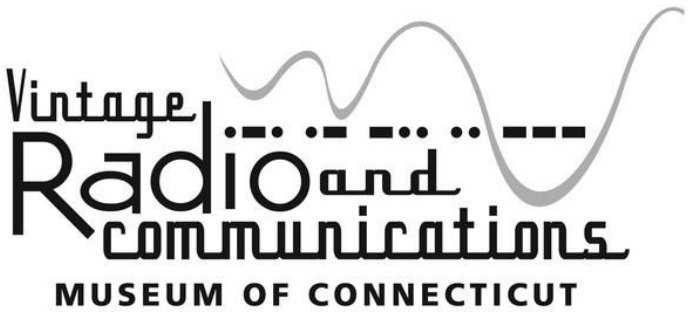
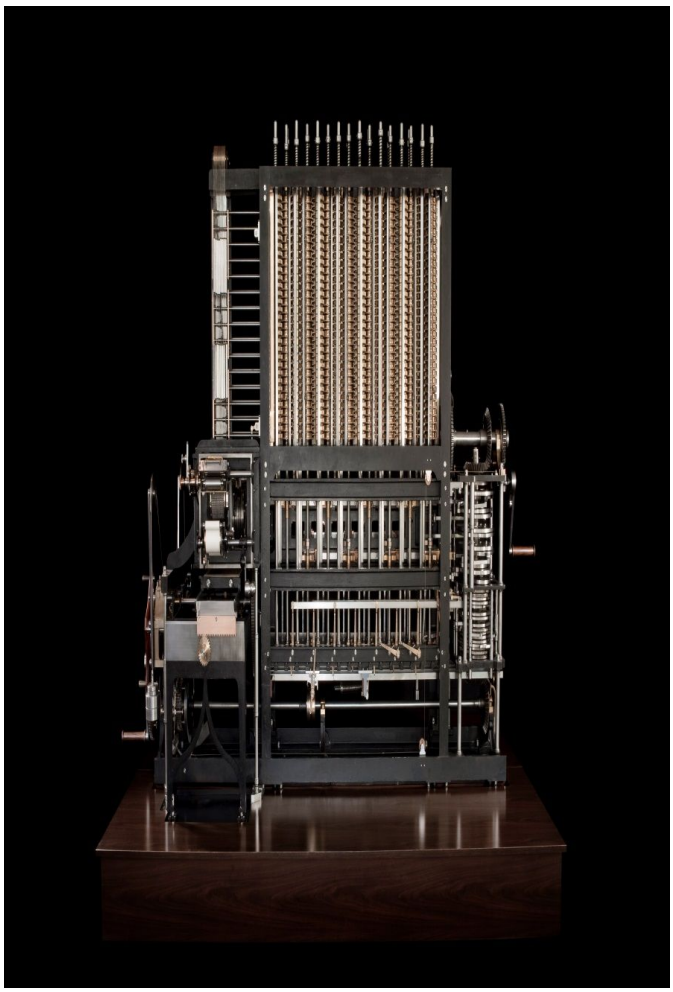
Early Computers

18th Century and Beyond

Prepared by



Charles Babbage (1791-1871), computer pioneer, designed the first automatic computing engines. He invented computers but failed to build them. The first complete Babbage Engine was completed in London in 2002, 153 years after it was designed. Difference Engine No. 2, built faithfully to the original drawings, consists of 8,000 parts, weighs five tons, and measures 11 feet long.



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ANALYTICAL ENGINE - 1834

- Babbage 's second computer
- used binary system
- punched cards as input
- Ada Lovelace (first programmer) close friend of Charles Babbage
- intended to combine its numerical qualities as though they were letters or other symbols.

