

From the Archives

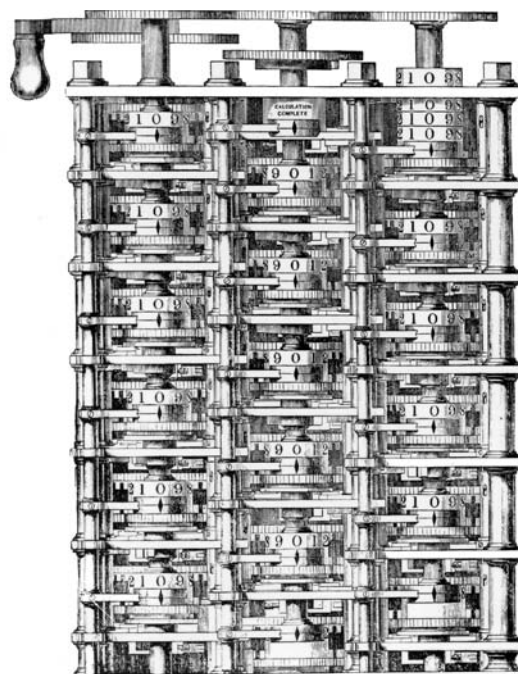
Elected to the Academy in 1832, Charles Babbage (1792 – 1871) is widely regarded as the “Father of Computer Science.” His calculating engines, including the Difference Engine, are among the most celebrated icons in the prehistory of computing. Although never completed, his Analytical Engine possessed all of the essential features of the modern general-purpose computer. During his travels in Europe in the early 1820s, inventor and Academy Fellow Daniel Treadwell (1791 – 1872) visited Babbage and described his impressions of the calculating machine in letters to his collaborator in Boston, Dr. John Ware.

I have spent several hours at Babbage’s looking at his machine. It is exceedingly ingenious as a mechanical invention, but perhaps more striking considered with regard to the evidence it furnishes of Babbage’s knowledge of the theory of numbers. (London, April 1, 1835)

In my last letter to you I promised to write particularly of Babbage’s calculating machine. . . . It is thirteen years since Mr. Babbage commenced making the drawings for it, and the calculating part of the machine now built does not extend to more than one quarter of the places of figures that he intended it to do, that is, it has but one quarter of its work in, and instead of counting, say 1,000, it counts but 250, but it works right as far as it goes. Nothing, or almost nothing, has yet been done to the part that is to stamp the figures on the copper. . . . These difficulties are not, in my opinion, likely to be overcome, and would not be, even if Babbage were fresh in the harness, and the money were at his disposal; but this is not the case. Babbage indeed does not tire, (for he has lately commenced the drawings of a machine of greater powers than that partly made,) but the government have stopped the supplies, and the men on whose opinions the money was before given “begin to doubt,” so that there is no chance of the work being taken up at present; in a word, the wonder of the machine has passed, and it is considered as laid upon the shelf. . . . But I honor Babbage for his ingenuity, as I consider the machine one of the greatest pieces of intricate conception ever put into form. (London, April 22, 1835)

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The roster of the Academy has included a number of distinguished computer scientists, among them John von Neumann and Grace Hopper. In the Academy’s membership listings, computer scientists were categorized as mathematicians or engineers until the early 1990s when a new section was created recognizing the increasing prominence of computer science and technology in industry, academics, and society. Under the leadership of David Clark (MIT), the Academy is now conducting a study of Internet security focusing on the social, political, economic, and legal implications of choices that are being made in the development of this global resource. ■



Charles Babbage's Difference Engine No. 1. The engine was begun in 1824 and assembled in 1832 by Joseph Clement, a skilled toolmaker and draughtsman. It was a decimal digital machine – the value of a number represented by the positions of the toothed wheels marked with decimal numbers.

Credit: Science Museum, London, United Kingdom.