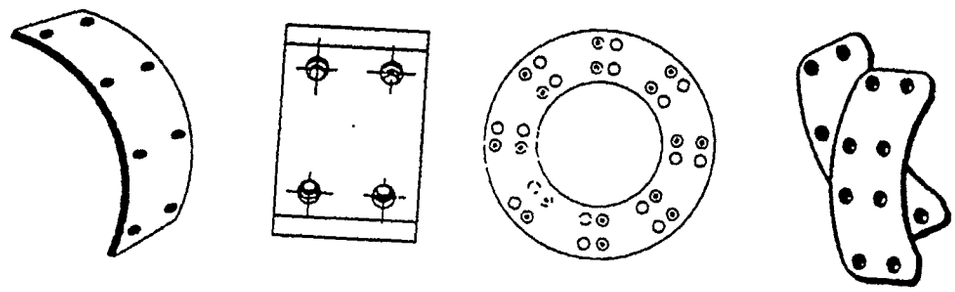
PLAINTIFF'S EXHIBIT

MAR-94

FMSI

HISTORY



FRICTION MATERIALS STANDARDS INSTITUTE

FOREWORD

A history of the Friction Materials Standards Institute probably should start in its year of incorporation--1948. However, in the fashion of the times perhaps it would be appropriate to go back further to the "roots" of the Institute. While the Friction Materials Standards Institute (FMSI) was incorporated in 1948 after the dissolution of the Brake Lining Manufacturers' Association (BLMA), its history goes back to the mid 1920's.

The first catalogs that could be likened to the FMSI Automotive Data Book were published by the Asbestos Brake Lining Association. This association was not incorporated originally, and consisted essentially of several manufacturers of brake linings and clutch facings who prepared a common catalog starting in 1926. These early catalogs were published with covers naming the individual manufacturer and were given a title which included the association's name. It is interesting to note that these catalogs listed drum diameters, widths, lengths and thicknesses along with positions and functions of the particular friction material for each vehicle. There was no standard number as such in the early catalogs. In those days, internal expanding brakes with diameters running up to 17" were used on passenger cars. The original Asbestos Brake Lining Association had its office at 578 Madison Avenue in New York City.

In 1929 the Asbestos Brake Lining Association incorporated under the laws of the State of New York. The corporation moved into new facilities at 7 East 41st Street and continued the activities of the earlier association. The first Data Book similar to the current book was published in 1930 and was appropriately named the "1930 Automotive Data Book." It was not until 1931 that standard numbers were used to identify the various brake linings. The brake codes in these early days were 100 Lockheed Non Servo, 200 Bendix Servo, 400 Steeldraulic and 4,000 Brake Blocks. In 1932 the Automotive Data Book was given a red cover which became, except for the war years, the standard cover.

The Asbestos Brake Lining Association changed its name to the Brake Lining Manufacturers' Association (BLMA) in 1933. During the same year, the Association moved to 370 Lexington Avenue where the Institute stayed until January 1972. In October of 1933 Miss Harriet Duschek was hired by the Brake Lining Manufacturers' Association as their Secretary. Miss Duschek served the Institute through the war years and during the changes that led to the formation of the Friction Materials Standards Institute in 1948 and 1949. Miss Duschek continued with the Institute until her retirement in 1971.

The Brake Lining Manufacturers' Association published the Automotive Data Book and its Supplement up until the start of World War II when supplements only were published. There was little additional information on commercial vehicles from 1942 to 1945. During the war, Miss Duschek's efforts centered on work for the Navy Department and the War Department (prior to the Department of Defense). Considerable cross-reference and catalog data was prepared for commercial and industrial applications, and the 17,000 series was established for non-automotive materials. At the completion of World War II the

Institute resumed publication of complete Automotive Data Books.

It was interesting to note that in the 1930's the Brake Lining Manufacturers' Association included suggested list prices in their catalogs. This was during the days of the New Deal's National Industrial Recovery Act and actions along these lines were not only permitted but were encouraged. However, the late 1940's were different. The Brake Lining Manufacturers' Association was dissolved in 1948 after Justice Department allegations concerning certain activities by members of the Institute.

The BLMA was dissolved in 1948 and all assets were sold to the newly formed Clutch Facing and Brake Lining Institute in 1949. A chronology for this dissolution follows:



Harriet Duschek--Executive Secretary 1933-1971

DATE	MEETING	ACTION
8/26/48	Membership	Resolution passed to dissolve BLMA
9/23/48	-	Certificate to dissolve BLMA filed with New York Secretary of State.
4/27/49	Directors	Directors acting as Trustees in dissolution of BLMA, resolved to sell assets to Clutch Facing and Brake Lining Institute.
4/30/49	-	Assets sold to Clutch Facing and Brake Lining Institute. Activities of BLMA discontinued. Dissolution of BLMA was completed.

ORGANIZATION OF THE FRICTION MATERIALS STANDARDS INSTITUTE

During the period of dissolution of BLMA it was suggested that a new organization be formed primarily for purposes of continuing publication of the Automotive Data Book. With that in mind, a certificate of incorporation was filed in New York State to form the Clutch Facing and Brake Lining Institute. An outline of the formation of the Clutch Facing and Brake Lining Institute with the subsequent name change to Friction Materials Standards Institute is shown.

DATE	MEETING	ACTION
11/16/48	-	Certificate of Incorporation filed with New York Secretary of State for Clutch Facing and Brake Lining Institute.
12/14/48	Incorporators	Incorporators adopted a Constitution and By-Laws.
4/30/49	-	Purchased assets of BLMA.
5/1/49	-	Clutch Facing and Brake Lining Institute commenced operations.
6/23/49	Membership	1st Annual Membership Meeting, which among other things resolved to have name changed (from Clutch Facing and Brake Lining Institute) to Friction Materials Standards Institute, Inc.
6/27/49	-	Certificate of name change filed with the New York Secretary of State.

Mr. Les Stickles of the New York firm of McLaughlin, Stickles and Hayden was Legal Counsel for the BLMA and FMSI during these days of transition. Mr. Stickles continued as Counsel for the Institue until 1975.

