

Campaign to build 1837 Babbage's Analytical Engine

October 19 2010, by Lin Edwards



Trial model of a part of the Analytical Engine, built by Babbage, as displayed at the Science Museum (London).

(PhysOrg.com) -- A campaign based in the UK is hoping to construct Charles Babbage's steam-powered [Analytical Engine](#), a prototype computer around the size of a steam locomotive, which Babbage designed in 1837. While elements of the engine have been constructed in the past a complete working model has never been built.

The idea was the brainchild of author, science blogger and programmer John Graham-Cumming, who wrote the *Geek Atlas*. He said the Engine was inspirational, since it was designed long before we had computers as we know them today, but he said that Babbage's papers show the Engine was the first real general purpose computer, having an expandable

memory, a central processing unit (which Babbage called the "mill"), microcode, and a printer and plotter. The computer was to be programmed via punch cards to carry out a variety of tasks.

Babbage, an engineer and mathematician, designed the Analytical Engine to be constructed of iron and brass. It was a successor to the Difference Engine, a massive machine made of brass, but which was a calculator rather than a true computer. Several versions of the Difference Engine have been built, including one at London's Science Museum, made in the 1980s. Babbage created many designs for the Analytical Engine, and the current campaign is to construct the design named Plan 28.

The Analytical Engine would be built after Babbage's blueprints, held at the Science Museum in London, have been digitized and fully deciphered. A three-dimensional simulation would then be created on computer to allow any problems to be overcome before physical construction begins.

Graham-Cumming said the machine would be a great educational resource that would help people understand how computers work. He also envisages holding competitions for people to write programs to run on the Engine. He said building the Engine would be a celebration of Charles Babbage's achievements, and it would also be fantastic to use it to execute the code written especially for it by famous Victorian mathematician Ada Lovelace, who worked with Babbage on the Engine. Her code is intended to calculate the Bernoulli sequence of numbers, which she worked on until 1843, and is the first computer program.

Graham-Cumming said he was initially worried there would not be enough supporters for building a [computer](#) driven by steam, with only 1 k of memory and "13,000 times slower than a ZX81", but so far over 3,100 people have [pledged support and donations](#) of \$10/£10/€10 each

to the non-profit Plan 28 campaign. About 50,000 supporters donating a total of around \$640,000 are needed by the end of January 2011 to get the project off the ground. If the Engine is built, it will be donated to a museum such as the Science Museum.

More information: blog.jgc.org/

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