Simferopol College of National University of the Food Technologies

THE INVENTIONS THAT CHANGED THE WORLD

Introduction

- The invention of the digital computer transformed our civilization during the past 60 years and had profound social, economic and scientific effects. Still humans are just beginning to use the potential of computers. Our future progress will strongly depend on the development of computing technologies, it is important to clearly see the their possibilities.
- The development of computing technologies depends primarily on the general technological level, available production methods and the market demand for computing.

Computer History: Earliest computing machines

The Abacus - is a calculating tool used primarily for performing arithmetic processes. Abacus is a beginning of development of computer technologies .

Image 1 – Traditional abacus.

Image 2 – The Suan Pan - Chinese abacus.

Computer History: Earliest computing machines

The Slide Rule - is a mechanical analog computer. The slide rule is used primarily for multiplication and division, and also for functions such as roots, logarithms and trigonometry.

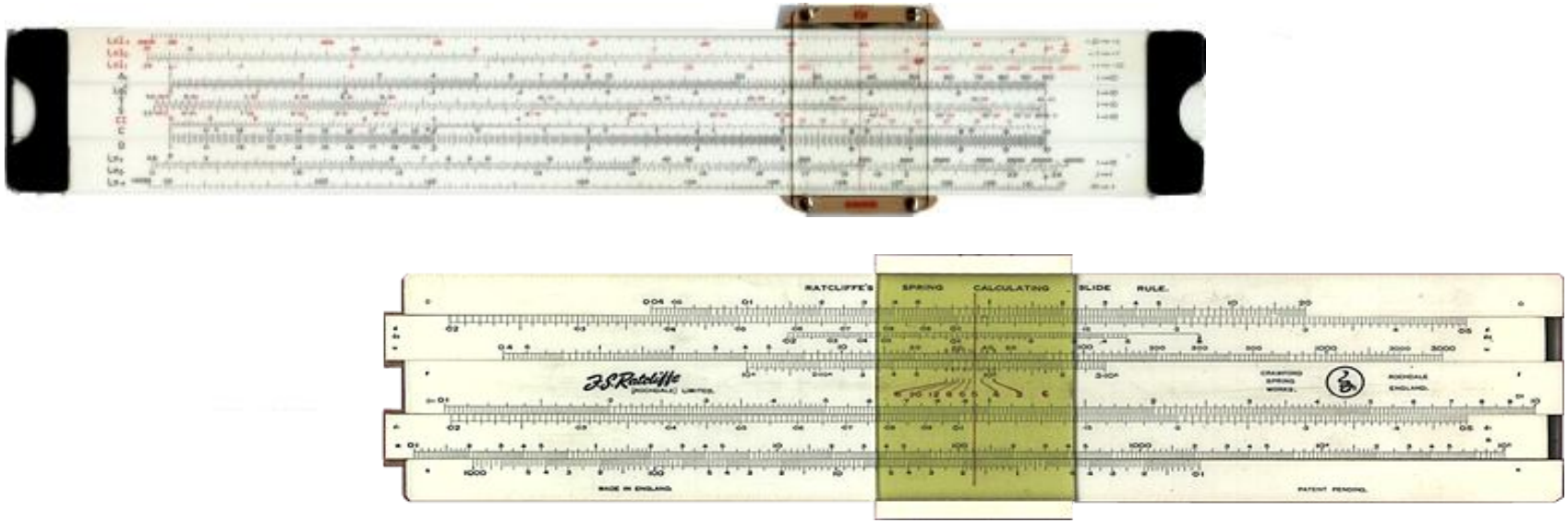


Image 3 – The slide rule.

Computer History: Earliest computing machines

Pascal's Calculator or **"Pascaline"**. This calculating machine could add and subtract two numbers directly and multiply and divide by repetition.

Image 4 – “Pascaline”.

Computer History: Punched card technology

A punched card (punch card, IBM card, or Hollerith card) is a piece of stiff paper that contains digital information represented by the presence or absence of holes in predefined positions.

