most of the business career Bill Trimble depended on Herb Carbonell as his principal assistant.

It would be difficult to find a less propitious year than 1930 in which to start a new business. The wheels of industry were slowly grinding to a halt. The period 1930-35 saw one of the most bitter depressions the United States has ever endured. These were the years of the bread lines and the

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soup kitchens. Hundreds of thousands of capable men could not find employment of any kind. The fellow with a job was a lucky man and he worked diligently to remain on the payroll. Most businesses that did manage to keep going drastically reduced salaries. It was not unusual to hear of worthy employees who had taken five 10% cuts in salary between 1930-32.

In 1933 a frightened nation voted President Herbert Hoover out of office and installed Franklin Delano Roosevelt as President. This was the start of the days of the "New Deal." Make-work programs and pump-priming were the order of the day. Men with college degrees were glad to cut tree limbs and take leaves in the city park for 35¢ per hour. In the asbestos textile industry, experienced spinners earned 30¢ an hour and expert weavers worked for 10¢ per hour.

The price level in most industries had reached break-even or loss levels, causing the U.S. Government to take official action that was unprecedented in American history. President Roosevelt created the National Recovery Administration and appointed General Hugh Johnson, a greatly respected World War I hero, as Administrator. NRA established what was called the "Blue Eagle Program" encouraging all companies to cooperate by setting minimum price levels and agreeing not to sell below their established price schedules. Manufacturers who agreed to participate proudly posted the "blue eagle" emblem at the lower left hand corner of their letterhead. General Johnson proved to be a tough and resourceful Administrator. His Department deserves much of the credit for getting business in general back on the track and helping industry rise above loss levels.

Younger men who cannot recall the depression years will no doubt wonder how a new enterprise like Carolina Asbestos managed to survive at all. The fact that it did survive is a tribute to the manufacturing and sales ability of Herb Carlough. He not only supervised the plant but was largely his own one man Sales Department. It should be remembered that by 1932 Herb Carlough had had 20 years of experience in the asbestos textile industry and was well known throughout the trade.

By 1934 the wheels of industry again began to turn and business in general improved rapidly. There was a pent up demand for goods and services of every kind and description.

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(3) For an atmosphere containing not more than 250 fibers per milliliter greater than 5 microns in length over an 8-hour average, or more than 500 fibers per milliliter over any period of 15 minutes, a powered filter positive pressure respirator approved by the U.S. Bureau of Mines under the provisions of 30 CFR Part 14 (Bureau of Mines Schedule 21B) shall be used.

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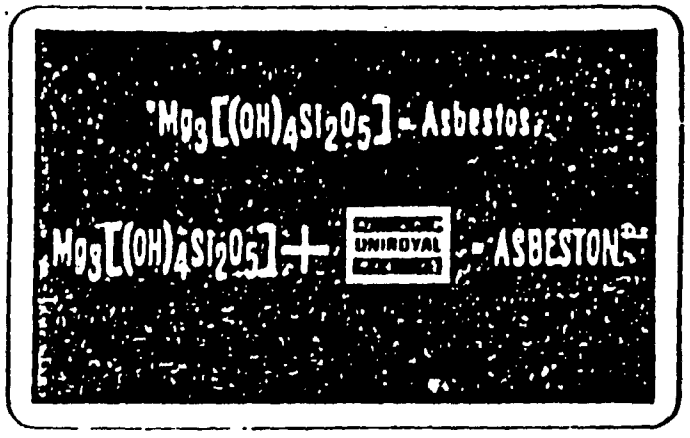
By 1941 Carolina's business had outgrown the little plant at Davidson and, rather than expand at that location, an additional 30,000 square foot plant was acquired at Marshville, North Carolina. (Davidson and Marshville are both near Charlotte.) The new facility was principally a weave shed and the plant at Davidson become primarily a yarn mill.

Carolina achieved a balanced operation just in time to participate in the bottomless demand for asbestos textiles created by World War II. The vast Naval and maritime shipbuilding programs demanded unprecedented tonnages of asbestos textiles, particularly cloth. As was explained in a prior chapter, the production of the industry was placed under [illegible] allocation by the War Production Board. Asbestos textiles were not bought and sold in the normal sense. All members of the industry operated at maximum capacity, turning out products assigned to each mill by the WPB. There were two limiting factors in the output of most mills: availability of spinning fiber and an extreme shortage of available labor.

Just prior to World War II the glass textile industry, most notably Owens-Corning Fiberglas Corporation, began making serious inroads into the traditional markets for asbestos textiles. The inability of the asbestos textile industry to meet the critical war time needs for its products created a bonanza for the glass textile industry. The basic raw material, sand, was not in short supply. Manufacturers who were unable to purchase asbestos textiles for their war time needs logically turned to glass textiles as the only other suitable and available material. Naturally the situation was of great concern to all executives in the asbestos textile industry, including Herb Carlough.

By 1941 the asbestos textile producers decided that rather than work against each other it would be more advantageous to set their sights toward competing with the makers of glass textiles. This realization led to the formation of the industry's trade association, the Asbestos Textile Institute. C. H. Carlough was selected the first President of ATI and served in 1945 and 1946. (The history of ATI will be published as the final chapter of this History.)

By January 1952 Carolina's two mills at Davidson and Marshville were going strong under Herb Carlough's direction. The great wave of corporate consolidations had not yet



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[illegible]
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begun but Herb Carlough could see that the days of the individualist in industry were about over. He was, therefore, receptive to an offer from L. Lewis Cohen, President of Union Asbestos & Rubber Company, Chicago, Illinois. Union's asbestos textile mill was at Cicero, Illinois, which is not a textile manufacturing center. To make a long story short, Lou Cohen persuaded Herb Carlough to sell his mills to Union Asbestos and to join the company as Vice President in charge of Textile Operations. Following the consolidation, the Cicero plant was phased out. Some of the equipment went to Davidson and some was transferred to Union's newly acquired plant at Bloomington, Illinois.

The marriage with Unarco was not a happy one. In 1950 Herb Carlough sued Union Asbestos for breach of contract. In settlement of the litigation Herb Carlough reacquired the Davidson facility. He again operated the business as Carolina Asbestos Company with himself as President and Thomas Sadler as Vice President and Factory Manager. The Marshville plant remained a Unarco property until it was sold to Johns Manville Corporation in 1963.

As stated previously, the Davidson plant was a carding and spinning mill while Marshville was largely a weaving mill. To balance the operation, it was necessary to add a weave shed to the Davidson plant.

In 1958 a building was added to the Davidson plant to manufacture asbestos shingles. The added facility had no bearing on textile operations except to add to the total value of the property.

By 1963 Herb Carlough was 65 years old. He had by then been a part of the asbestos textile industry for more than 30 years and decided that was long enough. He sold the Davidson plant to H. K. Porter Company, Inc. The Davidson facility thereafter became a feeder plant to Porter's Charlotte Works (the former Southern Asbestos Company). Herb Carlough passed away June 17, 1968, and Carolina Asbestos became just another of the long list of company names which have faded from the industry's roster.

Next Issue . . .

Chapter XXII: Asten Hill Mfg. Co.

Chapter XXIII: United States Rubber Co.

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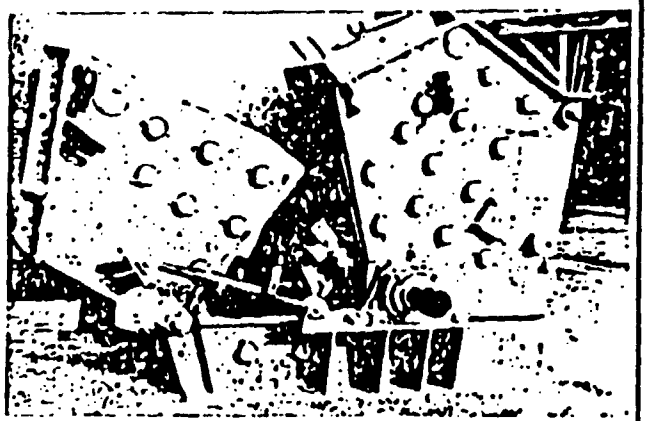

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XXII. Asten Hill Manufacturing Company

By John A. Bettes, Jr.

As edited by the Staff of ASBESTOS

Asten Hill Manufacturing Company, a privately held corporation headquartered in Philadelphia, Pennsylvania, was founded in 1951 by Edward V. Asten and Harold N. Hill. The current President is Dietrich V. Asten, son of the Founder.

The company is the largest producer on the North American continent of dryer felts used on papermaking machines, specializing in weaving dryer felts and fabrics containing asbestos for use on the hottest sections of Fourdrinier machines. Asten Hill is, in fact, the only U.S. weaver of papermaker's felts that also cards and spins its own asbestos yarns.

Corporate offices and Research & Development facilities are located at Henry and Roberts Avenues in the Germantown section of Philadelphia. The company's two main plants in the U.S. are situated at Walterboro, South Carolina, and at Salem, Oregon, the larger of the two plants being the Walterboro facility. A subsidiary, Asten Hill Ltd., operates out of Valleyfield, Quebec, Canada.

