



## **The Early Sparks of Electrical Control - BB (Boring)**

*The Siemens Company – Its Historical Role in the Progress of Electrical Engineering 1847-1980* by Sigfrid von Weiher and Herbert Goetzeler

*The Bradley Legacy* by John Gurda

Reviewed by Nick Sands

Not long after the discovery of electricity, young geniuses started to develop interesting devices to put it to work. Two geniuses were Werner Siemens and Lynde (pronounced 'Lined') Bradley. Through innovation, perseverance and the support of their brothers, and others, these men would change the world through automation. Werner Siemens started in 1847 as related in *The Siemens Company – Its Historical Role in the Progress of Electrical Engineering 1847-1980*, written by Sigfrid von Weiher and Herbert Goetzeler. The story of Lynde Bradley is related in *The Bradley Legacy*, written by John Gurda.

In 1847, thirty year old Werner Siemens began work on his first electrical invention, a dual telegraph pointer, and co-founded the Siemens & Halske Telegraph Construction Company. Early successes included the Berlin-Frankfurt telegraph line and the Prussian telegraph system. Brother Carl moved to Russia and won the contract for the Russian state telegraph system. Brother Wilhelm moved to Britain and was able to win the contract for the first undersea cable between Sardinia and North Africa. Werner also designed transformers, dynamos, and electric motors. By 1888 Werner was made a noble by the Kaiser and had founded the Imperial Institute of Physics and Technology. By 1919, Siemens supplied telephone systems, lighting systems, electrical systems, railways systems, airplanes, airships, cars, motors, and x-ray machines, mostly from the corporate headquarters outside Berlin, known as Siemensstadt. 40% of the company was lost in the aftermath of World War I, including the factories in Russia. Siemens slowly recovered along with the rest of Germany and grew under Carl Friedrich von Siemens. The Third Reich used the capability of Siemens in the Second World War and 80% of the company was lost with the war. Post war, Siemens made anything they could to help Germany, from shovels to ovens. The company headquarters was moved to Munich because Siemensstadt was in East Germany. The company focused on communications, electrical, and computer technology, growing to almost 32 billion DM in 1980.

As a sixteen year old high school student, Lynde Bradley received the first of many patents for an electrically operated wind vane. He later dropped out of school to build and sell x-ray machines with his physics teacher. Younger brother Harry worked as an assistant. In 1901 he started his own company to build speed controllers for electric motors, financed by family friend Dr. Stanton Allen. The early years were difficult and it was not until 1910 that the Allen-Bradley company was formed. In 1912, Allen-Bradley sold automatic starters and switches, speed regulators, crane controllers, and battery chargers. WWI dramatically increased demand and the young company bought its first building in Milwaukee, destined to become a landmark. The economy cycled in the postwar years, but a line of components became standard equipment as the radio swept across the US. The great depression and unionization were challenges in the 1930s. WWII was an even greater challenge, as Allen-Bradley provided many electrical components. In the 1950s, numerical-control devices were made, replaced in the late 1960s with programmable electronic controllers. Sales grew to \$950 million in 1984. In 1985, the company was purchased by Rockwell for \$1.65 billion.

The history of these great companies, the great men that worked for them, and the technologies they developed will be interesting to some, but perhaps boring (BB) for others. The availability of these books varies. *The Siemens Company...* is difficult to find. *The Bradley Legacy* is available for about \$20.