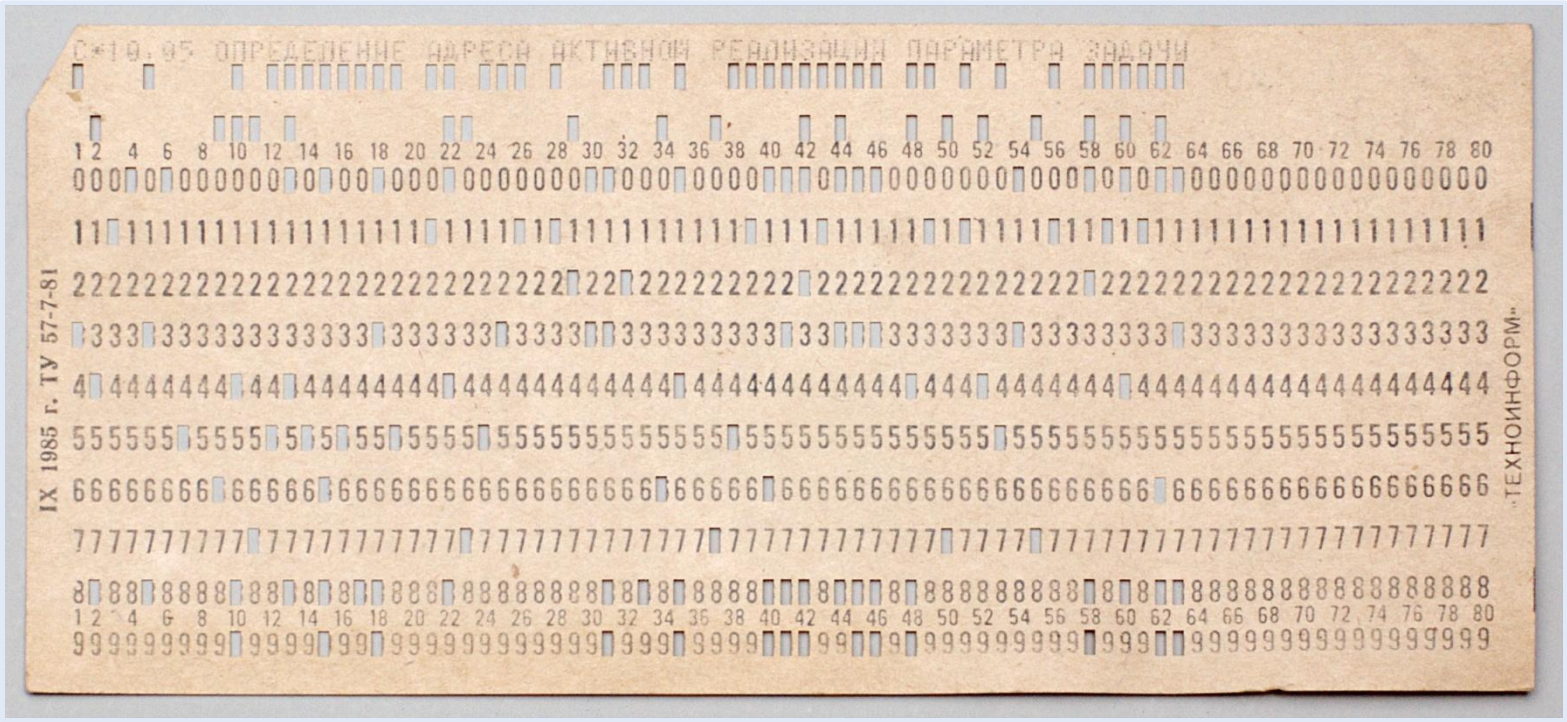
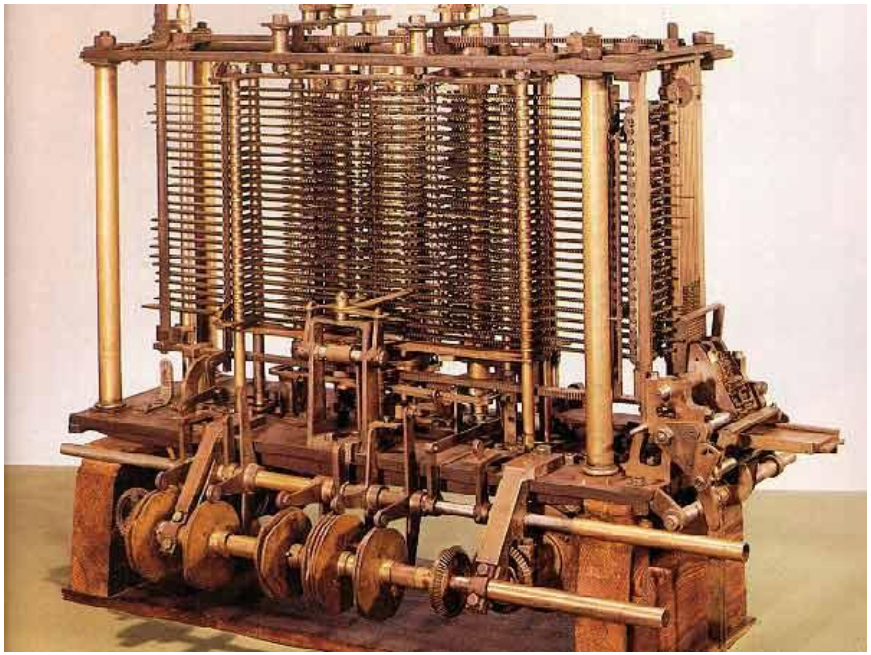


Image 5 – punched card.

Computer History: Punched card technology

The Analytical Engine was a proposed mechanical general-purpose computer designed by English mathematician Charles Babbage.



