

History Of The IEEE Power Engineering Society

Evolution of the IEEE 1884-1987

The last quarter of the nineteenth century was marked by a tremendous growth in electrical technology. By the early 1880s the United States was criss-crossed by telegraph wires, and Europe and America were connected by underwater cable. Arc lights were in use in several cities, Thomas Edison's Pearl Street Station was supplying power for incandescent lighting, there were numerous firms manufacturing electrical equipment, and the telephone was growing in importance as a communications tool. This burgeoning electrical activity prompted the Franklin Institute to sponsor an International Electrical Exhibition at Philadelphia in 1884. This exhibition in turn proved to be the catalyst which resulted in the formation of the American Institute of Electrical Engineers—the original ancestor of today's Institute of Electrical and Electronics Engineers.

By 1884 civil, mining, and mechanical engineers had all formed their own national societies, but there was no organization of electrical engineers in America. In the April 15, 1884 issue of **THE OPERATOR**, the major American electrical journal, 25 prominent figures in electrical technology, including men like Edison, Elihu Thomson, Edwin Houston, and Edward Weston, were listed as signers of a "call" drafted by Nathaniel S. Keith. The call noted that the upcoming Philadelphia Exhibition would be attended by numerous "foreign electrical savants, engineers, and manufacturers . . ." and that ". . . it would be a lasting disgrace to American electricians if no American electrical national society was in existence to receive them with the honors due them from their collaborators in the United States."

On April 15 the signers of the call, plus five additional electrical practitioners, met in the headquarters of the American Society of Civil Engineers in New York to devise an organizational structure for the proposed electrical engineering society. The first general meeting was held on May 13, also at ASCE headquarters. Here the proposed organizational rules were adopted and officers were elected. Norvin Green, president of the Western Union Telegraph Company, was elected president, N. S. Keith, drafter of the call, became Secretary, and R. R. Hazard became Treasurer. Six Vice-Presidents were also chosen: Alexander Graham Bell, Charles D. Cross, Thomas A. Edison, George A. Hamilton, Charles H. Haskins, and Frank L. Pope.

The AIEE held its first technical session on October 7-8 at the Franklin Institute during the Exhibition. The papers presented there were published in the initial volume of **Transactions of the AIEE**, issued in

1884. The first paper, "Notes on Phenomena in Incandescent Lamps" by E. J. Houston, was a discussion of the Edison Effect, the phenomenon which became the foundation of electronics.

One of the important continuing activities of the AIEE was the development of standards for the engineering profession and the electrical industry. The Institute's earliest efforts were directed toward standardizing units, definitions, and nomenclature relating to basic electrical science. The first action in this area was the adoption of the name "henry" for the practical unit of inductance in 1890.

Although its first technical session was held in Philadelphia, most of the AIEE's early meetings were held in New York City. As the membership of the Institute grew, efforts were made to increase the participation of those living in other parts of the country. In 1902, under the presidency of Charles F. Scott, the formation of local sections was authorized, with Chicago and Ithaca, New York, becoming the first two Sections. In the same year Student Branches were organized at various engineering schools; the first such Branch was at Lehigh University. As the AIEE expanded beyond New York, it also soon expanded beyond the boundaries of the United States; in 1903 the first Section outside the U.S. was formed in Toronto.

In 1901 Schuyler Skaats Wheeler, who would later become president of the AIEE, purchased the library of the British electrical engineer, Latimer Clark. The Clark Collection was one of the world's great libraries of electrical technology. Wheeler gave this collection to the AIEE, with the stipulation that the Institute provide a suitable building for housing the library within five years. This stimulated the growing movement for a permanent home for the Institute. In 1903, Andrew Carnegie provided \$1,000,000 (later increased to \$1,500,000) to build a joint headquarters building for the American Society of Mechanical Engineers, AIEE, and the American Institute of Mining Engineers. The three societies moved into the building at 33 West 39th Street in April 1907 and were joined by the ASCE in 1917. This Engineering Societies Building served until the late 1950s when the need for more space resulted in the construction of the present United Engineering Center.

By the beginning of the twentieth century the AIEE had taken its place alongside the older engineering societies. As the scope of electrical engineering expanded, engineers became more specialized and sought to exchange information with others engaged in the same specialties. Thus, in 1903 the first Technical Committee, the High Voltage Transmission Committee, was formed.

One group of specialized electrical engineers, however, did not feel fully at home in the established, power-oriented AIEE. These were the pioneers in the exciting world of radio. To answer their needs, a new organization was formed—the IRE.

The Institute of Radio Engineers grew out of the merger of two earlier organizations. The Society of Wireless Telegraph Engineers (SWTE) was begun in 1907 in Boston by John Stone Stone. It was an outgrowth of seminars held at the Stone Wireless Telegraph Company, and membership was initially limited to employees of that company. Ultimately the membership was opened to men from Reginald Fessenden's National Electric Signaling Company and other firms. By 1911 the SWTE was barely alive, however, since Stone's company had gone out of business and Fessenden's had moved to Brooklyn, New York.

The second attempt to form an organization of radio engineers was the work of Robert Marriott in 1908. Marriott was clearly influenced by the success of the AIEE, and felt that wireless engineers could emulate the older organization. On May 14, 1908, he mailed a circular letter to some 200 persons interested in wireless, outlining the nature of his proposed society. He received nearly 60 favorable replies. A temporary organization was formed on January 23, 1909, and the first regular meeting was held on March 10 at the Engineering Societies Building in New York. The new organization was named The Wireless Institute. The Institute began successfully, but by 1912 membership had fallen to 27 from a high of 99, and Marriott's society was struggling to stay in existence.

In an attempt to salvage one strong society from two weak ones, Marriott and Alfred N. Goldsmith of The Wireless Institute and John V. L. Hogan of the SWTE met and devised a plan to consolidate the two groups. TWI met on April 5, 1912, with members of the SWTE also attending, and agreed to the proposed merger.

The new Institute of Radio Engineers held its first official meeting on May 13, 1912. At this time the members approved a constitution and elected officers.

The members of the Institute agreed from the beginning that the publishing of papers and related discussions was an important function of any engineering society, and the first issue of **The Proceedings of the Institute of Radio Engineers** was published in January 1913. Alfred N. Goldsmith became editor of the new publication, a post he would hold for 41 of the next 42 years.