The Institute commenced operations under the name Clutch Facing and Brake Lining Institute on May 1, 1949 and shortly thereafter changed its name to the Friction Materials Standards Institute, Incorporated. At a meeting of the Board of Directors in June 1949 the first President was elected: Mr. Amor P. Smith of Russell Manufacturing in Middletown, Connecticut. Many years later the Russell assets were acquired by H.K. Porter Company and operated under its Thermoid Division. The Vice-President was Mr. Thomas L. Gatke, then President of the Gatke Corporation. Miss Harriet Duschek was elected as Secretary to continue on with the responsibilities she had during the days of the BLMA and during the dissolution of that group. The new Institute took over office space at 370 Lexington Avenue in New York City.

1949-1951, AMOR SMITH, PRESIDENT

During the dissolution of BLMA and organization of FMSI, Miss Duschek and her staff continued gathering data on brake linings and clutch facings so that there would be a clean transition for the Institute's Automotive Data Book. One of the prime concerns of the new group was in keeping this information flowing to the members. Because of the rapid changes and individual corporate reasons three major manufacturers did not join the new Institute: American Brakeblok, Johns-Manville, and Thermoid. The Institute membership during this transition was not the same as that of

the former BLMA. An inducement for BLMA members to continue in the new Institute was that there would be no initiation fee required of charter members. Charter members of the Institute were:

Asbestos Manufacturing Co. (Amco)
Fibre & Metal Products, Inc.
Gatke Corporation
Grizzly Manufacturing Company
Lasco Brake Products Corporation, Ltd.
Marshall-Eclipse Division (Bendix Aviation Corporation)
Molded Materials Division (Carlisle Corporation)
Raybestos-Manhattan, Inc.
Russell Manufacturing Company
Scandinavia Belting Company
Southern Friction Materials Company
S.K. Wellman Company
World Bestos Company

During the transition, American Brakeblok, Johns-Manville, and Thermoid were interested in receiving technical information and catalogs, and in order to accommodate these manufacturers a new Associate class of membership was established. At this time Associate Members had rights to all technical information but did not have rights such as the right to vote, to serve on committees, be elected as officers and the like. Questions arose at the time concerning Regional Members and in particular the BLMA of Canada.



Amor Smith—President
1949-1951

The Regional Member classification was established during these early months to specifically include trade association type members such as the former BLMA of Canada. The Friction Materials Standards Institute of Canada then continued on as the first Regional Member of the new Institute.

During these years Mr. Frank Miller of Raybestos-Manhattan served as Chairman of the Data Book and Technical Committee. Mr. Miller had been one of the more dynamic contributors to organizing the new Institute and was later to serve as its President. At that time the Technical Committee handled just about all committee work for the Institute as activities were centered in cataloging, assignments of FMSI numbers, and the dissemination of application information to members. In 1950 the first FMSI release was made for the Series 700 type disc brake linings. FMSI #700 was assigned to a 1-1/4" button used on Crosley cars in the late 1940's. The second release in this series was FMSI #701 used on 1951 Chrysler Imperial disc brakes. It was not until several years later that additional disc brake lining releases were made by

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the Institute.

In 1950 the Institute realized the growing importance of non-North American made vehicles. Up until this time information was gathered for vehicles made in North America. This included among others Crosley, DeSoto, Hudson, Kaiser-Frazer, Nash, Packard and Studebaker. In 1950 brake lining information on foreign-made vehicles was included in the Institute Automotive Data Book. This first information was developed primarily for British vehicles. In order to get going, it was decided to start with brake linings on foreign passenger vehicles only. Clutch facings and larger vehicles would follow. The FMSI #800 series was established to list foreign brake linings. To continue with this active committee work, an emergency brake section was established in the catalogs in 1951.

With the heavy changes in cataloging such as the inception of disc brake linings, foreign-made passenger car brake linings, and the emergency brake section, there was activity in another area. At the start, the Institute continued with the dues schedule of BLMA based on a graduated percent of reported sales with a maximum fee for an Active Member of $3,000. The Regional Member fee, fixed after such classification had been established, was $1,500. The special Associate Members paid a flat fee of $2,500. The fees for Regional Members and Associate Members was at that time written into the Constitution with the Active Member fee established by a formula to be drawn up by the Board of Directors annually. After the fee formula for Active Members was revised, the annual fee for the fiscal year ending June 1951 was a flat $375 per Active Member.

During Mr. Smith's administration, through June 30, 1951, three manufacturers were admitted as Active Members: Rosendale-Ruboil Co. (later Reddaway Manufacturing Co.), U.S. Spring & Bumper Co., and Rite Set Manufacturing Co. In addition, the British Brake Lining Manufacturers' Association became the Institute's second Regional Member. Inland Manufacturing Division of General Motors Corp. joined as an Associate Member of the Institute in 1950 bringing to four the number of Associate Members.

1951-1953, FRANK MILLER, PRESIDENT

Mr. Frank Miller, of Raybestos-Manhattan, Inc. was elected President at the June 1951 meeting to succeed Mr. Amor Smith whose term had been completed. Mr. Fred Weyburne of the Marshall-Eclipse Division of Bendix Aviation Corporation was elected Vice-President. The terms for Mr. Miller and Mr. Weyburne were effective July 1, 1951.

With Mr. Miller off the Data Book and Technical Committee, this committee was reorganized with Mr. Carl Sachs from the Grey-Rock Division of Raybestos-Manhattan, Inc. as Chairman. Among those serving on this active committee were Al Daly of Scandinavia Belting, Leo Goyette of Marshall-Eclipse Division, Art Litchfield of Raybestos-Manhattan, John Heath of Grizzly Manufacturing, and Joseph Keane of Russell Manufacturing. The Automotive Data Book was a more massive catalog in those days. For example, one catalog had over 160 pages in it. Also over 130,000 copies were sold in one year in the 1950's.

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Frank Miller--President
1951-1953

In the early 1950's some members released shoe identification charts because of changes in brake shoe design which had been going on for several years. Several members indicated that a brake lining segment with all its dimensions does not truly identify what is installed on a certain vehicle. Several members indicated that it was necessary to specify the shoe and some were attempting to do this by using the FMSI lining number. Complications arose, of course, where certain FMSI lining numbers were used on more than one set of shoes. Mr. Paul Gossett of Bendix indicated a willingness to provide shoe silhouettes to the Institute with the understanding that the Institute would publish them in their catalog. For the next several years additional work was done on the idea of brake shoe identification, but the original impetus came from Mr. Gossett.