Asten Hill has further expanded its operations by holding a majority interest in Ascoe Felts, Inc., Clinton, South Carolina, a manufacturer of wet felts for the papermaking industry. In addition, the firm holds a majority interest in Wisconsin Wire, Inc., of Appleton, Wisconsin, Greenville, South Carolina, and Salem, Oregon. Wisconsin Wire manufactures metallic Fourdrinier wires and synthetic forming fabrics, both for use on Fourdrinier paper machines.

For several years, Asten Hill was a member of the Asbestos Textile Institute, represented by John G. Schoepf as a member of the ATI Board of Governors and as Treasurer in 1956.

(ACKNOWLEDGMENT: WE ARE INDEBTED TO DIETRICH V. ASTEN, PRESIDENT OF ASTEN HILL, AND TO PAUL G. MANSUY, VICE PRESIDENT MARKETING, FOR UPDATING OUR INFORMATION FOR THE WRITING OF THIS CHAPTER.)

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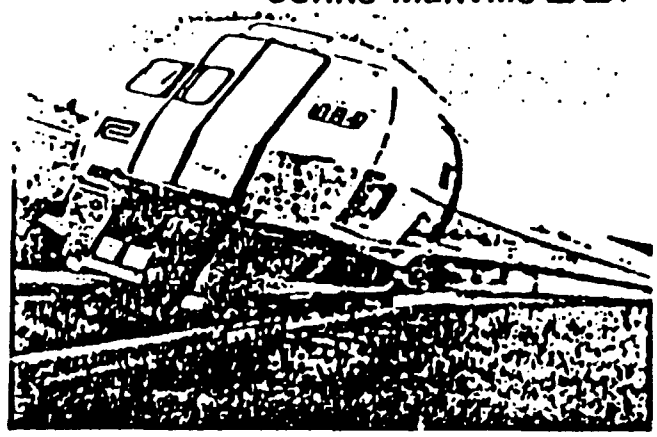


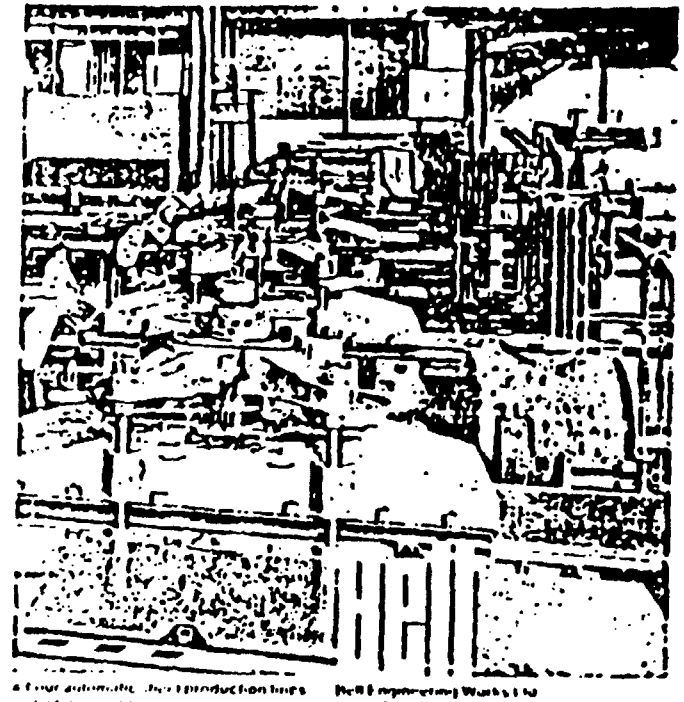
Chapter XXIII: United States Rubber Company (now Uniroyal, Inc.)

It was on March 30, 1892, that a small group of New England footwear companies decided to pool their knowledge and equipment for greater efficiency and greater profit. With an initial investment of $180,000, this endeavor marked the start of the United States Rubber Company. Then the concept of industrial research was yet unknown, but in 1911, U.S. Rubber became one of the first companies to have a research laboratory. Over the years the company expanded its international operations and diversified its product lines and is today a leading manufacturer of fibers, textiles, chemicals and plastics, as well as rubber products. By the early 1960's it was generally recognized that the name U.S. Rubber no longer adequately described the company's operations. After almost five years of study and research brought on by the need to find a truly representative name for the firm, as of February 27, 1967, the now billion dollar corporation became officially known as Uniroyal, Inc. George R. Vila is Chairman of the Board and President.

Uniroyal's interest in asbestos textiles stems from the inventive grants of one man, Boutwell H. Foster, and from his lifelong association with Herbert E. Sunbury. The collaboration of these two gentlemen is an interesting story in itself and is germane to the asbestos textile history of Uniroyal.

Both Bout Foster and Herb Sunbury were born in Lowell, Massachusetts, were sons of neighboring truck farmers and were graduates of Lowell Massachusetts High School. Each earned his Bachelor of Textile Engineering degree at Lowell Textile School (now the Lowell Technological Institute). Bout Foster in 1917 and Herb Sunbury in 1918. They were fraternity brothers in Delta Kappa Phi.

Upon graduation from Lowell Textile School, Bout Foster became employed at Uniroyal's General Laboratories. He remained there for a period of approximately 13 years until his retirement on December 31, 1959. The General Laboratories, now called the Research Center, were estab-



A four automatic sheet production lines with [illegible] for [illegible] cutting of slates

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Stamping presses for [illegible]
Stacking presses for [illegible]
Cross conveyors
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Pipe and socket lathes
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lished in 1911 at New Brunswick, New Jersey; moved to New York City in 1913, to Passaic, N.J., in 1928, and to Wayne, N.J., in 1957. Over the years Bout Foster contributed importantly to the development of tire cord, Lastex yarns and numerous other textile products. Approximately 70 patents were issued in his name. While the laboratories were located at Passaic, Bout Foster began his experiments in spinning fine asbestos yarns by a new process—ultimately resulting in his being awarded a basic patent.

As is known by those in the industry, most asbestos textile manufacturers card on the woolen system and spin on the cotton system but with one important exception. There is no doubling and drafting in the spinning of most asbestos yarns. In the early 1950's Bout Foster conceived the idea that asbestos fine yarns could be spun without the use of relatively high-priced long staple asbestos fiber if a practicable means could be found to incorporate the usual cotton drafting process into the manufacture of asbestos yarns. As Uniroyal was not then a manufacturer of asbestos textiles, Bout Foster turned to his good friend, Herb Sunbury, for the asbestos roving required for use in his spinning experiments. At the time Herb Sunbury was General Superintendent for the Allbestos Corporation, Philadelphia, Pennsylvania. (The history of Allbestos was covered in Chapter XVIII.) William G. Kitchen, President of Allbestos, encouraged Bout Foster to persevere in his spinning experiments, despite early setbacks, and authorized Superintendent Sunbury to furnish the extremely uniform roving needed for the purpose. Progress warranted the installation of pilot facilities at Uniroyal's General Laboratories, Passaic, and subsequently at the company's Stark Mills, Hogansville, Georgia.

In 1959, following the death of Mr. Kitchen, the Allbestos Corporation was liquidated. Herb Sunbury then became associated with the Asbestos Textile Company, North Brookfield, Massachusetts, and continued to supply Bout Foster with roving from that mill.

Although the first yarns produced by the patented process were less uniform in cross section than were undrafted yarns, the new process did provide a means of producing asbestos fine yarns at lower costs and with greatly improved weaving strength. Yarns ranging up to 5000 yards per pound were

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produced, with the average in excess of 2000 yards per pound. The trade name of "Asbeston" was adopted to describe the yarns produced by the new process and the fabrics woven from these yarns. On December 13, 1941, the Asbeston trade mark was filed with the U.S. Patent Office, under Serial No. 449,471. The new trade mark for asbestos yarns was passed for publication and was published February 17, 1942.

Early in 1941 Unroyal decided to begin the commercial production of asbestos textiles and space was provided at the Stark Mills, a major producer of cotton yarns and cotton duck. On the recommendation of Bout Foster, Herb Sunbury was employed effective April 1, 1941 to purchase and supervise the setting up of the necessary equipment, which included picking, carding, spinning and weaving machines. The mill was in operation by mid July of that year and Herb Sunbury then took over responsibility for Asbeston sales. He served in that capacity until 1958 when he was appointed Manager, Asbeston Product Development.

The first commercial production of asbestos textiles sold under the Asbeston trade name consisted of woven asbestos tapes having nominal gauges of .010", .015" and .020". The next step was to develop a line of asbestos fabrics weighing [illegible] to twenty ounces per square yard. At that time, any fabric weighing less than sixteen ounces per square yard was considered "light weight" by the asbestos textile industry.

In 1942 the demand for Asbeston yarns and fabrics [illegible] the building of a new mill adjacent to the Stark Mills. The capacity of the original mill was more than doubled. A. C. Link, Manager of the Stark Mills, and H. J. Daniel, Superintendent, continued to be responsible for Asbeston as they had been from its pilot plant infancy. It soon became apparent that full time supervision was needed and in 1950 Manager Mike Link promoted D. T. Austin, Jr. to the new position of Superintendent of the Asbeston Department. Tex Austin, as his nickname implies, is a native of Texas and a graduate of Texas Technological College, Lubbock. His rare combination of management and engineering skills proved to be of major importance in furthering the perfection of textile processing techniques and in the rapid growth of the Asbeston Department. Since the latter part of 1966, after 23 years as Superintendent, Tex Austin now

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devotes full time to Asbestos product development in Uniroyal's Research and Development Department and Harold M. Willingham became responsible for production of Uniroyal's textiles. At present B. E. Carden is Superintendent. Tex. Austin continues to be active in the affairs of the Asbestos Textile Institute, as he has been for many years, serving originally as a member of the Air Hygiene & Manufacturing Committee and currently of the Technical Committee.

