

THE HISTORY OF THE ASBESTOS TEXTILE INDUSTRY IN THE UNITED STATES

By: John A. Bettis, Jr.

As edited by the Staff of ASBESTOS

(Mr. Bettis retired in 1966 as Manager of the Asbestos Textile Division of Raybestos-Manhattan, Inc. He had been with the company since 1939 and among his many achievements had assisted in preparing R/M's first catalog on asbestos textiles. He is a past president of the Asbestos Textile Institute. Mr. Bettis is regarded as an authority on the asbestos textile industry.)

We gratefully acknowledge the time and effort Mr. Bettis has put into this series and know that those involved in the asbestos textile industry appreciate his endeavors and will find the "History" a handy source for reference in years to come.)

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 products 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



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 machines unquestionably were the major underlying 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 self-educated mechanical genius from Glasgow, Scotland, recognized that a far more efficient engine would use steam to activate 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, i.e. 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 bast 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 365°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 carded asbestos sliver with a braided cotton jacket, lubricated by impregnation with oil or oil and graphite. Improved versions had braided asbestos or asbestos cloth jackets. In 1884, H. W. Johns Company, Brooklyn, New York, issued a catalog which offered several different styles of 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 locations at which asbestos textiles have been produced in the United States and by what companies. The writer will follow long-established industry practice and define a basic asbestos textile manufacturer as one who cards asbestos roving and spins asbestos yarn. The following list may not be complete but it does include all American companies and all plant locations of which the writer could find record. Obviously, some plants will have dual listings due to changes in ownership over the years. The following companies and plant locations will be noted in this series:

Allbestos Corporation, Philadelphia, Pennsylvania;
American Asbestos Company, Norristown, Pennsylvania;
American Asbestos Textile Corporation, Norristown and Milford Square, Pennsylvania; Meredith, New Hampshire;
Asbestos Fibre Spinning Company, North Wales, Pennsylvania;
Asbestos Spinning and Weaving Company, Waterford, New York;

Asbestos Textile Company, Reynoldsville, Pennsylvania;
 North Brookfield, Massachusetts;
 Asten-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;
 Johns-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 Kubar Manufacturing Company, Davidson, North Carolina;
 Mikesell Brothers Company, Wabash, 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;
 Stando Industries, Inc., Houston, Texas;
 Stokes Asbestos Company, Trenton, New Jersey;
 Tallman-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;

Uniroyal, Inc. (formerly United States Rubber Company), Hogansville, Georgia; Passaic, New Jersey;

Waite-Wild Asbestos Company, Inc., Framingham, 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 ensuing chapters of this "History of the Asbestos Textile Industry in the United States" will appear in future issues of ASBESTOS.

TIAC MEETING—The 8th 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. Guildford, President of Guildford's Limited, Dartmouth, Nova Scotia.

THE PRODUCERS' COUNCIL, INC., will hold its 49th Annual Meeting and Chapter Presidents' Conference at the Regency Hyatt House, Atlanta, Georgia, September 15-17. The theme of the meeting will be "Marketing to Meet a Decade of Change."

EASICA MEETING—The Eastern Atlantic States Insulation Contractors Association, Inc., will hold its Fall Meeting at the Holiday Inn, Hyannis, Massachusetts, September 17-18. For further details contact Mrs. J. Cecilia, Land Title Building, Philadelphia, Pennsylvania 19110 — telephone (215) LO 3-9088.

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