When the Institute was formed, resolutions were passed to have the Institute work in the field of cataloging with technical bulletins on vehicle releases, and in this particular area alone. In 1950, it was suggested that it might be worthwhile to expand Institute activities to include information on sales statistics. Discussions were held on this subject at the Membership and Board of Directors meetings. The original suggestions were to have a monthly reporting which would include not only the types of linings sold but the channels of distribution such as sales to a distributor, to an exporter, to an original equipment source, and the like. The Institute discussed alternative plans for Historical Sales Reporting with Ernst and Ernst, Certified Public Accountants, but no action was taken at this time.

During Mr. Miller's term as President, the Institute for the first time conducted its Annual Meeting at a site other than the Commodore Hotel in New York City, the Annual Meeting being held at the Commodore in 1950, 1951 and 1952. In 1953 the Annual Meeting was held at the Edgewater Beach Hotel in Chicago, at which meeting the Institute had the first reception and banquet for its members.

In the two years ended in June 1953, the Institute welcomed four new Active Members: Atlas Asbestos Company, L.J. Miley Company, Brasbestos Brake Lining Company and H. Krasne Manufacturing Company. With these additions, the Institute had twenty Active Members, four Associate Members who had joined earlier, and two Regional Members from Canada and Great Britain.

1953-55, FRED WEYBURNE, PRESIDENT

At the June 1953 Board of Directors Meeting in Chicago, the Directors elected Mr. Fred Weyburne of the Marshall-Eclipse Division of Bendix Aviation Corporation as President. Mr. Weyburne had been active in the affairs of the predecessor BLMA and was one of the prime movers in the organization of the FMSI. Elected to serve as Vice-President was Mr. George Ritter of the Molded Materials Division of Carlisle Corporation. During the two terms that Mr. Weyburne served as President, there were technical changes in friction products, and in the way that the Institute proposed to meet the changes.

In 1955, the Bendix type servo brake was redesigned to a fixed anchor from the former adjustable anchor type. Because of problems in manufacturing tolerances with the fixed anchor brake, many manufacturers moved to an eccentric (or tapered) grind on the drum brake linings. To handle this the Institute decided to indicate eccentric grind on original equipment linings with a footnote. Automatic transmissions had been gradually carving a larger percent of the market since immediately after World War II, and the Technical Committee considered the possibility of listing and numbering automatic transmission bands. There was considerable activity in this area, but the Board of Directors rejected the idea of cataloging these bands.



Fred Weyburne--President
1953-1955

On shoe identification, the first question was whether there should be FMSI shoe numbers assigned and shown in the Data Book. It was suggested that before proceeding with such work using information from Bendix, that the Moraine Division of General Motors and Wagner Electric be contacted for information on their brake shoes. In considering a numbering system for shoes, some suggestions were that the FMSI shoe number have significance, such as: the #11 would indicate 1" wide shoe, #12 would indicate a 1-1/4" wide shoe, and a prefix would be used to indicate the type of brake such as 01 for non-servo, 02 for servo, etc. The suggestion was also made that shoe numbers be assigned without significance as to dimensions and usage.

In 1954 the members modified resolutions on Institute activities to permit activities other than just the providing of prints and assigning of numbers for Data Book work. The members adopted an enabling resolution to permit study of the possibility of the Institute proceeding with the gathering of sales statistics. Later, a Statistics Committee was formed to study and make recommendations to the Board of Directors.

During Mr. Weyburne's administration, Fiber and Metal Products Inc. changed its name to Emsco Asbestos Company. (Emsco was later acquired by the Thermoid Company.) U.S. Spring and Bumper Company of Los Angeles was acquired by a new corporation Silver Line Company. Also, at this time the Thermoid

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Company asked to have its membership changed from Associate Member to an Active Member. The first individual Regional Member joined the Institute when Jurid-Werke of West Germany was accepted. Up until this time the only Regional Members were the Canadian and British Associations. An association made up of different manufacturers in the United Kingdom applied for and was accepted as a Regional Member in 1955--the English Friction Materials Association. A few years later the English Friction Materials Association was to combine with the British Brake Lining Manufacturers Association to form the British Friction Materials Council which is still a Regional Member of the Institute.

The Institute returned to New York City to hold its annual membership meetings in June 1954 and June 1955 at the Commodore Hotel. Except for the annual meeting in June 1953 all such meetings had been at the Commodore.

1955-1956, WILLIAM NANFELDT, PRESIDENT

At the June 1955 meeting Mr. William J. Nanfeldt of the World Bestos Corporation was elected as President. Mr. Nanfeldt had been active in the Institute during these early years. Mr. Leo Sullivan of Russell Manufacturing was elected Vice-President. During Mr. Nanfeldt's term, the Historical Sales Program got underway. It took the form of a monthly report based on a questionnaire submitted to the membership. The first report gathered data on an annual basis back to 1947 and on a monthly basis with figures for 1954 and 1955, and then went on a current basis for 1956. The data was sent to the accounting firm of Ernst and Ernst in New York City for compilation. Of the twenty-one members, 17 members participated in the original Historical Sales Program.

The Data Book and Technical Committee under its Chairman, Mr. Al Daly of Scandinavia Belting, was particularly active during 1956. Four committee meetings were held. The Committee set up the suffix system to be used for tapered linings. The suffix T indicated a cam grind on secondary linings. The suffix TT indicated a cam grind on both primary and secondary. Considerable time was spent on shoe drawings and FMSI shoe assignments, but the absence of drawings from the principal shoe manufacturers delayed work during 1955-56. It was decided, however, that the FMSI would not include the FMSI shoe number drawings in the Data Book and some other presentation would be required. The Committee considered the possibility of gathering industrial specifications. However, four industrial equipment manufacturers were contacted and only one replied, with that one indicating that it would not provide this information. The idea



Bill Nanfeldt--President
1955-1956

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of an industrial specification listing or catalog was discontinued at this time.

The Data Book and Technical Committee spent considerable time attempting to standardize bonded segment lengths. It was proposed to have standard undrilled segment sizes and a numbering system for them. Information was gathered on passenger car and light truck segments in 1" to 3-1/2" widths. This standardized size program for undrilled segments was somewhat similar to a subsequent attempt at standardization and consolidation of lining sizes. The data was distributed to members with suggestions that further work be considered in the area of consolidation of undrilled segments. However, many manufacturers were already providing their own version of standardized sizes for the undrilled segment market.