The willingness of Uniroyal to spend a sizeable amount of money over a period of approximately ten years in research and development effort resulted in the establishment of the Asbestos Department making products not previously obtainable at attractive prices and giving employment to many people in an area where jobs were scarce. This is in marked contrast to the present trend to mergers and conglomerates where large companies acquire, by purchase, the skills and experience of smaller companies. Uniroyal deserves credit for carving its niche in the asbestos textile industry. H. Gordon Smith, now retired as Vice President and General Manager of Uniroyal's Textile Division, was a staunch supporter of the Asbestos project from its beginning and derived much satisfaction from the success of the endeavor.

Dr. George C. Holroyd has been in charge of Asbestos development work for the last twenty years. Scheduled to retire from Uniroyal this month (April 1972), Doc Holroyd is responsible for the development of most of the special finishes for Uniroyal's asbestos yarns and fabrics.

One of the factors in Uniroyal's decision in 1941 to be in commercial manufacture of asbestos textiles was the probability of an enlarged demand for the materials in the event the United States were to become directly involved in World War II. The war record of the Asbestos Department proved this to have been a wise decision. The Hogansville, Georgia, plant wove many thousands of yards of lightweight asbestos cloth used in firefighters suits. Large quantities of tubular woven asbestos cloth were used as collapsible air ducts to preheat aircraft engines. Another and quite unique contribution to the war effort consisted of air ducts tailored from rubberized asbestos cloth. More than 2000 special shapes and sizes were furnished to aircraft manufacturers.

Following World War II, Uniroyal developed a coated

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Asbestos cloth for use as a fireproof household ironing board cover. The item was a great success and resulted in one of the largest markets ever developed for lightweight asbestos cloth. Despite the inroads made by synthetics and other competitive materials in the last 25 years, asbestos ironing board covers still represent a substantial market for lightweight asbestos cloth.

Another consumer product introduced by Unimetal consisted of dish towels composed 50% of asbestos fiber and 50% of cotton fiber. The towels were dyed in a variety of attractive colors and they gained for the company much favorable publicity. However the costs involved to create a volume market were much too high and production was discontinued.

In 1958 Unimetal's Textile Sales Department was reorganized. The Asbestos Department became a part of the Industrial Textiles Sales Division headed by Fred T. Hopkins. A modification of the sales organization took place in 1959 and the responsibility for industrial textile sales, including Asbestos was assigned to Staton T. Peele, Jr. Under Mr. Peele's supervision the Asbestos line was expanded to include standard weight asbestos textiles in addition to the lines of lightweight asbestos fabrics and yarns already obtained by the Asbestos trade mark. Mr. Peele has been a staunch supporter of the Asbestos Textile Institute and served as President in 1965 and 1966. When total sales of products in the commodity lines of industrial textiles became a volume amount as to be impractical for one person to handle, Mr. Peele in 1965, turned over the Asbestos sales responsibility to Leland P. Clark. Dick Clark continued for several years as Sales Manager of the Asbestos Department. He was succeeded by Edward V. Merritt, now Marketing Manager for Asbestos Unimetal Fabrics and Textile Division. Ed Merritt is the person inside Asbestos Textile's business community serving on the Board of Governors and as Chairman of the Asbestos Advisory Committee. In the latter part of 1970 Staton Peele was appointed Manager of Industrial Textile Marketing, a key position in the Fabric and Textile Division. The current Vice President and General Manager of the Division is Clarence H. Segler, Jr.

Upon reaching mandatory retirement age on March 31,



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1962. Herb Sunbury left the Asbestos Department with 21 years of service. This impressive period of employment was but a chapter in a lengthy, productive career. He started in the asbestos textile business in March 1919 as a laboratory technician with General Asbestos and Rubber Company. As of his retirement from Unifrax, Herb Sunbury had been an active member of the industry for 43 years. On July 1, 1961, he accepted part time employment as Executive Secretary of the Asbestos Textile Institute. He has done and continues to accomplish much to stimulate attendance at ATI meetings.

Unifrax continues as an active and constructive member of the asbestos textile industry. The laboratory experiments initiated by Eastwell H. Foster have grown into a mill which is an important factor in the trade. The series of executives, and others too numerous to mention in this brief history, who contributed to the success of Asbestos are to be commended for their untiring productive efforts.

Next Issue . . . Chapter XXIV Lathrop McCluskey Glass Co.

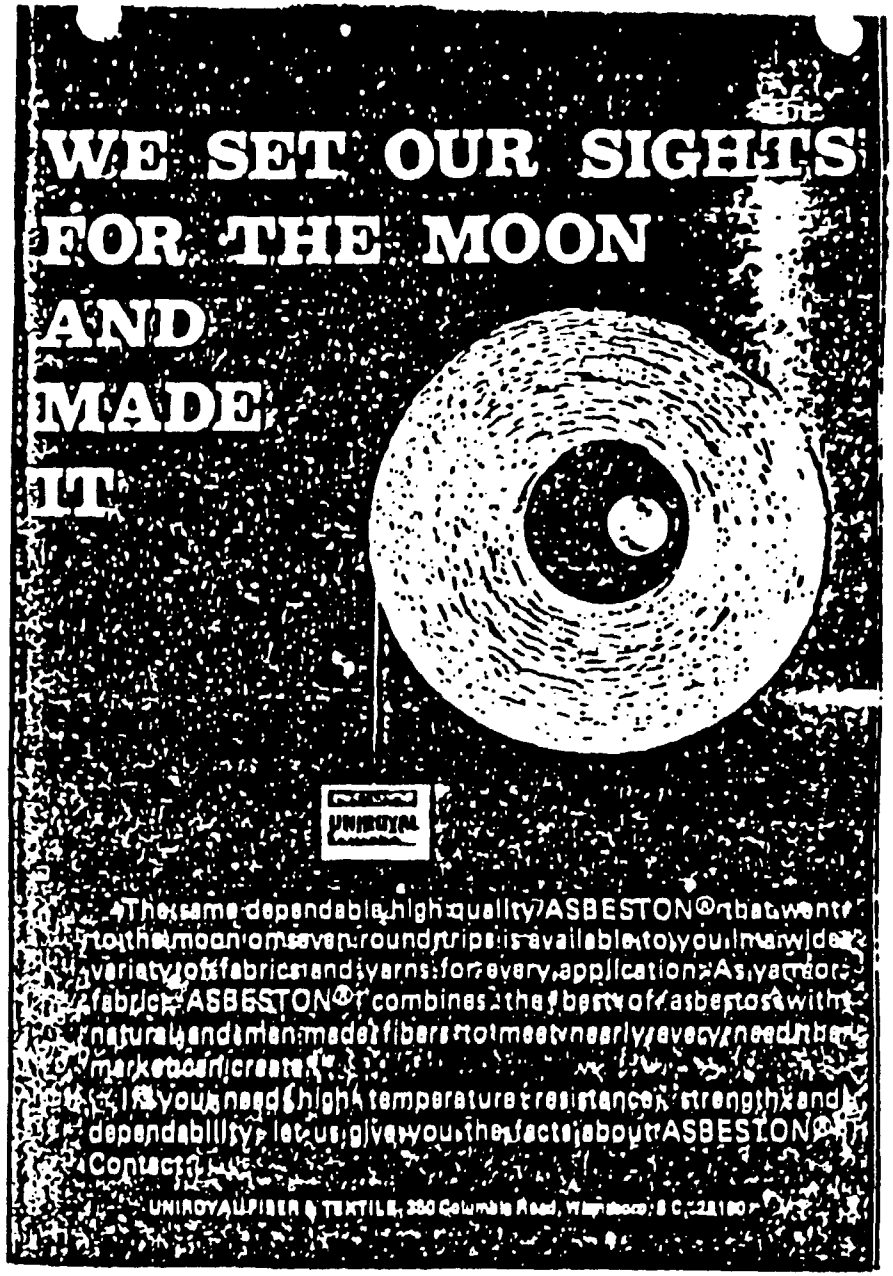
THE COVER

The largest T.F.E. tube transmission pipe project in Colorado was installed recently in a new housing area and mobile home park under development in Thornton about three miles north of Denver. More than two miles of 24 inch and 1,200 feet of 30 inch pipe were laid to five feet of cover.

According to a spokesman for Colorado Pipe Lines, Inc., contractor for the $2/3,800 job, the T pipe "goes together easily and works well." Its mixture of asbestos fibers, silica and cement makes the pipe light, corrosion resistant to acids and waters. Allowable maximum of C-150 minimizes internal friction with minimum head loss.

Steel mueller mold and coated fittings, supplied by J. Evans were used to accept the T pipe coupling. Pipe was provided by Robert A. Cook Inc. engineered with Thornton.

Formerly available concrete pipe is manufactured by the Johns Manville Corporation.



THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XXIV Tolhurst McCluskey Fabrics Company (formerly Centenary Mfg. Co.)

By John A. Bettes Jr.

As told to the Staff of ASBESTOS

March 10, 1803 was the date of the Louisiana Purchase from France. To celebrate the one hundredth anniversary of the historic event the City of St. Louis, Missouri hosted the Louisiana Purchase Exposition in 1904. The Centenary Exposition, as it was commonly called, was one of the most successful of World Fairs and established St. Louis as a center of world commerce. It was a period of dynamic growth for the great South West. St. Louis was the principal gateway for supplies of every conceivable kind. It was during this period the great wholesale houses of Shapleigh Hardware Company and Simmons Hardware Company grew to enormous size and prestige. Small wonder then that citizens of St. Louis still have a nostalgic feeling for the word Centenary. Any new business with Centenary in its name is sure to enjoy local favor.

In order to tell the story of the Tolhurst McCluskey Fabrics Company it is necessary to identify two older and now merged companies.

Prior to 1900 and until about 1910 kerosene burning stoves and space heaters were in common use in the country and throughout most of the civilized world. One type of oil burner used a long tubular cotton wick which functioned in the same manner as a lamp wick. A later and more efficient type burner used asbestos wicks. The cheaper asbestos wicks were cut from flat plies of asbestos paper tapes stapled together. The better grade asbestos wicks were cut to length from an open textured woven asbestos tape. Standard widths were [illegible] and [illegible].

The Centenary Manufacturing Company had a humble beginning. It was actually started about 1920 in the basement of Reese Tolhurst's home. Reese Tolhurst was a buyer for Shapleigh Hardware at the time. He had a partner named Monty Shiner who was employed by The Southern Bell Telephone Company. The two men were life long friends through their association in the Centenary Methodist Church

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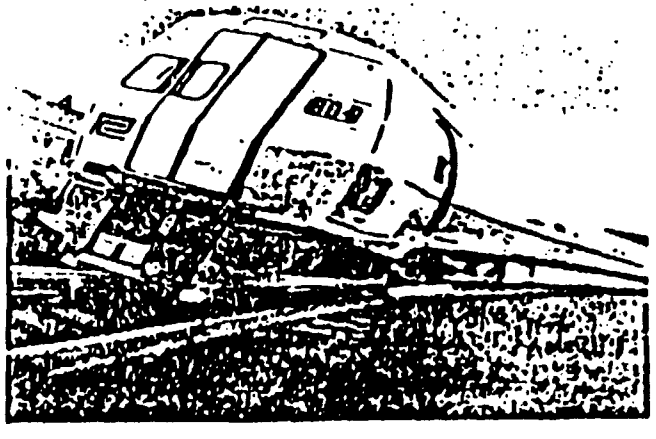

Working at night, they cut, packaged and sold asbestos stove wicks to augment their regular incomes.

In 1925 Roscoe Tallman tried, unsuccessfully, to interest Shapleigh Hardware in adding plumbing goods to their already extensive catalog. Failing in this he resigned and took on the line himself. In this endeavor he had for a partner E. L. Sauer who operated a machine shop at 111 Market street in St. Louis. The Tallman Company, wholesalers of plumbing goods, opened shop at the Market St. address.

It was about this time that Theodore C. McCluskey went to work for the plumbing supply company. Originally he worked in the warehouse and drove the delivery truck. Like his associates, he worked at night packing asbestos stove wicks. The Centenary Mfg. Co. Ted McCluskey graduated to plumbing supply salesman and then had the good fortune to marry Roscoe Tallman's adopted daughter. In so doing he became a part of the family management.

The plumbing supply business grew slowly at first. In later years with the help of Roscoe's two able sons, Daniel C. Tallman and Roscoe B. Tallman, the business expanded rapidly. Branch warehouses were opened in Salida, Missouri, Florence and Decatur, Alabama; and Nashville, Tennessee. In 1947 the headquarters warehouse was moved to Kirkwood, Missouri.

In 1946 Centenary Mfg. Co. was dissolved and Tallman McCluskey Company was incorporated. At this point Monty Stamer withdrew from the firm. Roscoe B. Tallman remained with Tallman-McCluskey until about 1950, at which time he left to build a plant in Louisiana, Missouri to house The Tallman Conduit Company. Ted McCluskey then proceeded to build the T-Mac Co. into a sizeable separate enterprise. Asbestos stove wick/wire sales were developed not only in the United States but also in South America, the Caribbean Islands and the Near East.

Following the move to Kirkwood it was decided to purchase four tape looms to weave asbestos stove wicking from purchased yarn. The next step was to install carding and penning capacity to produce their own yarn. In logical sequence asbestos cloth looms were added to the mill, and the name of the firm was changed to Tallman McCluskey Fabrics Company.

Tallman McCluskey Fabrics wove most of the Navy specification asbestos cloths. Sales effort was concentrated on the East Coast shipyards. The relative proximity of St. Louis to

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Gulf Coast ports gave T. McC. Fabrics a geographic advantage in servicing this market. The mill also wove the garden variety of safety garment fabrics.

The T. McC. story would not be complete without mentioning that almost all of the equipment installed in the mill was second-hand machinery. Ted McCluskey was not a trained textile man and yet he personally overhauled and rebuilt most of the equipment in his plant. He literally made something out of nothing.

In later years Ted Sr. was assisted by his son, Ted D. McCluskey. The young man must have inherited his father's mechanical ability. He designed and built a treating tower to convert asbestos cloth to latex-coated gasket sheet, and graphited asbestos sheet packing. In the few years that young Ted was associated with the firm he did much to enhance the operating efficiency of the mill.

In 1957 Tallman McCluskey established itself as a full-fledged asbestos textile manufacturer by joining the Asbestos Textile Institute. Ted McCluskey represented his company on the ATI Board of Governors and also was active on several committees. He served as Treasurer of ATI in 1958 and as Vice President in 1961 and 1962.

Over the years Ted McCluskey failed to build up an organization to support his individual efforts. He died July 15, 1966 at the age of only 57 without having trained an able successor.

In the fall of 1965 it was apparent that Ted McCluskey was in failing health. At this juncture Roscoe Tallman, Sr., hired Jerry E. Mitchell as Executive Vice President to direct the company's affairs. Jerry Mitchell had been General Manager of the Gladstone Works of H. K. Porter Co., Inc.

Roscoe C. Tallman died December 17, 1968 at the age of 88. Following his death the family decided to sell Tallman McCluskey Fabrics as a going concern. The H. K. Porter Co. purchased the business February 17, 1969. For about two years Porter operated the mill as a subsidiary of its Thermoid Division. It then was decided to consolidate the Earlwood plant with another Thermoid mill at Bennettsville, South Carolina. Thus ended Tallman McCluskey Fabrics Company as a member of the U.S. asbestos textile industry.

Next Issue . . . .

Chapter XXV American Society for Testing and Materials

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

Chapter XXV. American Society for Testing and Materials

By John A. Bettes, Jr.

Associated by the Staff of ASBESTOS

American Society for Testing and Materials was born June 16, 1898, as the American Section of the International Association for Testing Materials. The proposed By-Laws of the American Section were submitted for approval at the First Annual Meeting held August 27, 1898, marking 1973 as the 75th Anniversary Year of the Society. Officially the 75th Diamond Jubilee year begins June 1972 with the grand finale scheduled for June 24-29, 1973, at the 76th Annual Meeting to be held in Philadelphia, Pennsylvania, where ASTM was born, chartered and has always had its headquarters.

This "History of the Asbestos Textile Industry in the U.S." would not be complete without proper mention of the role played by the American Society for Testing and Materials in the development and stabilization of the U.S. asbestos textile industry. Prior to 1925 each asbestos textile manufacturer sold its own products, backed by its own warranty. The determination of acceptable quality standards for asbestos textile products was a matter of agreement between buyer and seller. It would not be difficult to visualize the endless and largely needless variation in product under so casual a system.

It was no doubt a sign of maturity in the industry when in 1925 a group of executives decided it would be desirable to establish acceptable industry standards to define specific asbestos textile products. They logically turned to ASTM for guidance. The Society had already accomplished the desired standardization for most other branches of the textile industry.

The members of the original ASTM Sub-Committee "A-1 on Asbestos Textiles" serving in 1925 and 1926 were: Chairman S. R. Slavinskaya of U.S. Asbestos Company, H

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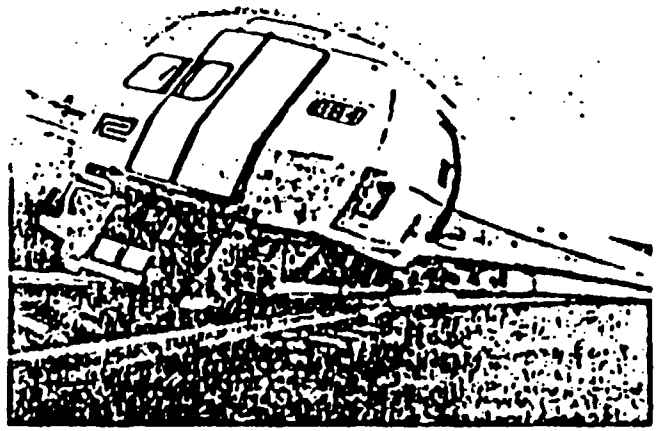


J. Bishop of U.S. Testing Company, Dean Harvey of Westinghouse Electric Corporation, Morton F. Judd of The Raybestos Company, W. H. Moore of General Electric Company, W. H. Morris of Keasbey & Mattison Company, and C. W. Robbins of Western Electric Company. (Mr. Slaymaker was then President of U.S. Asbestos, Manheim, Pa., and of the Slaymaker Lock Company, Lancaster, Pa.)