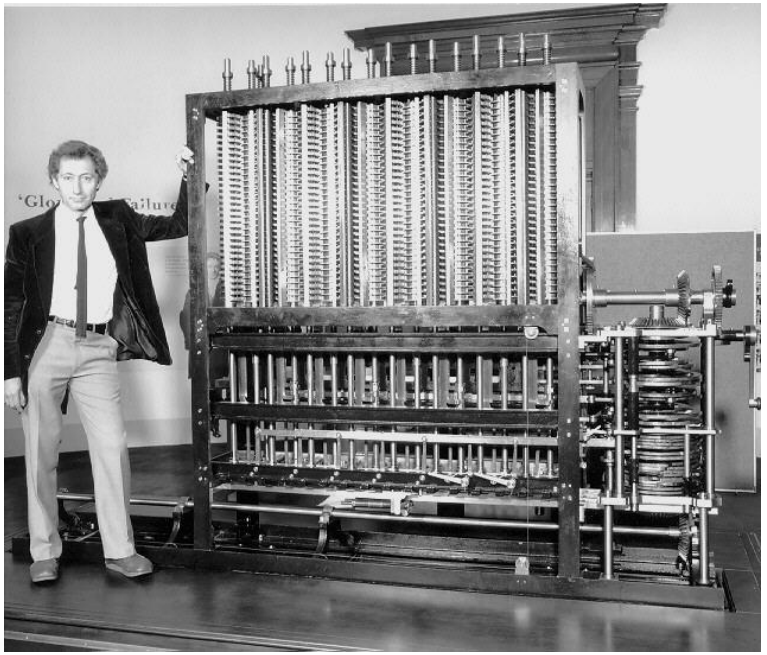


Image 6 – Analytical machines.

Computer History: Early electronic digital computation

A Turing machine is a hypothetical device that manipulates symbols on a strip of tape according to a table of rules. Despite its simplicity, a Turing machine can be adapted to simulate the logic of any computer algorithm, and is particularly useful in explaining the functions of a CPU inside a computer.

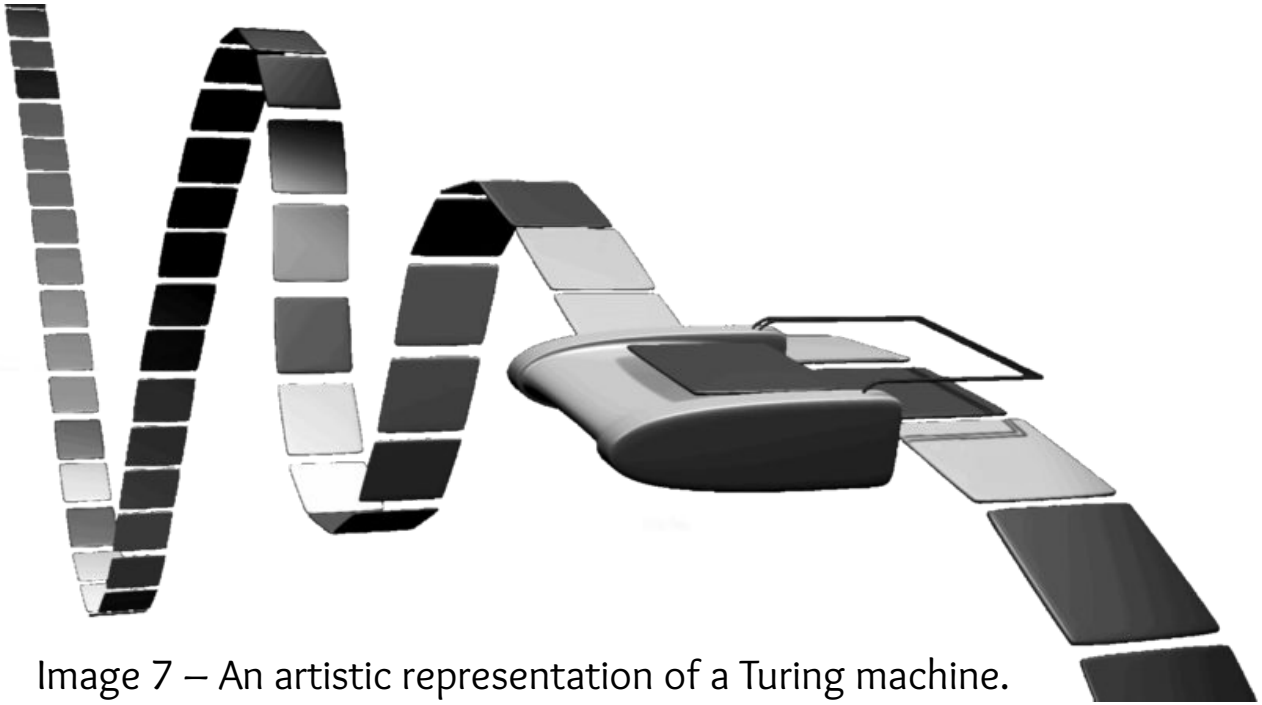
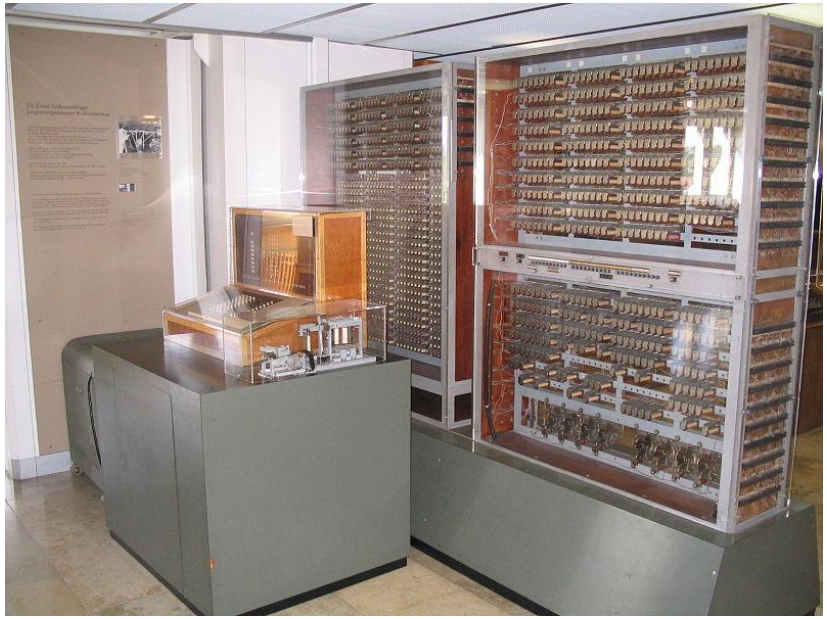