Among other items studied was a safety campaign slogan involving recommendations by members. This slogan was to be used on letterheads and in brake lining literature to promote automotive safety.

During this busy year Mr. William Nanfeldt gave considerable time to the Institute. In May 1956, Mr. Nanfeldt died unexpectedly and Mr. Leo Sullivan of Russell Manufacturing, the Vice-President, took over his responsibilities. Resolutions were passed both by the Membership and by the Board of Directors honoring Mr. Nanfeldt for his contributions to the Institute, expressing their deepest sympathy to Mr. Nanfeldt's family. Mr. Dick Riley, who was later to become president of Firestone Tire and Rubber, took over as the delegate from World Bestos.

1956-1957, LEO SULLIVAN, PRESIDENT

At the June 1956 meeting, Mr. Leo Sullivan of Russell Manufacturing who had taken over as acting President after Mr. Nanfeldt's death, was elected President for the next fiscal year. Mr. William Vachout of the Molded Materials Division of Carlisle Corporation was elected Vice-President.

There was considerable activity as regards membership in 1956-57. The Johns-Manville Corporation, which had joined during the FMSI reorganization as an Associate Member, elected to transfer and become an Active Member. In addition, Auto Friction Corporation joined the Institute in 1957. There was also a new Regional Member admitted: DLR Plasticos do Brasil, S.A. In 1956-57 there was a reorganization of trade associations in Great Britain and there now was one Regional Member, the British Friction Materials Council.

There was considerable pressure exerted by rebuilders and others to get a brake shoe program underway. The Automotive Parts Rebuilders Association (APRA) indicated that they would go ahead with a shoe program of their own. Wagner had their own shoe identification catalog and would not permit its use by the FMSI. There were difficulties in getting shoe information from Bendix because of their insistence that shoe listings be made in the Automotive Data Book. Moraine indicated that they were overwhelmed with



Leo Sullivan--President
1956-1957

their work, and did not have the personnel available for shoe drawings. It was suggested that the Institute go ahead with whatever shoe information they had to get a program started. Apparently there was enough pressure being exerted that some type of shoe identification would have to be presented to the field.

The Data Book and Technical Committee also worked on standardized bonded segments proposing a coding system. There were five or six different bonding segment programs in the field and it was suggested that this program be held up to await action by the SAE. Illustrations of the various programs for bonding segments had been distributed to members but no such standard system was specifically proposed by the Institute.

Some members continued to express dissatisfaction with the flat fee for Active Members and a suggestion was made that the fee be based on categories such as one fee for brake lining manufacturers, another fee for brake block manufacturers, and another fee for clutch facing manufacturers with additional fees for those in more than one category.

1957-1959, WILLIAM VACHOUT, PRESIDENT

Mr. William Vachout of the Molded Materials Division of Carlisle was elected President and Mr. George Lamson of Thermoid was elected Vice-President in June 1957.

The Data Book and Technical Committee was particularly active holding five committee meetings in the first fiscal year and four meetings in the second year. Their work was concentrated on bonded segment sizes and brake shoe identification. Mr. Art Litchfield of Raybestos-Manhattan succeeded Mr. Al Daly of Scandinavia Belting as Chairman of this committee. Among items concerning the Committee was a Pennsylvania Law requiring truck braking surfaces to have at least 90° lining length per shoe with a maximum of 120° length. Also sintered metallic linings were introduced on General Motors passenger vehicles during this period. These were developed by the Moraine Division of General Motors and the Institute assigned FMSI numbers in a new 900 Series for these segments. These were used primarily for police and taxi operations but were available options on several passenger vehicles. Work on bonding segment sizes was referred back and forth between the Board and the Committee because of differences as regards specific recommendations on bonded segment sizes. There were many sizes shown and these were cross referenced to FMSI numbers. It was recommended that members use bonding segment sizes as they saw fit.

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During this period the Institute's Technical Committee developed the Brake Shoe Identification Catalog, and published its first full catalog in 1958. That catalog had data on American made passenger cars and light trucks from Buick to Willys. Some nameplates in the first 1958 catalog were De Soto, Edsel, Hudson, Kaiser-Fraser, Packard and Studebaker. The first shoe numbers ran from 1 to 81, and included sizes from 8 x 1-1/4" thru 15 x 4". There were no disc brake shoes in this first catalog. Publication of this catalog was the result of seven years of work and depended on the cooperation of brake shoe manufacturers such as Bendix, Moraine, Wagner, Chrysler and Kelsey-Hayes.



Bill Vachout--President
1957-1959

Three new Regional Members were accepted by the Institute. Automobile Products of India and Francisco Stedile of Brazil joined in 1958, and Fabriek of Holland joined in 1959. Emsco and Asbestos Manufacturing Company (Amco) were merged into the Thermoid Division of H.K. Porter Company, Inc. Rite Set Manufacturing discontinued its membership in 1959. Inland Manufacturing Division of General Motors which had joined as an Associate Member, resigned in 1959. American Brakeblok Division of American Brake Shoe Company indicated its intention to discontinue as an Associate Member in the Institute, and become a full Active Member in July 1959.

Because of the assignment of FMSI shoe numbers and the publication of the new Brake Shoe Identification Catalog, the Institute's Constitution was amended to initiate a new membership classification for brake shoe manufacturers. This was later to become the Licensee type membership. In addition, the Membership voted to change the fee formula from a flat charge per Active Member to a formula with a basic fee plus an additional fee depending upon the categories in which a member participated. At its inception this formula called for a $500 basic fee plus $250 per category. The categories were (1) brake linings and lined brake shoes; (2) brake blocks; and (3) clutch facings. A fee formula based on categories had been suggested and revised several times and was to form the basis for a formula that was to be in effect for the Institute through the 1970's.

At the June 1959 Meeting at the Edgewater Beach Hotel in Chicago, the Board of Directors honored the outgoing President of the Institute, Mr. William Vachout of Carlisle, and Mr. Fred Weyburne of Bendix and Mr. Leo Sullivan of Russell who had earlier served as Presidents of the Institute. These awards were in recognition of the contributions made by these former Presidents during the formative years of FMSI.

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1959-1961, GEORGE LAMSON, PRESIDENT

At the June 1959 Meeting, Mr. George Lamson of the Thermoid Division was elected President and Mr. Richard Riley of World Bestos was elected Vice-President. Mr. Riley resigned as a Director and Vice-President in 1960 and Mr. James McGovern of Raybestos-Manhattan, Inc. was elected to succeed Mr. Riley as Vice-President.