Over the years more than 100 industry executives and technicians have contributed their time and talent to Sub-Committee A-4 on Asbestos Textiles, part of ASTM Committee D-13 on Textile Materials. The following Chairmen of Sub-Committee A-4 now designated as Sub-D13.11 [A-4 on Asbestos] deserve special recognition for long periods of service to the industry: Jesse M. Weaver, Raybestos-Manhattan Inc. from 1925-1956, Fred S. Mapes, General Electric from 1956-1954, and Paul J. Nicodemus, General Electric from 1954 to the present.

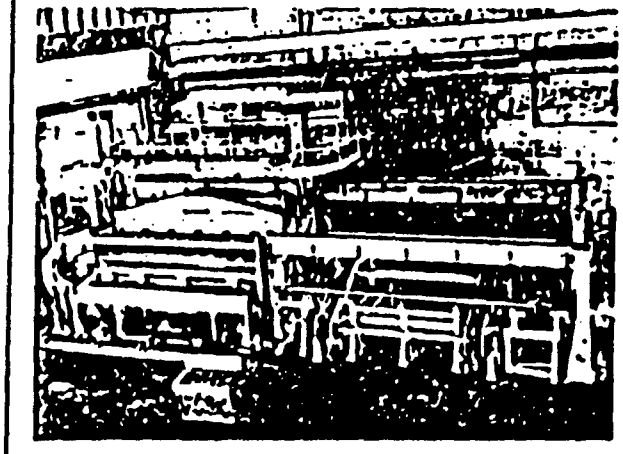
The establishment of mutually acceptable standards for asbestos textile products was a slow process as will be seen from the following table of adopted Specifications and Methods of Test.

ASTM SPEC. OR TEST METHOD	PRODUCT	YEAR FIRST ISSUED
D [illegible]	Asbestos Yarn	1928
D [illegible]	Woven Asbestos Tapes	1929
D [illegible]	Asbestos Roving	1943
D [illegible]	Asbestos Tubular Sleeving	1941
D [illegible]	Asbestos Tape	1949
D [illegible]	Test for Magnetic Rating	1950
D [illegible]	Woven Asbestos Cloth	19[illegible]
D [illegible]	Asbestos Content of Textiles	19[illegible]
D [illegible]	Asbestos Textiles Used for Electrical Insulation	1962

For the past several years the updating of ASTM Standards for asbestos textile products has been under the supervision of Chairman Paul Nicodemus and Paul J. Smith, Secretary of ASTM Committee D-13. Mr. Smith currently represents ASTM as the Asbestos Textile Institute conferences. Messrs. Smith and Nicodemus have effectively coordinated the efforts of ASTM Committee D-13 and the ATI

50 YEARS OF EXPERIENCE

in the field of machinery for asbestos-cement products



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Technical Committee in the rewriting of the ASTM asbestos textile standards.

John D. McClure, retired from H. K. Porter Company, Inc., and a former Chairman of the ATI Technical Committee, is responsible for much of the effective accomplishments of ASTM Sub-Committee A-1. John W. Hawkins, of Raybestos-Manhattan, who had served as Chairman of the ATI Technical Committee from 1967 until October 1971, and his successor, J. W. Leheard, of H. K. Porter, also worked closely with the ASTM Sub-Committee.

All asbestos textile manufacturers owe a great debt of gratitude to the American Society for Testing and Materials for the patient manner in which it has supervised and co-ordinated their efforts to achieve acceptable industry standards.

Next and Final Chapter . . .

Asbestos Textile Institute

THE COVER

A Littleford Mixer used by Raybestos-Manhattan, Inc. in its Stratford, Connecticut, plant in the manufacture of brake lining. The various raw materials are weighed into a stock container which is then transported to the skip hoist mounted at the Littleford. The skip hoist is used to charge the mixer which is then cycled automatically by a series of [illegible] and temperature [illegible] devices. The mixer is jacketed and both water and steam are used to adjust the batch temperature as required. At the end of the mixing cycle the stock is emptied into a stock can and held for further processing. The mixer is one of several Littleford units used by Raybestos-Manhattan. A description of the Littleford FKM Mixer appears in this issue, beginning on page 8.

[illegible]

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

By John A. Bettes, Jr.

[illegible] of ASBESTOS

Chapter XXVI: Highlights in the History of the Asbestos Textile Institute

PART I

In the writer's opinion, the founding of the Asbestos Textile Institute is the single most important event in the History of the Asbestos Textile Industry in the United States. It therefore seems fitting that the story of the founding of the industry's own trade association conclude this history of the asbestos textile industry.

In 1944 E. R. Hoff was President of Johns-Manville Sales Corporation. It was Roy Hoff who perceived the need for an industry trade association and it was he who sold the various company Presidents on the advantages to be gained in the establishment of the Asbestos Textile Institute. There is no question but what Roy Hoff was the father of ATI.

An organizational meeting was held at the University Club in New York City on November 16, 1944. Eleven asbestos textile manufacturers were represented as follows:

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

A constitution and by-laws were adopted at the ATI organizational meeting. The stated purposes of the Asbestos Textile Institute as enumerated in its constitution are as follows:

- [illegible] standards in the industry, and [illegible] manufacturers and the trade [illegible] public.

Asbestos

Vital at all the stops along the way.

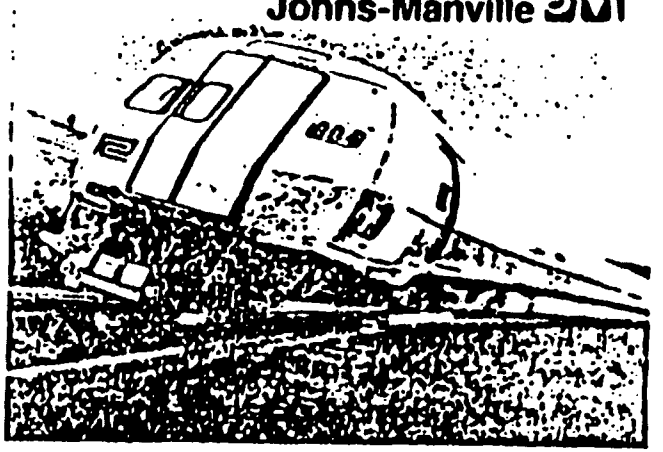
At speeds of up to 100 mph Amtrak's New York-Washington, D.C. Metroliner needs all the stopping power it can get. So hard working asbestos is used in the brake shoes on this cannonballing express.

Tough, lightweight, incombustible asbestos is a unique material. Indispensable for hundreds of protective uses – in industry, in homes and public buildings, in cars and trucks and trains, on ships, even on spacecraft.

Without asbestos, life for all of us would be a lot more hazardous.

For information on how asbestos can help you, contact your local J-M representative or the Canadian Johns-Manville Co., Ltd., Box 1500, Asbestos, P.Q. Or Johns-Manville Asbestos Fibre Sales, Box 159, Manville, New Jersey 08835 U.S.A.

Johns-Manville JM



2. To lawfully promote the following activities:

(a) The development of standards through research, practical tests and other available means, the application of which by individual manufacturers will insure a proper measure of quality in each of the Industry's products.

(b) The development through research and other means of new uses and markets for the Industry's products, resulting in an increased consumption and a grading up of the Industry's products through the sale of better quality asbestos textile materials.

3. To lawfully promote and foster such Industry policies and programs as will tend:

(a) To cultivate the good will of engineers, distributors, manufacturers and [illegible] public, and to improve their acceptance of the Industry's products.

(b) [illegible]

(c) To [illegible] through cooperative research, improved manufacturing, [illegible] and distribution methods.