Image 7 – An artistic representation of a Turing machine.

Computer History: Early electronic digital computation

The Z3 was an electromechanical computer designed by Konrad Zuse. It was the world's first working programmable, fully automatic digital computer.



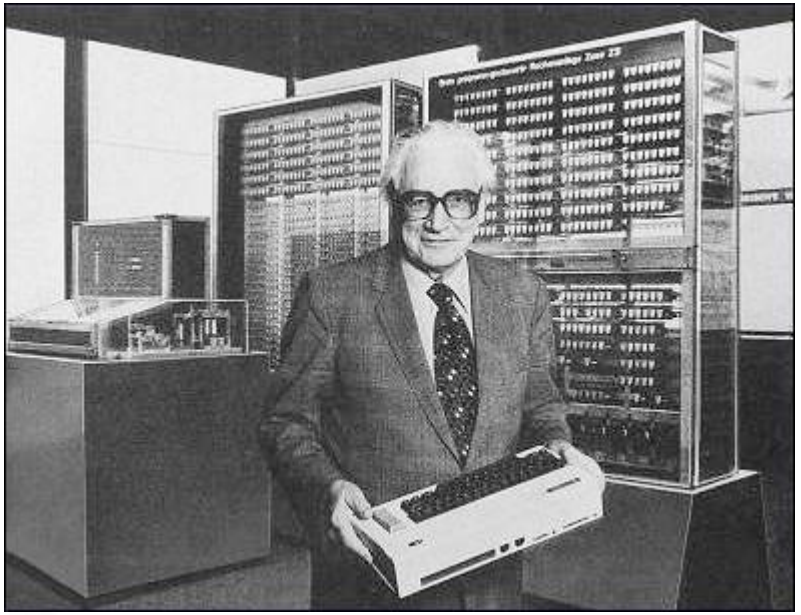
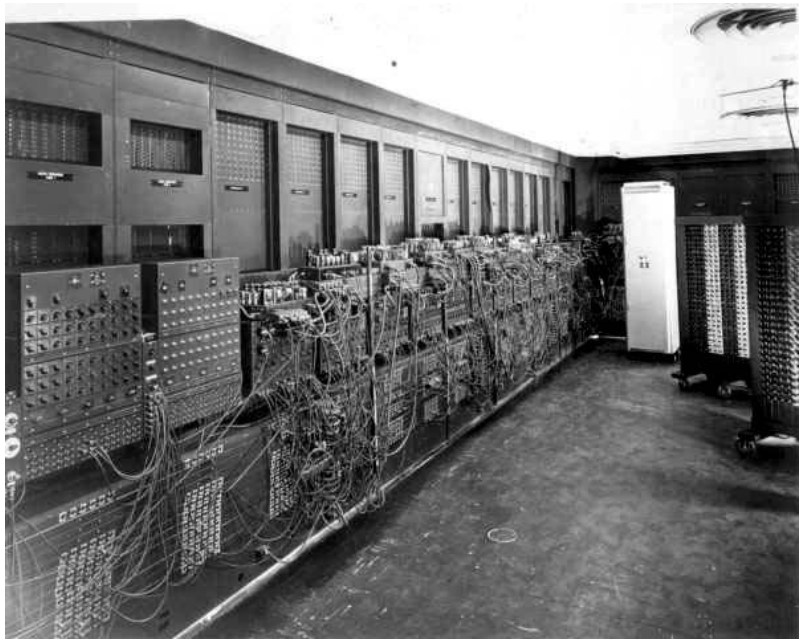


Image 8 – Konrad Zuse and his Z3.