With the start of the FMSI brake shoe numbers and the Brake Shoe Identification Catalog, and the resulting new membership classification, four brake shoe manufacturers were admitted to the Institute in 1959: Fe-Adco Corporation, Pick Manufacturing Company, National Transport Incorporated, and Cadillac Steel Automotive Products Corporation.

There were name changes and reorganizations by some Active Members. The Bendix Aviation Corporation became the Bendix Corporation. Scandinavia Belting became Scandura and the World Bestos Company became a division of Firestone Tire and Rubber Company. Lonafreio do Brazil was admitted as a Regional Member in 1960. Universal Friction Materials Division (of Gearing Tool Company) was admitted as an Active Member in 1960. Fabreik of Holland, which had joined as a Regional Member in 1959, resigned in 1960, and the Atlas Asbestos Company also resigned as an Active Member in 1960.



George Lamson—President
1959-1961

Ernst and Ernst Company who had been servicing the Historical Sales Program advised that some members had discontinued submitting data and they questioned the value of continuing with the Historical Sales Program. After several discussions at meetings it was resolved that the Institute would suspend the Historical Sales Program and seek to enlist additional members to participate in the program. The Historical Sales Program was suspended in 1961.

The first significant use of disc brake linings appeared in 1960 when several assignments were made in the 1960 Supplement to the Automotive Data Book. These assignments were primarily on British passenger cars such as the Jaguar, MG and Triumph.

In 1960 the Annual Meeting was held at Castle in the Clouds, Lookout Mountain, Tennessee. This was the first departure from the New York and Chicago meeting locations. The following year the meeting was held at the French Lick Sheraton in French Lick, Indiana. During this administration the fee formula was revised to make a separate individual category out of new lined brake shoes. (This would subsequently be revised to new unlined brake shoes.)

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In the early 1960's pressures were developing for regulations concerning brake lining. The California Automotive Wholesalers' Association (CAWA) petitioned the Automotive Service Industries Association (ASIA) for minimum safety standards for brake lining. In the meanwhile a bill was introduced in the Pennsylvania Legislature to establish requirements for brake lining used on vehicles in that state. This was to be the forerunner of activity in other states.

1961-1963, JAMES McGOVERN, PRESIDENT

Mr. James McGovern of Raybestos-Manhattan was elected President and Mr. S. Arthur Smith of Silver Line was elected Vice-President at the 1961 Meeting.

The Data Book and Technical Committee did considerable work on improvements and changes to the Brake Shoe Identification Catalog in line with suggestions by Committee members. There was a significant re-design in layout of the catalog. The catalog expanded to include 174 drum brake shoes. Expansion of the catalog to include the first foreign shoes (Volkswagen and Volvo) was complete in the 1962 Brake Shoe Identification Catalog. The Committee re-studied the idea of assignments for automatic transmission bands and the Institute sent questionnaires to several vehicle manufacturers. Replies were either negative or not forthcoming. It was decided to suspend activity as regards automatic transmission bands.

A special committee was set up to study the feasibility of a brake service manual but because of conflicting requirements of the members the Committee was disbanded without action being taken. Rockwell Axle introduced the Stopmaster brake in 1962. The Technical Committee reviewed this and originally recommended SM classification for this brake. This was later changed to the WT or wedge type brake.

Three Regional Members in Brazil resigned or discontinued their membership in the Institute at this time. DLR Plasticos do Brazil, Francisco Stedile, and Lonafreio do Brazil all resigned because of difficulties in payment of funds from Brazil to the United States. In addition, Universal Friction Materials Company resigned as an Active Member.

A special committee to study the Constitution and the implications of membership of brake shoe manufacturers was set up. Based on this Committee's recommendations the brake shoe manufacturing membership was discontinued and in its place the Licensee classification was established. This would permit participation by additional manufacturers without the overall benefits of membership.

In June 1962 the Membership met again at the French Lick Sheraton in French Lick, Indiana. In 1963 they met at the Westchester Country Club, Rye, New York. With these last meetings a policy had been established to hold the Annual Meeting at resort type areas.

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1963-1965, S. ARTHUR SMITH, PRESIDENT

Mr. S. Arthur Smith of Silver Line was elected President and Mr. Alexander Bette of Johns-Manville was elected Vice-President at the June 1963 Meeting.

There were several changes in Membership. The Chrysler Corporation Chemical Division and Forcee Manufacturing Corporation joined as Active Members. Roulunds Fabriker of Denmark, and Mex Bestos S.A. of Mexico, joined as Regional Members. In addition, the Institute accepted four new Licensees: All Metal Brake Shoe Company, Aimco Automotive Industries, Wagner Electric Corporation, and Ammco Tools Incorporated. During this period American Brake Shoe Company acquired the S.K. Wellman Corporation, and its membership was joined with that of their American Brakeblok Division. Russell Manufacturing was acquired by the H.K. Porter Company and Southern Friction Materials Company had a disastrous fire and discontinued its membership. The Brasbestos Brake Lining Company which under Mr. Charlie Brahs had been a member for several years was acquired by Mr. William Simon and the name was changed to the Brassbestos Manufacturing Corporation.



Art Smith--President
1963-1965

During 1965, some of the pressures for brake lining regulations turned into laws. The American Automobile Association advised that the New York State Automobile Association had resolved to establish minimum specifications for brake linings. New York State later that year was to pass brake lining legislation. Pennsylvania authorities were leaning towards a vehicle test for certifying brake lining. A new Brake Lining Standards Committee was formed with Mr. Robert Nelson of American Brakeblok as its Chairman. Four meetings were held the first year to concentrate on the Pennsylvania and New York State legislation. This Committee subsequently became the Brake Performance Study Committee. Mr. Art Litchfield who had long served the Institute as Chairman of the Data Book and Technical Committee retired in 1965. Mr. Nelson served as Chairman of both the new Brake Performance Study Committee and the Data Book and Technical Committee during this period. Mr. Ronald Moalli of Raybestos-Manhattan served as Assistant Chairman to Mr. Nelson and subsequently took over as Chairman of the Data Book and Technical Committee. The Technical Committee resolved that Mr. Art Litchfield, who had served the Institute so well, be cited for his contributions to the Industry and the Membership, and he was so honored at the 1965 meeting.