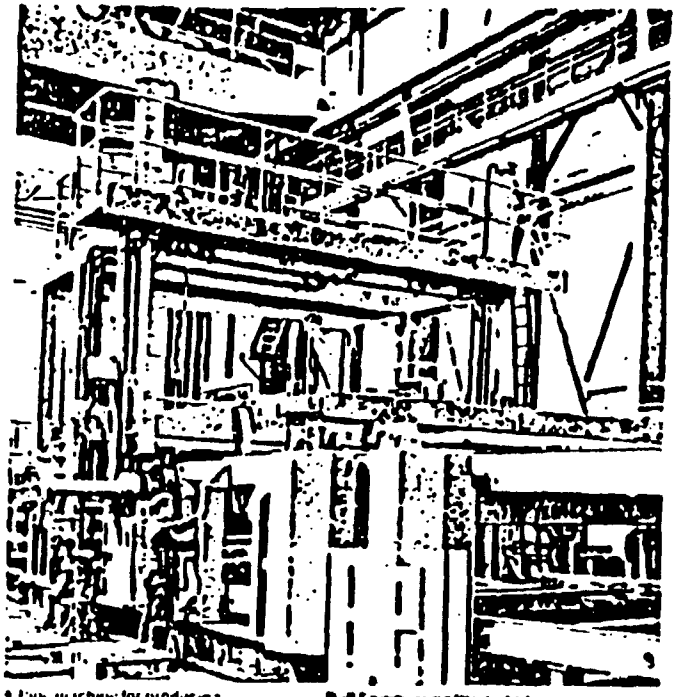
(d) [illegible]

4. [illegible] collection and dissemination of [illegible] in respect to production, orders, [illegible] credit, [illegible] employment [illegible]

The members of the first Board of Governors of the Asbestos Textile Institute were elected November 16, 1911, as follows: George S. Label, Southern Asbestos Co.; George W. Marshall, Jr., Raybestos Manhattan, Inc.; William C. Scott, Keasbey & Mattison Co.; Edmund R. Teubner, Philadelphia Asbestos Co., and Francis J. Wakem, Johns Manville Corporation. The Board of Governors then elected the following officers: C. Herbert Carlough as President, George W. Marshall, Jr., as Vice President and William C. Scott as Treasurer.

At the organization Meeting, the members retained F. Sims McGrath of Cadwalader, Wickersham & Taft, as legal counsel. This prestigious New York law firm has represented ATI ever since that time. The presently assigned counsel is Wendell B. Alcorn.

West Flint & Co. were retained as Independent Accountants November 16, 1911. It was their function to compile industry production figures each calendar quarter and to report to each manufacturer his percentage of the total by



4 Pipe machine for producing pressure pipes

Bell Engineering Works Ltd
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Telex 78 167 bell ch
Switzerland

Manufacturer of Asbestos Cement Machines

Slurry preparation equipment

Stiff [illegible]
Stamping presses for cutting slates
Stacking presses for high density sheets
Cross conveyors
Corrugators

Pipe machines for high pressure pipes
Pipe and socket lathes
Cutting off lathes
Presses for water pressure test

Auxiliary Equipment
Watering vacuum pumps

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product categories. The reporting form adopted was the same as that prescribed by the War Production Board during World War II and, in fact, is still being used by the industry.

The first quarterly meeting of ATI was held March 20, 1945. The Board of Governors engaged Harris D. McKinney as Manager and Assistant Treasurer. Mr. McKinney was President of Harris D. McKinney Inc., an advertising agency that specialized in the management of trade associations. The agency now operates from offices in Philadelphia, Pa., and Cleveland, Ohio, and handles many industrial accounts.

Also on March 20th the Chase National Bank was designated the depository of Institute funds.

On July 25, 1945, Manager McKinney outlined "A Primer on Asbestos Textiles." The 28-page booklet was subsequently printed and distributed to familiarize students with the properties and uses of asbestos fiber and asbestos textiles.

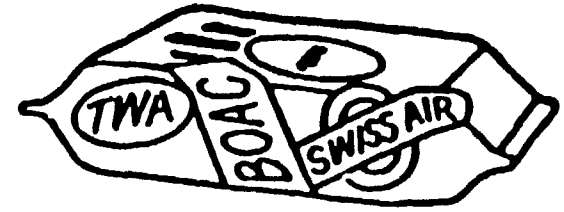
On October 16, 1945, a joint meeting was held in Sherbrooke, Quebec, Canada, by ATI and the Quebec Asbestos Mining Association (QAMA). Five mines and four asbestos textile manufacturers were represented. This was the start of a program which has resulted in substantially improved quality and grading of asbestos fiber over the years. In addition, lowered dust count in the fiber has resulted in better yields and in improved working conditions in the asbestos textile mills.

From time to time, various committees were appointed to carry forward the stated objectives of the Association. At the December 1945 conference, William S. Acuff, Sales Manager for Keasbey & Mattison, was appointed the first Chairman of the Sales Promotion Committee. Most ATI committees became permanent standing committees of the Institute, with rotating chairmen and membership.

At this same conference, Robert F. Cryor, then with Union Asbestos & Rubber Co. (now Unarco Industries, Inc.), [illegible] report on his inspection trip to German and other European asbestos textile mills. Mr. Cryor's tour was under the auspices of the U.S. Army and he had been commissioned a Colonel for the duration of his stated activity.

On December 12, 1945, Malcolm I. Ruddock attended his first ATI conference as the representative of Cadwalader, Wickersham & Taft. At each succeeding conference Malcolm Ruddock reviewed a current law case which he con-

The Worldly Asbestos



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Tokyo, Italy
Tokyo, Japan
Seoul, Korea
Mexico City, Mexico
Haarlem, Netherlands

Auckland, C.F. New Zealand
Prince Rupert, Nigeria
Buenos Aires, Argentina, S.A.
Sao Paulo, Brazil, S.A.

Barranquilla, Colombia, S.A.
Lima, Peru, S.A.
Valencia, Spain
Stockholm, Sweden
Caracas, Venezuela

R. V. Robinson & Ass. Pty. Ltd.
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Guzman, S.A.
N. Ali Nicolas Johannesen
Ing. H. Sekler & Associados S.R.L.

selected pertinent to the asbestos textile industry. His untimely death on June 18, 1961, was a great loss to CWAT and to the asbestos textile industry.

On June 13 1956 the annual conference of the ATI Dust Control Committee was called to the Committee's host Chairman Ernest Muehlock, then President of KAM. The members of the Committee discussed procedures for exhausting collecting and measuring asbestos dust. This was the start of a highly functional program which is still carried forward by ATI's Air Hygiene & Manufacturing Committee.

On December 12 1956 Jesse M. Weaver Chairman of the Technical Committee recommended the establishment of a Research Fellowship at Rutgers University. He also recommended the employment of Dr. Myrel C. Shaw as Research Fellow. Both recommendations were approved and the Technical Committee was given responsibility for the direction and supervision of the Fellowship. Dr. Shaw's laboratory was actually in the Ceramics Department of the Rutgers University Laboratory. For years the Ceramics Laboratory had specialized in high temperature work and was well equipped to undertake both temperature testing of asbestos textiles under Dr. Shaw's direction. In subsequent years Jesse Weaver served several terms as Chairman of the ATI Technical Committee and did as much as any man to direct the Fellowship along productive lines.

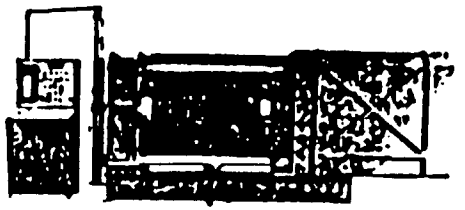
During World War II wages and prices of all products were frozen. On December 12 1956 Manager Harris McKinney notified all members of the industry that the Office of Price Administration (OPA) had removed the price ceilings on industry products.

At the June 1958 conference Harris McKinney resigned as Manager of ATI and Dr. Shaw was appointed Executive Secretary and Assistant Treasurer in addition to his duties as Research Fellow.

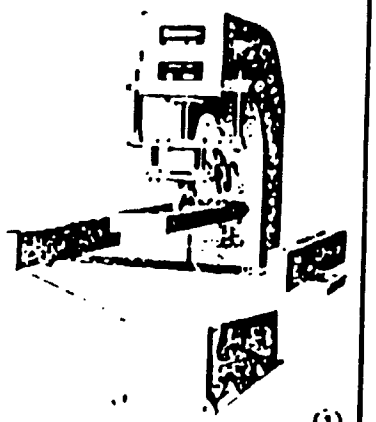
At the May 1959 conference the Sales Promotion Committee presented the first Visual Aid Display. This was an illustrated cabinet outlining the origin and uses of asbestos textiles. The presentation piece met with such enthusiastic acceptance that six additional cabinets were ordered. Over the next several years the cabinets were on short term display at most of the technical colleges in the U.S.

In March 1960 Dr. Shaw demonstrated the Abrado-

① Bending and crushing test press for sheet and pipes



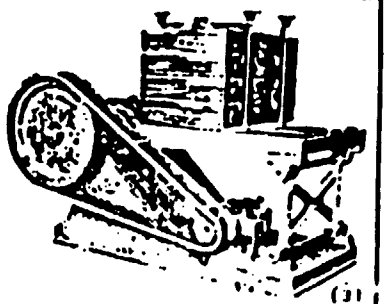
②



(1)

② Bursting test press for pipes

③ Classifier for testing asbestos fibres



(3)

Asbestos-cement testing machines designed and manufactured by:

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Flex machine which he had developed. This instrument measures the comparative resistance of asbestos cloths to frictional wear, and simultaneously their resistance to flexing. The Abrado-Flex machine simulates the two factors which generally determine the useful life of an asbestos textile in normal service.

In April 1951 the publication of a new four page booklet was authorized. Twenty-eight thousand copies of "The Story of Asbestos Textiles" were printed with distribution principally to high schools and elementary schools.

In December 1951 the Constitution and By-Laws of AFI were amended to permit the inclusion of associate members. At the March 1952 conference applications from two asbestos mines and from two asbestos textile manufacturers were approved. Asbestos Corporation Ltd., English Asbestos Co. Ltd., The Johnson Co. Ltd. and Small & Parks Ltd. Invitations for membership were also sent to Bell Asbestos Mines Ltd., The Cape Asbestos Co. Ltd., British Belting & Asbestos Ltd. (now BBA Group Ltd.) and Turner Brothers Asbestos Co. Ltd. All of these long established members of the industry subsequently joined the Asbestos Textile Institute.

