

Who invented the computer?

[From: *Early History of the Computer, in Bickerton's Place*]

Computing is so old that it would be impossible to know *who* invented it. For example, you probably have heard about the *abacus*, perhaps the earliest known calculating device. It dates back to at least 3,100 years and is still in use today. Abacus beads can be readily manipulated to perform the common arithmetical operations—addition, subtraction, multiplication, and division—that are useful for commercial transactions and in bookkeeping. The abacus is a digital device; that is, it represents values separately. A bead is either in one predefined position or another, representing, say, one or zero.

In 1620 Edmund Gunter, an English mathematician, built a device for performing navigational calculations: the Gunter Scale—or as navigators simply called it, the *gunter*. Then around 1632 an English clergyman and mathematician named William Oughtred built the first slide rule, a device that performed calculations by the use of a wooden ruler with inside tracks, where another, smaller ruler would slide sideways. These were analog (measuring a comparison to something else) devices. However, it was an English mathematician and inventor who is credited with having conceived the first automatic digital computer.

In 1812 Charles Babbage made a small calculator that could perform certain mathematical computations to eight decimals. Then in 1823 he obtained government support for the design of a projected machine with a 20-decimal capacity. Its construction required the development of mechanical engineering techniques, to which Babbage of necessity devoted himself. During the mid-1830s Babbage developed plans for the Analytical Engine, the forerunner of the modern digital computer. In this device he envisioned the capability of performing any arithmetical operation on the basis of instructions from punched cards, a memory unit in which to store numbers, sequential control, and most of the other basic elements of the present-day computer. The Analytical Engine, however, was never completed. Babbage's design was forgotten until his unpublished notebooks were discovered in 1937. In 1991 British scientists built Difference Engine No. 2—accurate to 31 digits—to Babbage's specifications.

What we know today as a “personal computer” saw first light in 1981 when the then very popular IBM PC was first sold. But the seed to this development dates back to 1949, when Edmund Berkeley in an article in *Radio Electronics* wrote that “machines can think” and went on to explain how to do it. Eventually the machines were built and, according to Mr. Berkeley, the machine established at least half a dozen world's records at the time. It was: The smallest complete mechanical brain in existence; knows not more than four numbers; it can express only the number 0, 1, 2 and 3; is a mechanical brain that costs less than \$1,000; can be carried around in one hand (and the power supply in the other hand); can be completely understood by one man; is an excellent device for teaching, lecturing and explaining. When asked what was the machine's future, Mr. Berkeley answered: “In the first place, it can grow. With another chassis and some wiring and engineering, the machine will be able to compute decimally. Perhaps in six months more, we may be able to have it working on real problems. In the second place, it may start a fad of building baby mechanical brains.”

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