The Institute's Annual Meeting Committee under Mr. Joseph Greenen was active in selecting resort sites. In 1964 the Institute returned to the Westchester Club in Rye, New York. The following year the Institute selected the Pheasant

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Run Lodge at Saint Charles, Illinois for its Annual Meeting.

1965-1967, ALEXANDER BETTE, PRESIDENT

Mr. Alexander Bette of Johns-Manville was elected President and Mr. John Kelly of the Bendix Corporation Vice-President at the June 1965 meeting.

This period was marked with considerable activity as regards Federal and State legislation and regulations affecting brake linings. Mr. Nelson's newly formed Brake Performance Study Committee was quite active. Many contacts were made in Washington and in various state capitals. The Institute recommended SAE J661, the friction test machine procedure, as a means for regulating brake linings in New York State. The Institute recommended minimum values for friction under varying conditions on the J661 procedure. While this was going on, Pennsylvania adopted a vehicle test for certifying brake linings. Mr. Nelson, Mr. Moalli and others attended hearings and made contacts with authorities in Massachusetts advocating the friction test machine for brake lining certification. Contacts were also made with the Vehicle Equipment Safety Commission (VESC) and the American Association of Motor Vehicle Administrators (AAMVA). These were in addition to contacts made with Federal agencies such as the General Services Administration, the Department of Commerce, and the National Bureau of Standards. Kentucky, New Jersey, and Rhode Island adopted legislation to control brake linings sold in those states and they too opted for the friction machine test. The National Traffic and Motor Vehicle Safety Act was passed in 1966 and this legislation set up the National Traffic Safety Agency as a Bureau of the Department of Transportation. They quickly adopted an SAE procedure which became the original Federal Motor Vehicle Safety Standard 105. This regulation covered the brake system on new motor vehicles. Clarification was sought as to whether this regulation affected replacement parts in the brake system.

There were several changes as regards membership. The L.J. Miley Company resigned as an Active Member and continued as a Licensee. The American Brake Shoe Company changed its name to Abex Corporation and Reddaway Manufacturing Company resigned as an Active Member. Galfer Company of South Africa and Akebono Brake Industry Company Ltd. of Tokyo, Japan joined as Regional Members. The Marshall Eclipse Division of Bendix Corporation became the Friction Materials Division and Grizzly Brake Division had a name change from a Division of Mar Pro Incorporated to a Division of Maremont Corporation.

Substantial changes were made in the Automotive Data Book. A major change was implemented as regards the listing of clutch facings in the alphabetical section. Significant changes were also made in the layout of the catalog, type size and style, and general organization of the Data Book. During this time domestic passenger cars used their first caliper disc brakes. These designs would have widespread usage in subsequent years. The first disc brake shoe assignment appeared in the 1967 Supplement to the 1966 Brake Shoe Identification Catalog. D-1 was used by Ford Motor Company, D-2 by some European models, D-3 by General Motors, and D-8 was used on the Corvette.

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Steve Conway (left), President 1969-71, presenting certificate of appreciation to Al Bette (right), President 1965-67, at the June 1967 Meeting.

The Institute ventured to the Far West for their 1966 Annual Meeting at the Holiday Inn in Palm Springs, California. The 1967 Meeting returned to the East at the Hotel Hershey, in Hershey, Pennsylvania.

1967-1969, JOHN KELLY, PRESIDENT

Mr. John Kelly of Bendix was elected President and Mr. Stephen Conway of Abex was elected Vice-President at the June 1967 Annual Meeting.

During Mr. Kelly's administration there was continuing activity in the regulatory area. Mr. Nelson's Brake Performance Study Committee made several contacts with Federal and State regulatory agencies: National Bureau of Standards, Vehicle Equipment Safety Commission, National Highway Safety Bureau, and individual State Motor Vehicle Departments. The Department of Transportation released Docket 1-4 for replacement brake linings. The Institute presented proposals to DOT for a Federal brake lining standard based on a friction machine test. In 1968, Mr. James McGovern of Raybestos-Manhattan, a former President of the Institute then serving on its Board of Directors, was appointed to serve on the National Motor Vehicle Advisory Council for a three year term. Mr. McGovern assisted in establishing meetings with regulatory personnel in Washington during this period. Towards the end of 1969 Mr. Nelson noted that the replacement brake lining standard had been "put on a back burner" by the Federal regulatory agencies. They were then concentrating more on regulations for brake systems on new motor vehicles.

Mr. Joe Greenen was appointed Chairman of the Institute Development Committee to consider activities that might best be undertaken by the Institute. Surveys were made for possible Institute actions. Among items noted in Mr. Greenen's survey was the desire for an Institute brake block identification catalog and renewal of the historical sales program.

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Mr. Moalli's Data Book and Technical Committee developed a computer coding system with seven digits. The system was set up for brake linings, clutch facings, brake blocks, and lined brake shoes. All digits had significant numbers and the recommendations were distributed to the Membership. This Committee was active on disc brake lining assignments and established some of the rules which were used in technical bulletins and catalogs. For example, the integrally molded segments are shown with overall lining-shoe thickness, and a double asterisk (**) is used to denote an integrally molded assembly. Considerable reorganization was made to the presentation of information in the Brake Shoe Identification Catalog.

The Institute for the first time took their Annual Meetings into Florida with the June 1968 and June 1969 Meetings held at the Doral Country Club in Miami. Tradition was broken when wives were invited to one of the Doral meetings.



Jack Kelly (left), President 1967-69, with Jim McGovern (middle), President 1961-63 and Joe Greenen (right), President 1971-73 at Mr. McGovern's retirement party in 1972.

Thiokol Corporation was welcomed as an Active Member. S.A. Frima of South Africa joined as a Regional Member. Royal Industries acquired the H. Krasne Manufacturing Co. and continued as an Active Member. The Institute lost three Licensees: L.J. Miley Company, Fe-adco Corporation, and Metal Products Division of Thompson Industries. Pick Manufacturing became a subsidiary of EIS Automotive Corporation and continued as a Licensee. Airtex Products acquired the assets of Watson Tractor and also continued as a Licensee.

1969-1971, MR. STEPHEN CONWAY, PRESIDENT

Mr. Stephen Conway of Abex Corporation was elected President and Mr. Joseph Greenen was elected Vice-President at the June 1969 Annual Meeting.