The October 1952 conference authorized the printing of the first "Handbook of Asbestos Textiles." The 78 page pamphlet combined product illustrations and data borrowed from the catalogs of various members of the industry. It also offered basic information and performance charts on asbestos textiles which had been developed by Dr. Shaw in the Fellowship Laboratory at Rutgers. Ten thousand copies of the Handbook were printed in September 1953.

In March 1954 it was determined that Dr. Shaw had concluded just about all the test programs he could accomplish with the facilities available to him at Rutgers. It was therefore decided to transfer the Fellowship and Dr. Shaw to the Philadelphia Textile Institute (now the Philadelphia College of Textiles and Science) effective September 1954.

It was decided in September 1955 to purchase a most elaborate exhibit of asbestos textiles and their use. This was to be an extension of the successful sales campaign provided by the seven smaller display cabinets purchased in 1949. The new exhibit consisted of four large illuminated display cabinets to be shown as one unit. During the next

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several years, the educational exhibit was loaned to numerous engineering colleges and technical schools. It was indeed a credit to the industry and to the Asbestos Textile Institute.

The June 5-7, 1956 conference was a gala event in the history of ATI. It was the first quarterly meeting to be held at Thetford Mines, Quebec, Canada. The Quebec Asbestos Mining Association (QAMA) hosted the event and it was a most informative and educational experience for all delegates who attended. Members had a choice of going underground into the Bell Mines (owned by Turner & Newall) or the King Mine (one of the properties of Asbestos Corporation). Smaller groups also visited several of the open pit mines. The hosts provided a memorable banquet at the Thetford Golf Club.

Part 2 of the "Highlights in the History of the Asbestos Textile Institute" will appear in the next issue.

Your Attention, Please!

We are considering reprinting, in booklet form, the entire "History of the Asbestos Textile Industry in the United States" as it has been appearing monthly in ASBESTOS since the August 1970 issue. The booklet would be the same size as ASBESTOS and would run about 100 pages. Price per reprint would be dependent upon the size of the run but would not exceed $2.95 per copy—a modest sum for what we believe is the only written account of the history of the U.S. asbestos textile industry. Are you interested? If so, please let us know how many copies you would like. If the number of advance orders is sufficient and you contact us now, we will proceed and the reprints could be available for distribution by or before November of this year.

THE COVER

Suction box covers, in a herringbone pattern are used in asbestos cement machinery. Made of a synthetic material instead of steel, the covers were developed by Messrs. Leripa, of Austria and are marketed under the "Robalit 61" trade name. Turn to page 11 for the complete story.

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THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

By John A. Bettes, Jr.

As edited by the Staff of ASBESTOS

Chapter XXVI: Highlights in the History of the Asbestos Textile Institute

PART 2

The Fiber Evaluation Committee was established at the ATI conference held June 5, 1958. Clyde R. Hutchcroft of K&M was elected first Chairman. In June 1962 under the direction of Clyde Hutchcroft the Committee published 3400 copies of an authoritative 169 page manual entitled "Testing Procedures for Chrysotile Asbestos Fiber." An updated 256 page revision was printed in 1966 under the direction of Chairman Irvin Barnett, John Manville Corporation. The manuals were issued under the joint sponsorship of ATI, QAMA and the Asbestos Cement Products Association (ACPA).

By December 1958, the supply of the first edition of the "Handbook of Asbestos Textiles" had been depleted and it was voted to produce a revised second edition. Howard Bain was engaged to undertake the assignment. He had recently retired as Industrial Advertising Manager for Johns-Manville Corporation. Again, a great many members of the industry contributed to the project. George L. Harris of Southern Asbestos Co. was especially helpful to Howard Bain. In September 1961, 15,000 copies of the 100 page second edition were distributed. The third and current edition was printed in January 1967.

By June, 1963 Dr. Shaw had concluded all of the project he could profitably undertake with the facilities available to him at the Philadelphia College of Textiles and Science. The ATI Board of Governors, therefore, reluctantly decided to conclude the Fellowship.

During an association of more than sixteen years, Dr. Shaw had made many accomplishments that advanced the status of the asbestos textile industry and its trade association, the Asbestos Textile Institute. In his capacity as Research Fellow, Dr. Shaw produced sixty technical reports

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Without asbestos, life for all of us would be a lot more hazardous.

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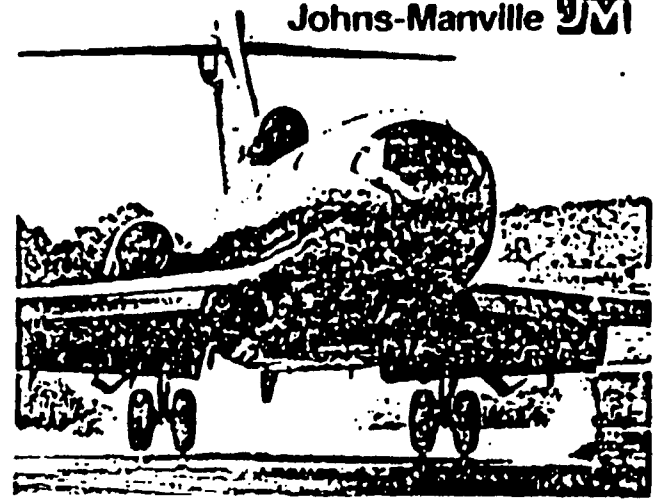

which did much to enhance the prestige of ATI. A good deal of the valuable technical data has been included in the several volumes of the "*Handbook of Asbestos Textiles*."

Dr. Shaw also did an excellent job of representing the industry in its necessary contacts with Federal governmental departments. For example, he assisted in the writing, and in subsequently revising of the asbestos cloth specifications published by the Bureau of Ships, U.S. Department of the Navy. In his capacity as Executive Secretary of ATI, he arranged for quarterly conferences and made all of the necessary hotel reservations. His business-like methods did much to promote the success of a long series of industry conferences. The premature death of Dr. Meryl Clement Shaw on November 12, 1963 was mourned by all members of the industry.

Herbert L. Sanborn retired March 30, 1962, as Sales Development Manager-Asbestos Textiles for U.S. Rubber (now Uniroyal). In July 1963, he was prevailed upon to accept the position of Executive Secretary and Assistant Treasurer of ATI and has to this day carried out the duties of these offices with distinction. The headquarters of the Asbestos Textile Institute were moved in 1963 to the present location, 75 Center Street, Pompton Lakes, New Jersey.

On February 6, 1964, the Air Hygiene & Manufacturing Committee, chaired by L. C. Williams, of Raybestos-Manhattan, Inc., issued a fifteen-page pamphlet titled "Method for Determining Asbestos Dust Concentration." The literature described the best available testing techniques of the then-current state-of-the-art.

The October 1964 conference was a festive affair, held at the Barbizon Plaza Hotel in New York City, and marked the 20th Anniversary of the Asbestos Textile Institute.

At the February 1965 conference, Dr. L. J. Cralley of the U.S. Public Health Service (USPHS) reported on his findings from a survey of workers' conditions at various asbestos textile plants. He expressed his appreciation for the fine cooperation afforded him by Management, Employees and Unions. This was the beginning of the Federal Government's concern with possible health hazards at plants that are engaged in the manufacture of all asbestos-based products.

Dr. L.W. Axelson of Johns-Manville, presented a technical paper on the "Dynamics of Asbestos Fibers - Discrete and Ball, Properties" at the conference held in October 1965. At



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this same meeting, ATI Technical Committee Chairman J. D. McCluer began the task of up-dating all of the American Society for Testing and Materials (ASTM) specifications for asbestos textiles. This was done in cooperation with ASTM Committee D-13, Sub-Committee A-4 (see June 1972 ASBESTOS, page 6).

At the February 1966 conference, Joseph P. Wronski (Raybestos-Manhattan) presented a technical paper on "The Role of Fibers and Whiskers in Reinforcement." This excellent paper was reprinted in the August and September 1968 issues of ASBESTOS.

"The Use of Asbestos Textiles in Industrial Products" was the informative paper presented by G. Ellwood Houghton of Garlock, Inc. at the conference held February 10, 1967.

The June 1967 conference was held in Montreal, Quebec, to afford the membership an opportunity to attend "Expo '67" – an international World's Fair. It was at this meeting that the purchase of Bausch & Lomb dust counting equipment was authorized at a cost of $5000. The equipment was to be used to monitor dust counts in plants of member companies.

On October 5, 1967, Hilados y Tejidos de Asbesto, S.A., Mexico, became an associate member of ATI.

The highlight of the February 1968 conference was the presentation of an outstanding paper by Paul O. Nicodemus, of General Electric Company, titled "Asbestos Textile Electrical Insulations – Properties, Present and Future Importance" [reprinted in ASBESTOS in the April, May and June 1968 issues].