Computer History: Early electronic digital computation

ENIAC was the first electronic general-purpose computer. He was designed to calculate artillery firing tables for the United States Army's Ballistic Research Laboratory.



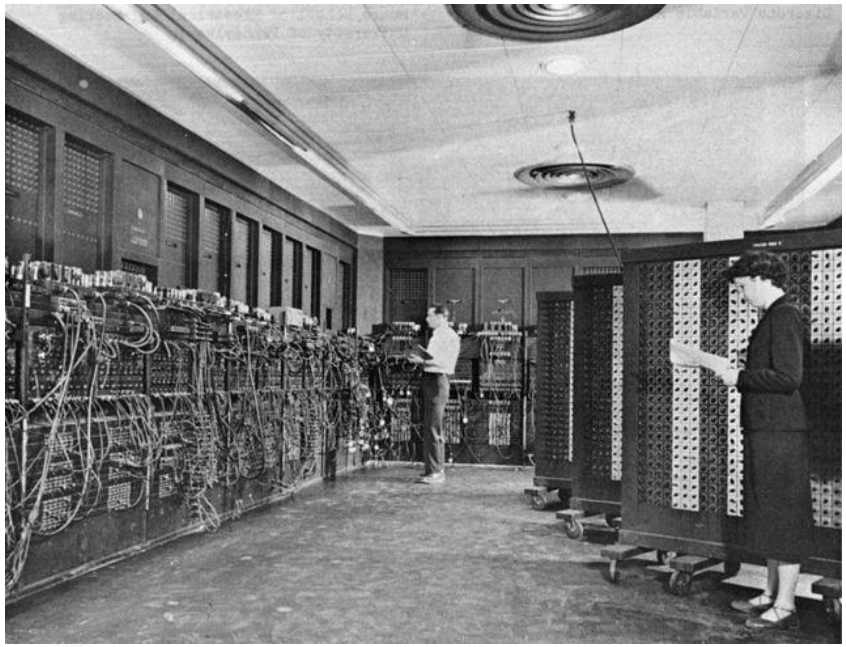
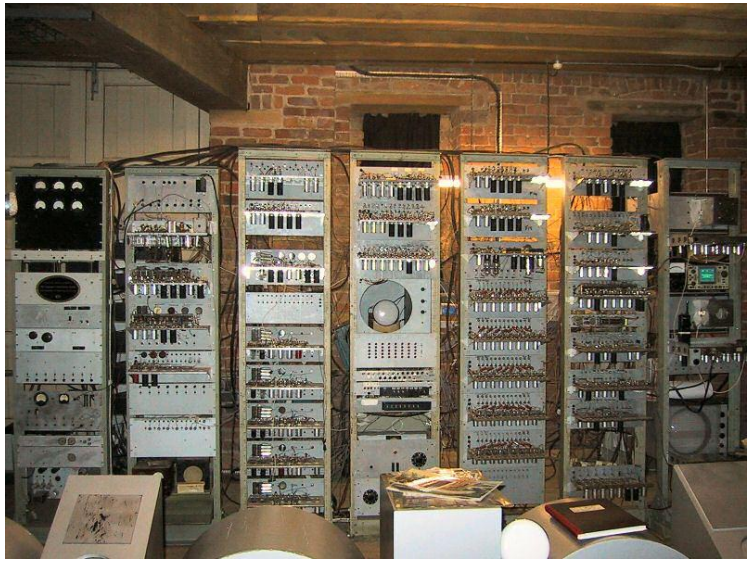


Image 9 – ENIAC.

Computer History: Early electronic digital computation

The Manchester Small-Scale Experimental Machine (SSEM), nicknamed **Baby**, was the world's first stored-program computer. He ran its first program on 21 June 1948.