The Institute held a meeting with the National Highway Safety Bureau in 1969. The problems of aftermarket brake lining manufacturers were discussed in light of the Bureau's consideration of a Federal brake lining standard. Mr. Nelson contacted the National Bureau of Standards about a Federal Brake Lining Standard, and reviewed work they were conducting on various vehicle

systems. The pace of activity which would affect this industry quickened with the passage of the Williams-Steiger Occupational Safety and Health Act of 1970. In 1971 the Institute renewed its historical sales statistics reporting program after a ten year suspension. It was renewed on a semi-annual reporting basis.

Mr. Bill Vachout of Molded Materials Division of Carlisle Corporation retired in 1969, and Mr. Al Bette of Johns-Manville retired in 1970. Both had served on the Board of Directors and as Presidents of the Institute. To fill their unexpired terms, the Board of Directors elected Mr. William Simon of Brassbestos and Mr. Carl Weber of World Bestos to the Board.



Ed Drislane--Executive Director 1971

Miss Harriet Duschek, Secretary, retired in 1971 after thirty-eight years with the Institute. Miss Duschek was honored for her many years of service at the June 1971 Meeting held at Mount Airy Lodge in Pennsylvania. Upon Miss Duschek's retirement, Mr. Edward Drislane was elected Secretary of the Institute by the Board of Directors. Mr. Drislane had been hired in 1970 and worked with Miss Duschek for several months prior to her retirement.

During Mr. Conway's term the Institute welcomed three new Active Members: Delco-Moraine Division of General Motors, Standco Industries and Wheeling Brake Block. Reddaway Manufacturing Company was reinstated as an Active Member. Franco-Mex of Mexico and Rusco de Colombia joined as Regional Members. Jurid-Werke of Germany and Automobile Products of India resigned as Regional Members.

The 1970-71 Annual Meetings were held in Pennsylvania. Skytop Lodge, Skytop, Pennsylvania was the site of the June 1970 Annual Meeting. The June 1971 Meeting was held at Mount Airy Lodge, Mount Pocono, Pennsylvania.

1971-73, JOSEPH GREENEN, PRESIDENT

At the June 1971 Annual Meeting Mr. Joseph Greenen of Maremont Corporation was elected President and Mr. Frank Gatke of the Gatke Corporation was elected Vice-President.

Two new committees were formed during Mr. Greenen's administration. The Asbestos Study Committee was organized with Dr. Gene Stefl of Raybestos-Manhattan as Chairman, and the Quality Control Sub-committee commenced its work with Mr. Norm O'Donnell of Raybestos-Manhattan as Chairman. The Asbestos Study Committee reviewed and commented on the Illinois Pollution Control Board proposal to ban asbestos in brake linings sold in Illinois,

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conducted a clinic on the membrane filter method of measuring airborne asbestos fibers, and reviewed the proposed EPA emissions standards and the OSHA asbestos regulations. In 1972 OSHA issued the standards for control of asbestos in the workplace. The Quality Control Sub-committee was organized to study compliance sampling and help members exercise "due care" in the design and manufacture of their products. Activities of the Quality Control Sub-committee were coordinated by the Brake Performance Study Committee.

During this administration a special booklet was published: "Automotive Brake Diagnostics." This diagnostic booklet contained flow chart methods for diagnosing brake problems on passenger cars and light trucks. The original work was developed at Delco-Moraine Division of General Motors. In addition, with major contributions from Messrs. Moalli and Girard of Raybestos-Manhattan, and using the Abex format, the Institute published its first "Brake Block Identification Catalog." Based on members' suggestions to be kept abreast of FMSI activities, the Institute published its first FMSI NEWS in 1972. This newsletter published in digest form items concerning Institute activities, meetings, catalogs, and other items of interest.

With Mr. Greenen's active guidance, the Institute studied the possibilities of re-locating their Offices. Sites were inspected in the Bergen County area of northern New Jersey. In January 1972 the Institute moved from its Lexington Avenue location in New York City to modern facilities in Paramus, New Jersey. Mr. Greenen worked with the Secretary and Connecticut General Life Insurance to establish a funded employee pension plan for the Institute. This plan went into effect in 1973.

Mr. Jim McGovern, who had served the industry for many years, retired from Raybestos-Manhattan and resigned as a Delegate and Director of the Institute. Mr. McGovern had been honored several years earlier by his appointment to the National Motor Vehicle Advisory Council. In 1972, the Officers and Board of Directors honored Mr. McGovern at a banquet held at the Marriott Hotel in Saddle Brook, New Jersey. As an indication of the esteem with which Mr. McGovern was held, all Officers, Directors and invited guests attended this farewell party. Mr. McGovern was presented a plaque noting and honoring his contributions to the industry and to the Institute.

The Institute continued moving about the country, and in June 1972 held their annual meeting at the Lodge of the Four Seasons at Lake Ozark, Missouri. In 1973 the meeting was held at the Lodge at Vail in Vail, Colorado, where the June golfers played a course on the side of the Rockies with snow on the mountain tops.

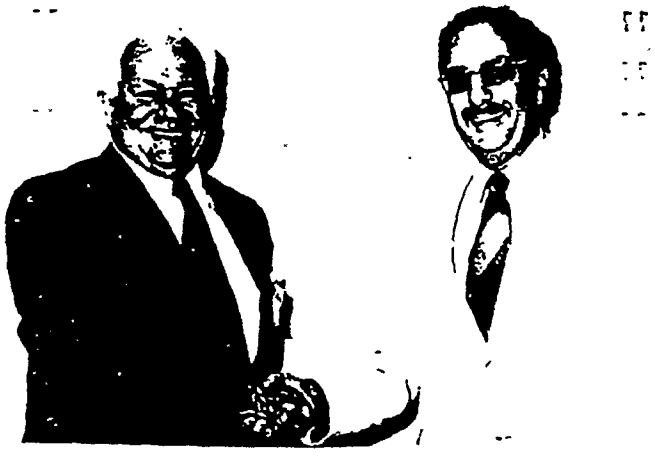
Auto Specialties Manufacturing Company and Molded Industrial Friction Corporation joined the Institute as Active Members during this period. Repuestos Colombianos ("reco") of Colombia joined as a Regional Member. The Institute lost two long time active members: Silver Line Products Inc. and Johns-Manville Corporation.

