

## Charles Babbage

Born in Teignmouth, Devonshire, Charles Babbage lived from 1792-1871. He attended college at the University of Cambridge, and in 1816, he joined the Royal society, and he was one of the founders in each of the Analytical, Royal Astronomical, and Statistical Societies. Ironically, his ideas were so forward-thinking and radical at the time, the British government offered no financial support for his inventions. Also, computer developers in the mid-20<sup>th</sup> century were unaware of his ideas for memory storage, printers, punched cards, and sequential control. Perhaps had he lived 80 years later, he could have accelerated computer development considerably. Late in his life, he contributed analyses of miracles in the bible to the book *Bridgewater Treaties*, a work comprised of Christian apologetics writings.

A few of Babbage's major inventive contributions to the world are the Speedometer, the Automatic computer which accommodated information storage and retrieval and the ability to calculate simply #'s up to 20 decimals, and the Analytic Engine. Through the 1820s he developed the Difference Engine which could calculate with simple functions; however, as stated before, he was unable to build it due to insufficient funding from the British government. In late 1832, he wrote a book, *Economy of Machines and Manufactures*, which influenced the science community so much, it initiated a new study, "Operational Research." This study is the application of science and mathematics to the analysis of complex overall problems; it matches Babbage exactly. In 1834 he conceived of and developed an idea for an Analytical Engine, which could make complex calculations. Once again, he was denied his day because the government wouldn't supply the money, materials, and tools necessary to construct the football field-size computer. Because of its massive size and the sheer volume of raw materials needed for such a project, Skeptics gave the computer a nickname, the "Babbage's folly." Despite discouragement and mocking on every side, he worked on this project until his death in 1871. Recently, in 1991, British scientists, following carefully his detailed drawings and blueprints, constructed the Difference Engine, Babbage's original project. Without need of adjustment or debugging, it worked flawlessly up to 31 digits.

Babbage was indeed a great scientist and inventor, and his works go far beyond computers, his Christian writings influenced many secular scientists, and his spirit of learning and discovery impacted the entire scientific community.