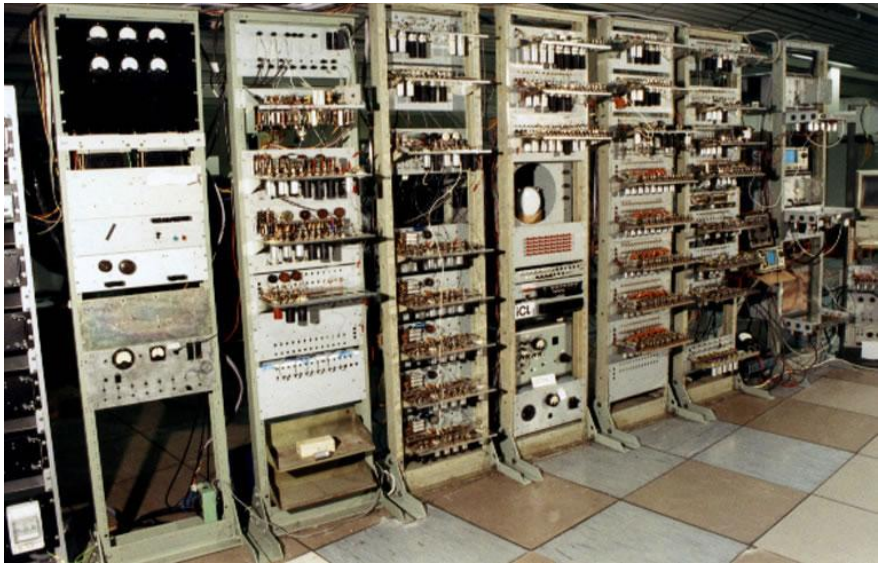


Image 10 – SSEM “Baby”.

Computer History: First-generation computers

First-generation computers (1937-1955) - is computers that used vacuum tubes as switching elements.

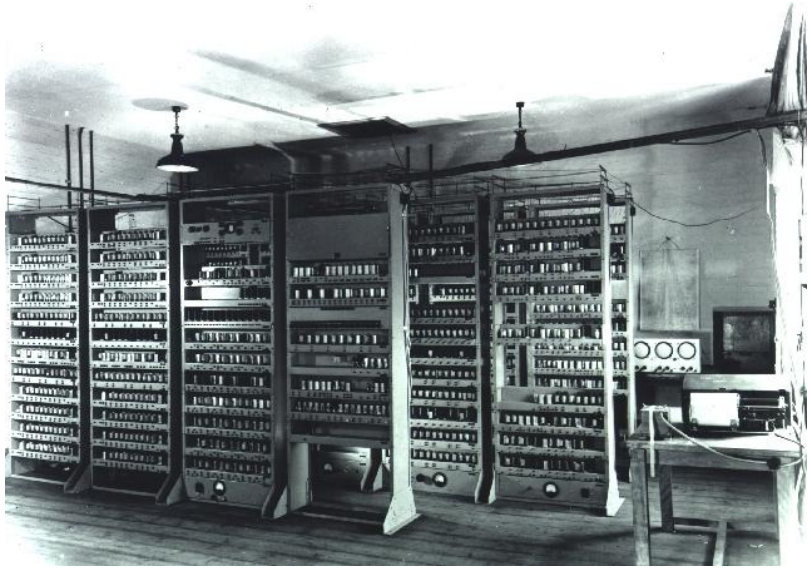


Image 11 – EDSAC.

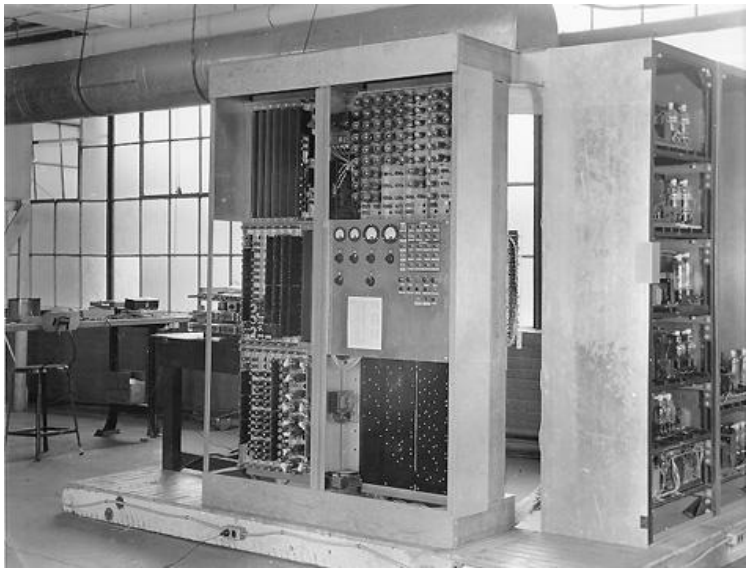


Image 12 – EDVAC.

Computer History: Second-generation computers

Second-generation computers (1954-1962) - is computers that used transistors. Transistor was invented in 1947. By 1965 second-generation computers were used by many large companies.