On June 6, 1968, Dr. L. J. Cralley (USPHS) reported on the status of his "In Plant Health Study." He also discussed his paper concerned with the "Characteristics and Solubility of Metals Associated with Asbestos Fibers." Also at the June 1968 meeting, Dr. G. R. Cuthbertson, Technical Director, Uniroyal Fiber & Textile Division, gave an informative lecture on "The Acceleration of Textile Technology."

An Asbestos Health Seminar was sponsored by ATI on October 2, 1968. Clifford L. Sheckler, Chairman of the ATI Environmental Health Committee was in charge of the well-attended, three-hour program held at Hotel Hershey, Hershey, Pennsylvania. Also in October, the ATI Board of Gov-

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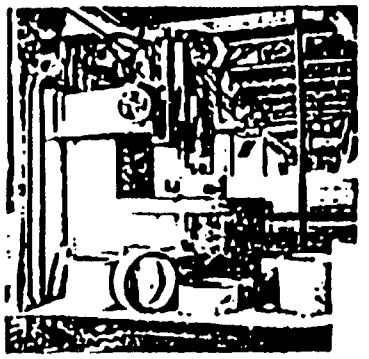
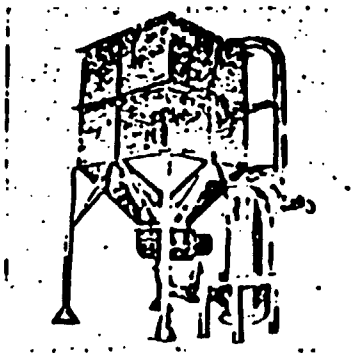

Hydraulic lathe for pipe couplings


Sheet cutting press 3.6 1.3 m / 12 4'


Turbopulper with horiz. rotors and pump


Test press for pipes

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ernors approved the recommendation of the Air Hygiene & Manufacturing Committee that all member companies adopt the wet weaving process to minimize the hazard of dust at their operations. Guest of honor at the October 1968 general meeting was Miss Edith E. Cox, Editor of ASBESTOS for many years, and recently retired.

The application of Nicolet Industries, Inc., for regular membership in ATI was approved at the June 1969 conference. Edward W. Fisher, of Garlock, presented a paper on "The Use of Asbestos Textiles in the Packing Industry" at this conference.

On June 19, 1969, the Environmental Health Committee urged all members to develop dust free asbestos fabrics, to avoid the loss of U.S. Navy business.

On February 5, 1970, the Board of Governors approved the application for associate membership in ATI of two asbestos textile manufacturers: Nippon Asbestos Co., Tokyo, Japan, and Asbestos Textil, S.A., Mexico.

Brought up for discussion at the June 1970 conference was "The Threshold Limit Value for Airborne Asbestos Dust" and related labeling requirements, proposed by the American Conference of Governmental Industrial Hygienists (ACGIH). These proposed stringent regulations posed a most serious threat to the entire industry.

In April 1971, the Air Hygiene & Manufacturing Committee, under the Chairmanship of H. M. Willingham, Uniroyal, Inc., issued a sixteen page instructional pamphlet titled "Measurement of Airborne Asbestos Fiber by the Membrane Filter Method."

On June 9, 1971, the ATI Board of Governors approved the application for associate membership of Manufacturas Multiples, S.A., an asbestos textile manufacturer in Caracas, Venezuela. Also at this conference was the announcement by Milton Q. Scowcroft, Chairman of the ATI Asbestos Advisory Committee, of the availability of 25,000 instructional booklets concerned with the "Recommended Health Safety Practices for Handling and Fabricating Asbestos Textile Products." The new literature is available, without charge, from any member company or from ATI headquarters.

Wendell B. Moore, Legal Counsel, gave a comprehensive review, on February 3, 1972, of developments under the Williams-Steiger Occupational Safety & Health Act (OSHA)

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which became effective April 28, 1971.

On March 14, 1972, ATI sent Alexander Kuzmik (a member of its Board of Governors) to Washington, D.C., to attend the scheduled Public Hearing and present testimony before Arthur M. Goldberg, Hearing Examiner, U.S. Department of Labor, stating the objections of ATI members of the asbestos textile industry to the proposed asbestos dust standards as published in the Federal Registers of December 7, 1971, and January 12, 1972. He also expressed objections to the recommendations proposed by the National Institute for Occupational Safety & Health (NIOSH) in its criteria package, and by the U.S. Government's Asbestos Advisory Committee.

In this chapter, due recognition must be given to the ATI Fiber Committee which consists of representatives of each of the principal Canadian asbestos mines. At each ATI conference, a senior officer of a mine gives the members an up-to-date report on the demand and supply situation for the various grades of asbestos spinning fiber. The reports generally cover not only the United States and Canada but also the other major markets throughout the world.

As the reader will readily recognize, it is the standing committees of ATI that carry forward the sundry activities of the Institute. A complete history of ATI would list all the committee chairmen and their years of service. In view of space limitations, it is practical to list only those who have occupied the most demanding post, that of president. Those men and their company affiliations at the time, who have served as President of the Asbestos Textile Institute are listed as follows:

[illegible]

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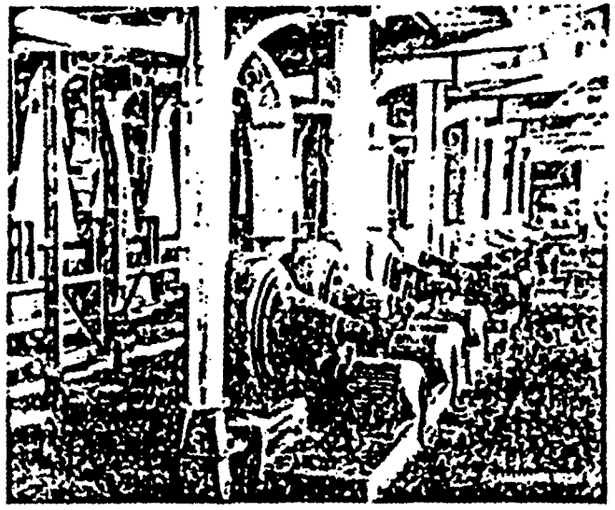

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Every industry of any size needs a trade association to provide a common meeting ground and to promote the welfare of the industry. The Asbestos Textile Institute has faithfully served the best interests of its member companies for twenty-seven years. Hopefully the next decade will record even greater levels of accomplishment.

Conclusion

This twenty-sixth chapter of "The History of the Asbestos Textile Industry in the United States" concludes the series. Obviously it has been impossible to give due recognition to each and every individual who, somewhere along the line, has made a substantial contribution to the growth and prosperity of the industry.

However, with the willing and able assistance of Herbert L. Sanders and with complete freedom of access to the storehouse of information in the files of ASBESTOS, this chronicle has been made as complete and factual as possible insofar as major events and outstanding individuals are concerned.

It is hoped this record of past accomplishments will encourage younger men to lift the industry to an even greater state of usefulness.

The writer's thanks go to ASBESTOS for having undertaken the publication of this "History."

John A. Bettes, Jr.

Your Attention, Please!

We are considering reprinting, in booklet form, the entire "History of the Asbestos Textile Industry in the United States," as it has been appearing monthly in ASBESTOS since the August 1970 issue. The booklet would be the same size as ASBESTOS and would run about 160 pages. Price per reprint would be set depending upon the press run but would not exceed $2.95 per copy—a modest sum for what we believe is the only written account of the history of the U.S. asbestos textile industry. . . . Are you interested? If so, please let us know how many copies you would like. If the number of advance orders is sufficient and you contact us now, we will proceed and the reprints could be available for distribution by or before November of this year.



About The Author

John A. Bettes, Jr.

WRITER OF "THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES"

John A. Bettes, Jr., was born July 7, 1904, in Bayonne, New Jersey. Following graduation from the Philadelphia Textile Institute in 1926, he joined his father's hardware jobbing firm of Bettes & Olsen. He began his asbestos textile career in 1929 when he became a salesman for Southern Asbestos Company. In 1939 he joined Raybestos-Manhattan, Inc., as Sales Manager of Asbestos Textiles. During World War II, under War Production Board supervision, he was instrumental in directing the facilities of R/M in providing a major portion of the unprecedented large tonnages of asbestos insulation used as component parts of shipboard cable in the naval construction program. In 1940 he collaborated with Jesse M. Weaver to publish what was at the time the most comprehensive catalog of asbestos textile products ever published. When the Industrial Sales Division was separated into two divisions in 1952, Jack Bettes was named Sales Manager of the Asbestos Textile Division. He became Manager in 1955.

He served as President of the Asbestos Textile Institute in 1957 and 1958 and ably directed one of ATI's most memorable occasions, its 20th Anniversary celebration held during the October 1961 conference. The Certificate of Appreciation, which is the highest commendation awarded by ATI, was presented to Jack Bettes in 1965 for "his many years of devoted and distinguished service to the asbestos textile industry . . ." In 1971, ATI recognized his untiring efforts in compiling and writing the "History" by naming him "Official Historian of the Asbestos Textile Industry, U.S.A."

A dedicated company man and loyal to those who worked for him, Jack Bettes has gained the respect of competitors and business associates alike. Ill health forced an early retirement on July 10, 1970, and he now resides with his wife at Delray Beach, Florida. He keeps busy with bridge, golf and bowling but still maintains an active interest in R/M, ATI and the asbestos industry as a whole.