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LADY AUGUSTA ADA BYRON

1815-1852

- Countess of Lovelace (more commonly known as Ada Lovelace) was a mathematics prodigy of sorts and a brilliant woman far ahead of her time in terms of ideas
- 'The Enchantress of Numbers'.
- World's first Programmer

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TABULATING MACHINE - 1886

- used to count the number of people who lived in the US for more that 50 years.
- used punched card as an input

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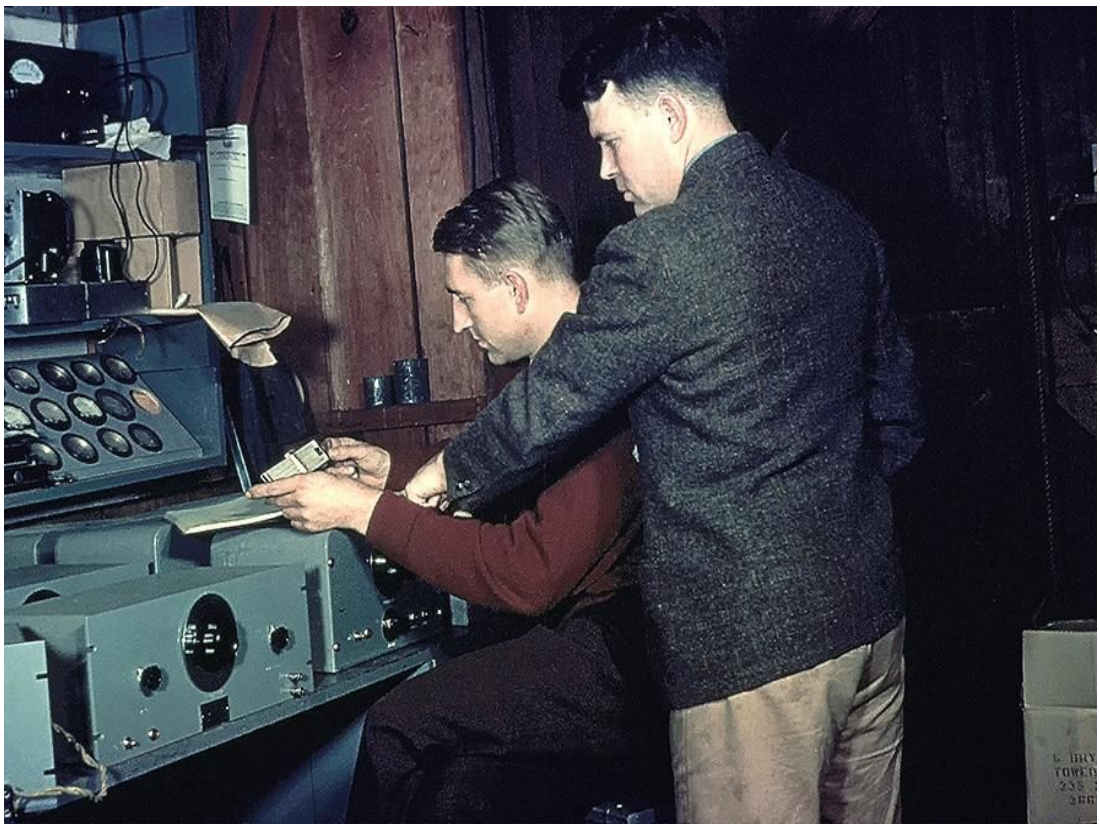

David Packard and Bill Hewlett found their company in a Palo Alto, California garage. **Their first product, the HP 200A Audio Oscillator**, rapidly became a popular piece of test equipment for engineers. Walt Disney Pictures ordered eight of the 200B model to test recording equipment and speaker systems for the 12 specially equipped theatres that showed the movie ñFantasiaò in 1940.