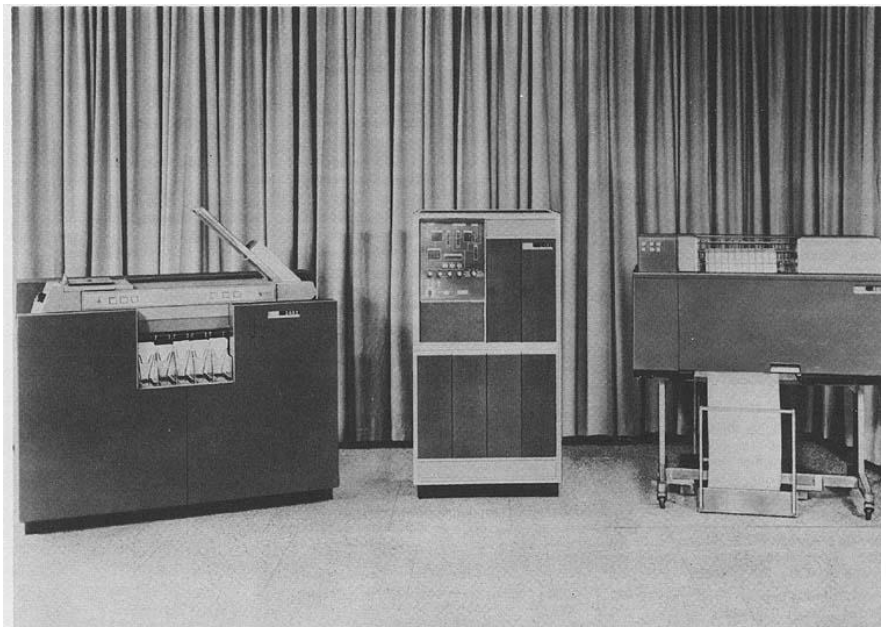


Image 13 – IBM 1401.

Image 14 – IBM 7030 Stretch.

Computer History: Third-generation computers

3rd generation of computers (1964-1973) was based on the integrated circuit (computer chip), developed in 1958. First computers of the new generation became available in 1965.

Image 15 – IBM System/360 Model 30.

Image 16 – IBM System/360 Model 65.

Computer History: Fourth-generation computers

4th generation of computers, based on a microprocessor, appeared in 1972, just one year after the first microprocessor was created.

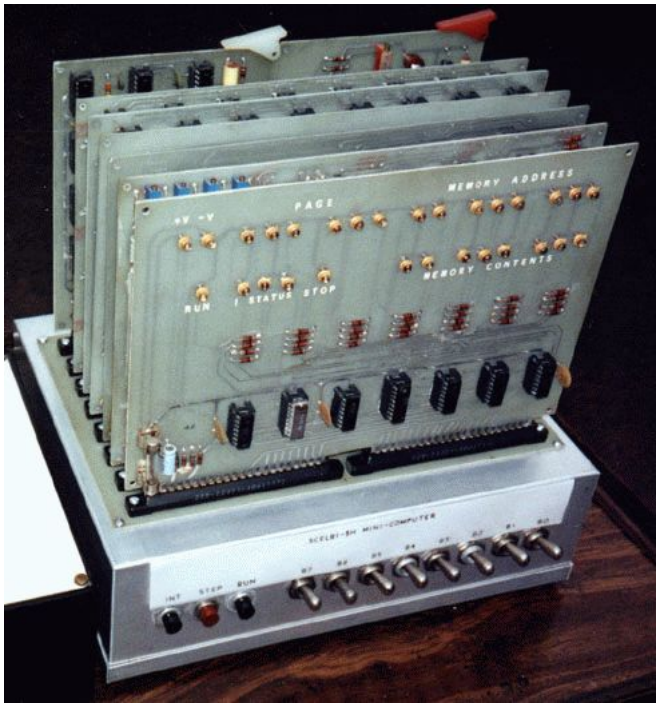


Image 17 – Scelbi microcomputer.

