

THAT ALL MAY KNOW



The Institute of Electrical and Electronic Engineers, pars pro toto, “The Institute” is also warmly known to its members as aye-triple-ee: IEEE. The beginnings of this organization date back to 1884 as the AIEE, the American Institute of Electrical Engineers. In 1963 the AIEE and the Institute of Radio Engineers (IRE), which had existed since 1912, merged. Because these two groups had a large number of members in common, they had come to realize that their general interests in electrical and electronic engineering lay together. So those common members joined forces to form the IEEE with the determination to make it the premier scientific and educational organization. Such is the vision of IEEE: to advance global prosperity by fostering technological innovation, enabling members’ careers and promoting community worldwide. Since the merger, electrical engineering has proven to be the learned profession at the forefront in most, if not all, modern technological development. The breadth of the technologies involved is represented by 36 societies of IEEE. These technologies have proliferated into every facet of human endeavor and are largely responsible for the quality of life enjoyed in the world today. As the breadth of these technologies – from nuclear and oceanic science to computer hardware and software – is viewed, it seems quite distant to remember the work of Faraday, Maxwell, Gauss, Heavyside, Joule, Ohm, Ampere, Volta, Watt, Weber, Tesla, Marconi and the other 19th-century founders of this profession. However, so that all may know, we celebrate the work of these founders symbolically in the logo of IEEE.

When the founding organizations were joined in 1963 there was considerable effort expended to unify and simplify logos of these organizations while at the same time retaining their historical significance. The result of this work is the IEEE logo that we know today. It is the symbol we often refer to in familiar terms as the kite and right-hand rule. And symbolic it is:

A committee headed by Alexander Graham Bell in 1893 designed the AIEE’s first logo. It was a kite shaped badge with a periphery marked by a coil of gold wire. The midpoints were spanned by a galvanometer complete with a blued-steel needle on an amber disk. In 1897 another AIEE logo was developed using two linked circles to describe the relationship between the electric and magnetic fields. In 1912 the IRE logo was developed using a triangle and arrows to represent these same electrical and magnetic forces using the configuration of the right-hand rule.

The use of the right-hand rule in the IEEE logo captures, in simplistic terms, the great mathematical foundations of the profession as described in Maxwell’s Equations. The right-hand rule is symbolic of the mathematical relationship between the electric and magnetic fields. It serves as a reminder that electrical engineering and the technologies that flow from it, are based on the calculus and the higher orders of mathematics as would be expected of a learned profession.

In a similar manner the kite, as found in the original logo of the AIEE, represents the kite used by Benjamin Franklin when he discovered electricity in lightning. So the kite immortalizes discovery as an essential element of the engineering profession. One is immediately drawn to the effort expended by Edison as he tried filament after filament leading to the discovery of the incandescent lamp. Today, discovery remains the essential tool of a technologist. The kite represents discovery just as Edison’s work provides us a definitive example of the discovery process.

The IEEE kite logo is shown without the tail and in a symmetrical diamond form. The geometry of the diamond-shaped kite with its right-hand rule can also be viewed as a stylized form of the Wheatstone bridge. It has been said that this bridge with its galvanometer also depicts the earliest observation of electrical phenomena by Thales, and the source of the word electricity. The bridge is used as a precise measurement tool. Folklore surrounding the Wheatstone bridge reminds us that the linemen of yesteryear used it to predict the location of a break in a telegraph line to within the distance between two poles. And further, they would often bet coffee on which pole the break was closest to. Hence, the diamond symmetry of the IEEE logo represents the technologist’s use of precision instrumentation and exact measurement as indispensable tools of the profession.

The logo of the IEEE serves as a reminder to our diverse membership that today we but stand on the shoulders of the giants who founded our profession. As part of the master brand of IEEE, the logo serves as a reminder of the underlying unity of the technologies that have flooded to fill the world as the result of the practice of electrical and electronic engineering. Transcending language, this symbol has become known worldwide. It is expressive of those engineering tools that will continue to be used to foster technological innovation: advanced mathematics, measurement, instrumentation, and discovery. And in the end, Providence willing, this logo will represent the engineers, scientists and technologists who will be known for promoting community worldwide.

Written by
W. Cleon Anderson
Director, Region 6

November 25, 1999