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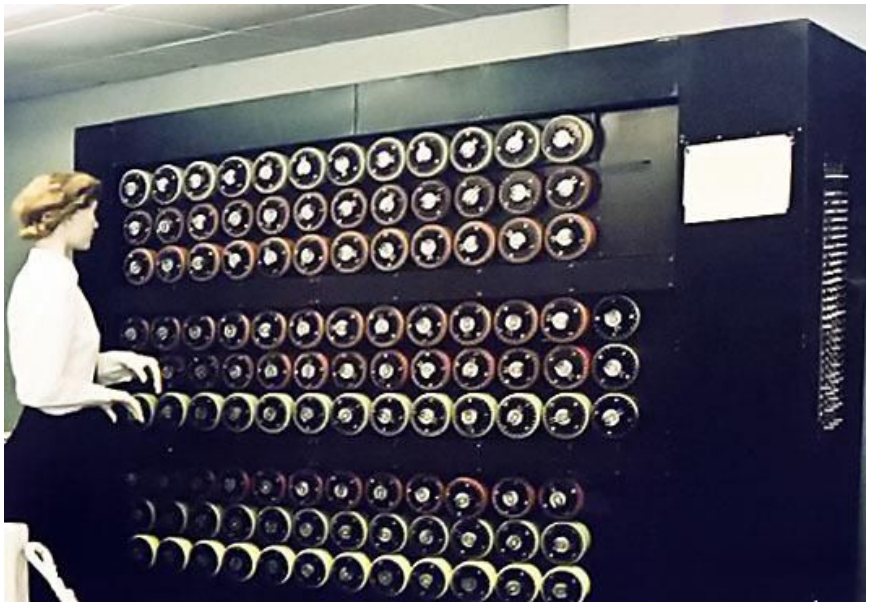
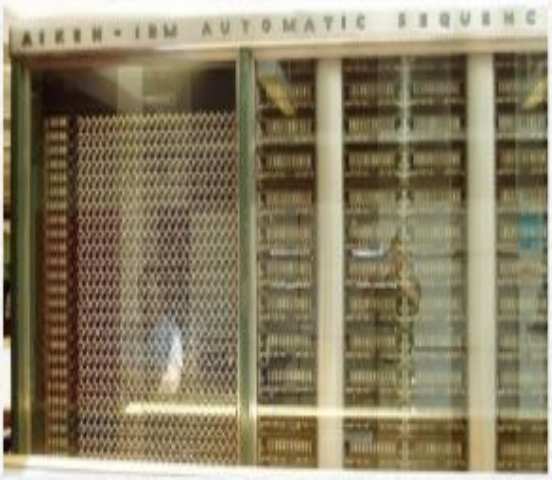


Built as an electromechanical mechanical means of decrypting Nazi ENIGMA-based military communications during World War II, the British Bombe is conceived of by computer pioneer Alan Turing and Harold Keen of the British Tabulating Machine Company. Hundreds of bombes were built, their purpose to ascertain the daily rotor start positions of Enigma cipher machines, which in turn allowed the Allies to decrypt German messages.

HARVARD MARK I COMPUTER
1939



- described as "the beginning of the era of the modern computer" and weighed 10,000 pounds.

ENIAC – 1946

Electronic Numerical Integrator and Computer

- World's first digital computer
- Massive machine was world's first large-scale electronic general-purpose digital computer
- Filled entire room & calculate in two hours

UNIVAC – 1951

Universal Automatic Computer

- was the first commercial computer produced in the United States

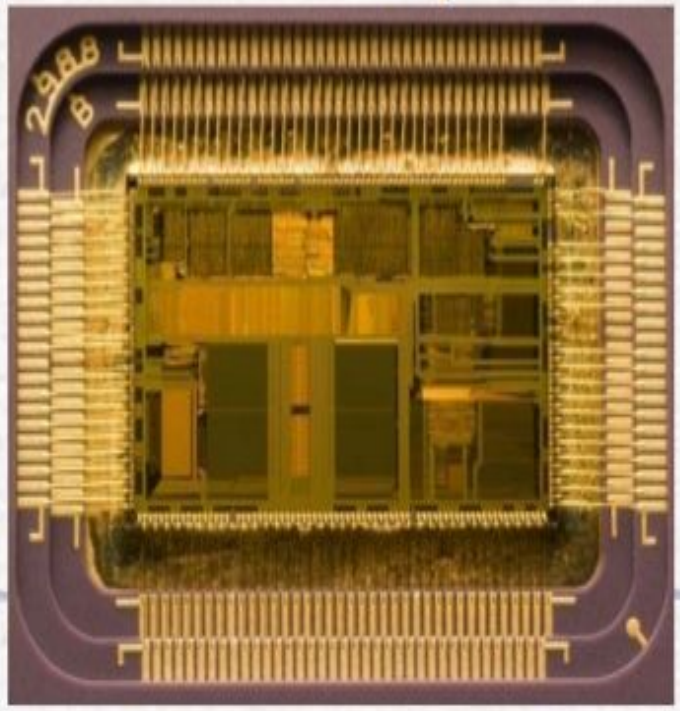
FROM VACUUM TUBES TO TRANSISTORS

The miniaturization of computers began with the invention of the transistor on December 23rd 1947 by William Shockley, John Bardeen and Walter Brattain at Bell Laboratories. Early computers like the ENIAC contained thousands of vacuum tubes, millions of soldered joints and consumed 100's of kilowatts of electricty. Transistors would replace the tubes, greatly reduce the heat output and space requirements.