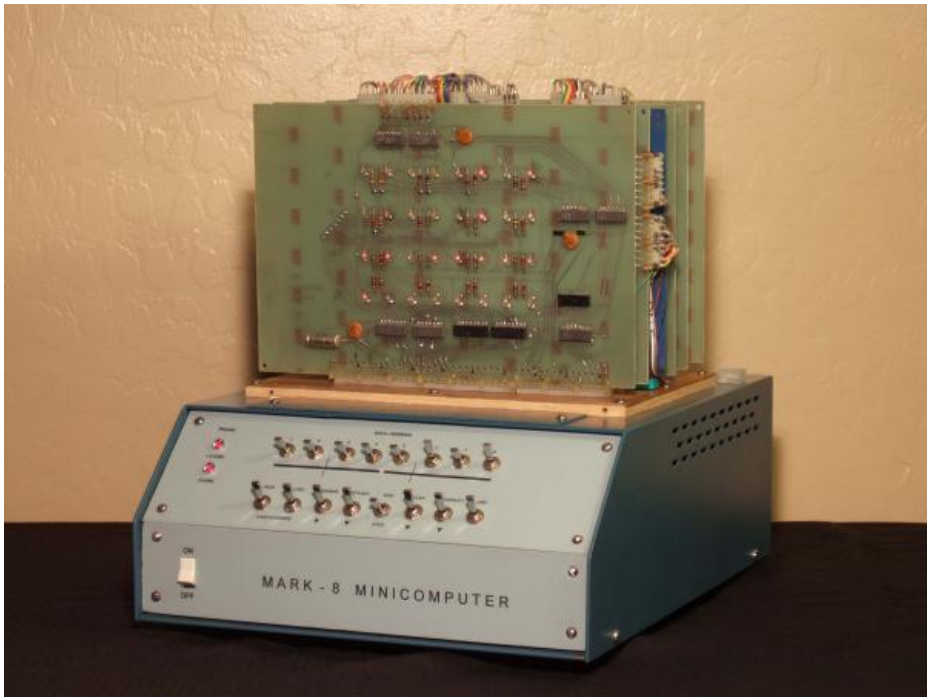
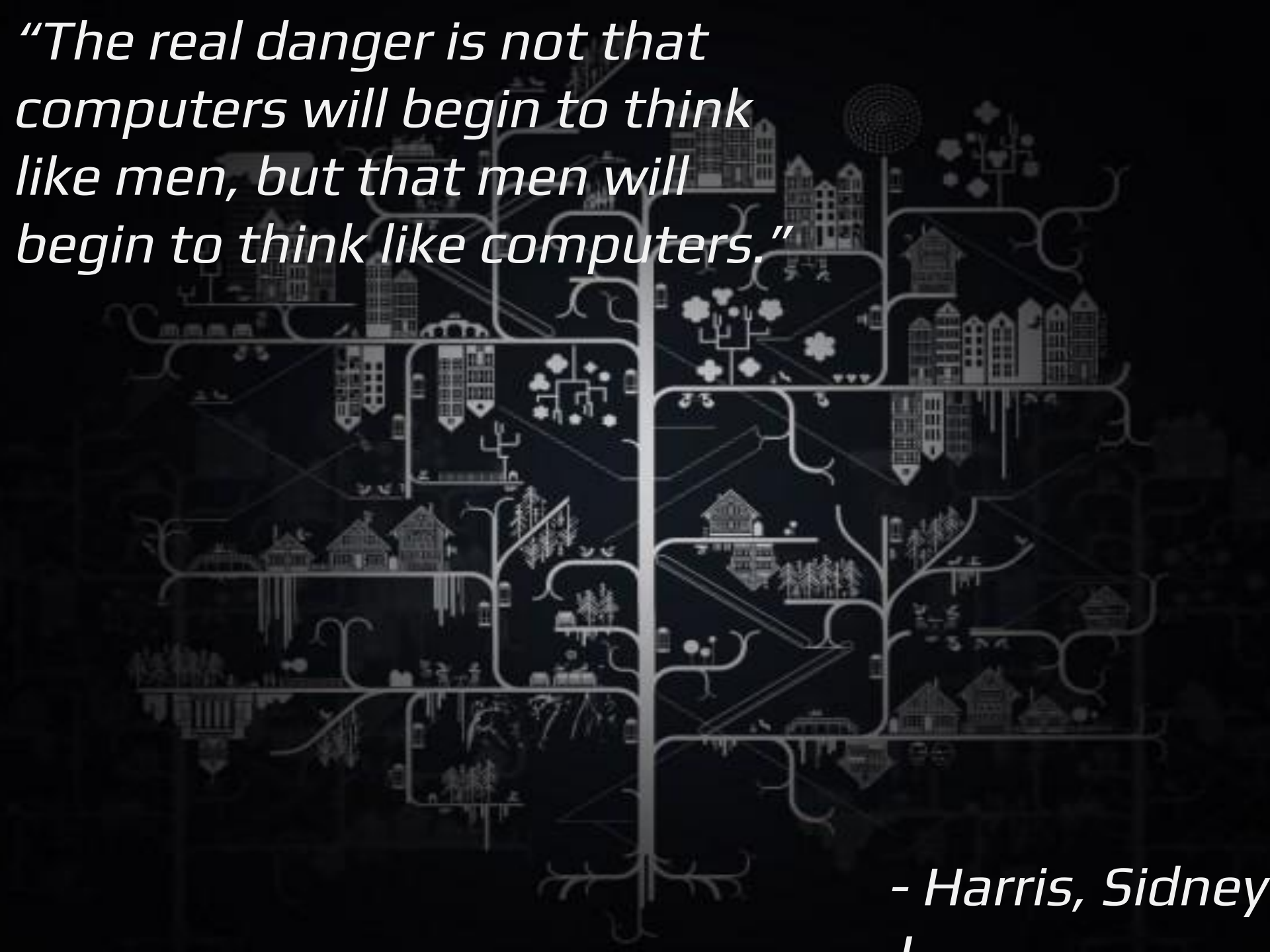


Image 18 – Mark-8.

“The real danger is not that computers will begin to think like men, but that men will begin to think like computers.”



- Harris, Sidney