1973-75, FRANK GATKE, PRESIDENT

Mr. Frank Gatke of the Gatke Corporation was elected President and Mr. William Simon of Brassbestos was elected Vice-President in 1973.

This administration was at a time when many changes were made in Membership. Several Active Members left the Institute but in their place we gained many Regional Members. Hayes-Albion Corporation joined as an Active Member. The following Active Members resigned: Auto Specialties Manufacturing Company, Chrysler Corporation, Scandura, Standco Industries and World Bestos Company. New Regional Members included the following: Duramax, Industrias Tecnicas Automotrices de Puebla and Pasta Clutch of Mexico, Francisco Stedile and Lonaflex of Brazil and Hemispheres International and Mintex Federal Limited of Canada. Jurid-Werke of Germany was reinstated as a Regional Member. Kenebuc (Galt) of Canada and Wisconsin Gasket of Milwaukee, Wisconsin became Licensees.

In June 1973 the Institute honored Mr. Ron Moalli of Raybestos-Manhattan who had served many years as Chairman of the Data Book and Technical Committee and Mr. Bob Nelson of the Abex Corporation who had similarly served as Chairman on the Brake Performance Study Committee. In addition, the Membership and Directors passed a resolution asking that Mr. Allan Daly, who had retired from Scandura, be honored for his long years of service to the Institute. Mr. Daly until his retirement had also served as Treasurer of the Institute.



Frank Gatke (left), President 1973-75, congratulating Bill Simon (right), President 1975-77 upon his election at the June 1975 Meeting.

After many years as Legal Counsel, Mr. Lester Stickles of the New York City law firm of Stickles, Hayden, Kennedy, Hort & Van Steenburgh resigned as Legal Counsel for the Institute. The Institute selected Mr. Robert Gorman of the Newark, New Jersey firm of Clapp & Eisenberg to represent the Institute. Mr. Gorman, then a partner in the Clapp & Eisenberg firm became the new Legal Counsel for the Institute. Subsequently, Mr. Gorman formed the Princeton, New Jersey firm of Gorman & Cole which continued as Counsel.

The Institute published three special catalogs in 1974: Clutch Facings (Numerical), Clutch Facings Listed in Order of Size, and the Industrial Friction Materials Catalog (17,000 Series).

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The June 1974 Annual Meeting was held at the Sea Pines Plantation in Hilton Head, South Carolina. The Institute journeyed to Florida for the June 1975 Annual Meeting, holding it at the Innisbrook Resort and Golf Club in Tarpon Springs, Florida. At this Meeting, the Institute invited Mr. Robert Join of the Federation of European Manufacturers of Friction Materials (FEMFM) to address the Membership. Mr. Join discussed braking regulations in the countries of the European Common Market. A continuing liaison was established that year between the FEMFM and the Institute.

1975-77, WILLIAM SIMON, PRESIDENT

At the June 1975 Meeting Mr. William Simon of Brassbestos Manufacturing Corporation was elected President and Mr. Francis Messier of the Bendix Corporation was elected Vice-President.

One of Mr. Simon's first activities as President was to host a luncheon honoring Mr. Lester Stickles who had served as Legal Counsel for the Institute from its organization in 1948 until 1975. The luncheon was held in Port Jefferson, Long Island, and Mr. Simon honored Mr. Stickles and on behalf of the Institute presented him with a silver tray to mark his years of service. This luncheon attracted among others, Miss Harriet Duschek, former Secretary of the Institute, and Mr. Jim McGovern and Mr. Jack Kelly, both of whom had served earlier as Presidents of the Institute.

In December 1975, the Institute, with the Asbestos Study Committee Chairman, Mr. Harry Wagner of Carlisle Corporation as coordinator, presented a seminar on the asbestos problem. The seminar consisted of presentations by the Johns-Manville Sales Corporation, two equipment manufacturers, and a talk by Mr. Kwon of the Occupational Safety and Health Administration. OSHA had earlier, in October 1975, published proposed revisions to the asbestos exposure standard, and this timely seminar was well attended by the Membership.

In 1975-77 the Institute re-designed all catalog covers to emphasize "FMSI" and included illustrations indicating the content of the catalogs. In addition, guidelines were established by the Data Book and Technical Committee to introduce the metric system into our bulletins and catalogs. The Institute published its second Brake Block Identification Catalog, bringing the information in this catalog up thru late 1975. The Institute prepared a response to the October 1975 OSHA proposals for reducing permissible asbestos exposure levels to 0.5 fibers per cc. In addition, the Institute published and widely distributed recommended procedures for reducing asbestos dust during brake servicing.

Scan-Pac Manufacturing Company of Nequon, Wisconsin joined the Institute as an Active Member. Frenos-Venezolanos of Venezuela, Friction Materials Corporation of Israel, and Industria Colombianos de Asbestos of Colombia joined as Regional Members during this administration. Util, S.P.A. of Italy and E & D Manufacturing Corporation of Warren, Michigan joined as Licensees. Resignations were received from the Gatke Corporation, which had been a charter member of the Institute, and from two Regional Members: Mintex Federal Ltd. of Canada and Roulunds Fabriker of Denmark.

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The Quality Control Sub-committee completed its work on "A Quality Control Program" for the friction materials industry. The recommendations of this committee were reviewed and revised by the Brake Performance Study Committee and their approval was recommended to the Board of Directors. The Board approved this work at the June 1977 meeting.

The Institute returned to Innisbrook in Tarpon Springs, Florida for the June 1976 Annual Meeting. At this Meeting the Institute initiated its first annual golf tournament with Mr. John Moore of Reddaway Manufacturing Corporation as the first tournament champion. In June 1977 the Institute traveled to the "Valley of the Sun" at Marriott's Camelback Inn, Scottsdale, Arizona. At this meeting Dr. H. C. Lewinsohn, Corporate Medical Director of Raybestos-Manhattan addressed the Membership. His presentation dealt with occupational exposure to asbestos from a medical viewpoint.

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This history reviewed activities of the Institute and its predecessor organizations. Activities through June 1977 were highlighted. The history is a recounting of the efforts and foresight of many individuals who faced different challenges with determination. Countless hours were spent during the reorganization of the 1940's and to face the legislative and regulatory action which started in the 1960's. It is through the continued efforts of individuals who serve on committees and as officers and directors that the Institute represents its membership.