Integrated Circuits

In 1958, Jack Kilby, a newly hired engineer at Texas Instruments, invented the integrated circuit - two transistors combined on a single silicon wafer.

MICROPROCESSOR – 1968



- Made up of silicon chips.
- Silicon chips are made up of silicon, an element found in sand.
- Allows a computer to operate faster

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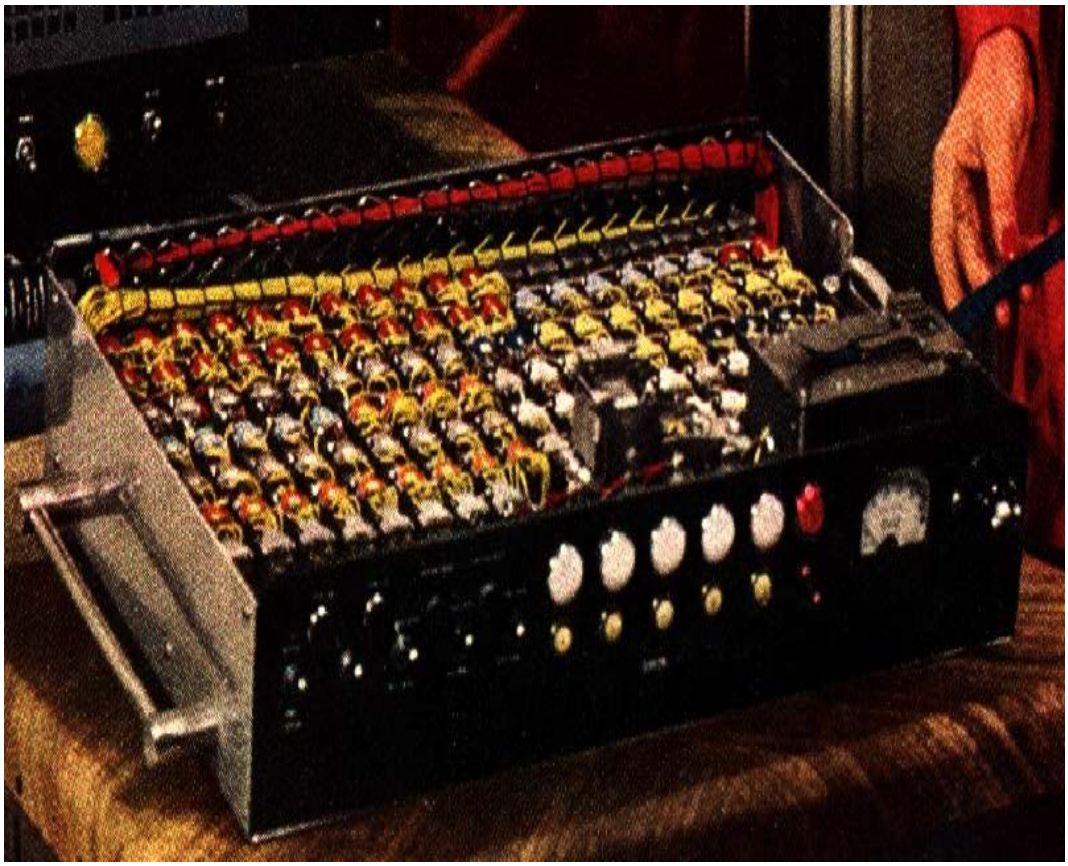
Simon, the miniature relay automatic computer



The First PC - 1950

Simon (named after Simple Simon of Mother Goose fame -- is a miniature mechanical brain containing 129 relays, a stepping switch, and a five-hole paper tape feed. It takes in numbers and instructions on a punched paper tape, and shows the answers to a problem in lights. It can take in numbers from 1 to 255 in binary notation, and it can perform any of nine operations including addition, subtraction, greater than, selection, etc. It has been exhibited in nine cities of the United States and has always interested and entertained the audience. Data: completed; professionally finished; 99% reliable; maintenance, difficult; our costs, about $4,000.