Computing History

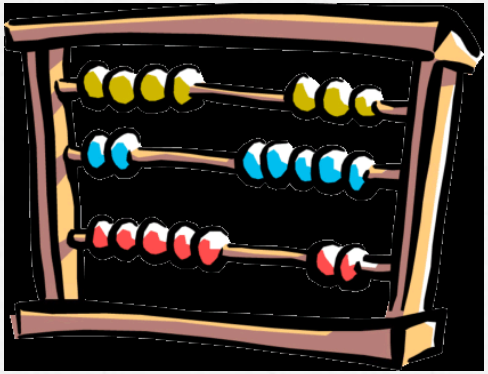
Natalie Larremore 2nd period

Calculators

The calculator has been around for a very long time, old calculators were not as advanced though. There are a lot of different types too so I am going to show you some of the different kinds.

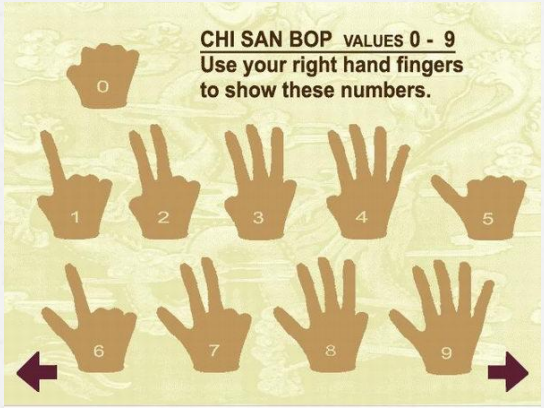
The Abacus

- Was used by Asian businessmen
- Row of beads that were moved up and down to represent number spaces
- Still used by contemporary Asian businesses



Chisanbop Method

- Created by Sung Jin Pai
- Made by applying the abacus principle to human hand
- Can be used to represent numbers 1-99

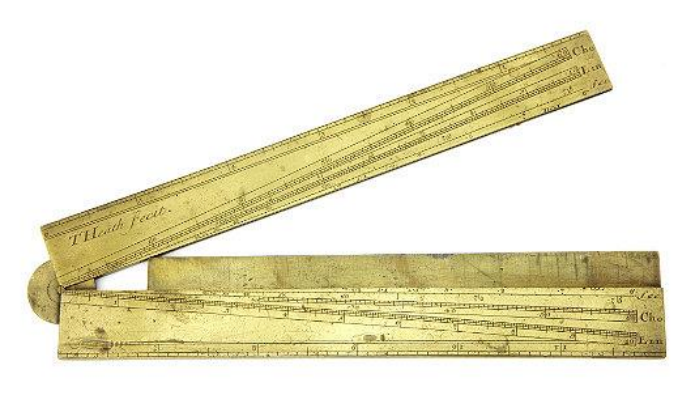


Antikythera Mechanism

- 2,000 year old calculating device
- Discovered in 1901 but not understood until about 50 years later
- Uses a complex set of gears to predict eclipses, tell when the seasons are and determine position of the moon, sun and planets
- Oldest known scientific calculator

Sectors

- Can be used for a wide variety of things such as simple calculations to finding area and volume of things
- Much in demand in early days
- Galileo built and sold more than 100



The First Handhelds

- Created in 1967 by Jack Kilby
- Cost $245 when it first came out in 1971, only cost $10 a decade later
- Used integrated circuits to make it to be the size that it was

Punch Cards

Punch cards were used to represent any type of data from numbers to words or ideas. They also preserved the data so it wasn't lost. All you have to do is punch in the data you wanted and file it away for later.

Hollerith's Punched Card Solution

- The USA had to have census every 10 years
- In 1890 they didn't know how to count everyone
- Herman Hollerith won by suggesting they record the data on punched cards
- These cards would be read by a tabulating machine

A Bookkeeping Bonanza!

- Social Security Act of 1935
- Brought about trouble in accounting
- Punch cards helped with that problem
- Women usually ran these machines

Punch Cards During a War

- IBM used their technology of punch cards
- This helped United States fight Nazi Germany
- It also helped Germany fight the United States

A Scientific Census

- In 1940's there was a scientific census
- Calculated the flora and fauna on the island of Great Britain
- Used punch cards to calculate and keep track of all the flowers and plants and things like that

Card Catalogue of British Life

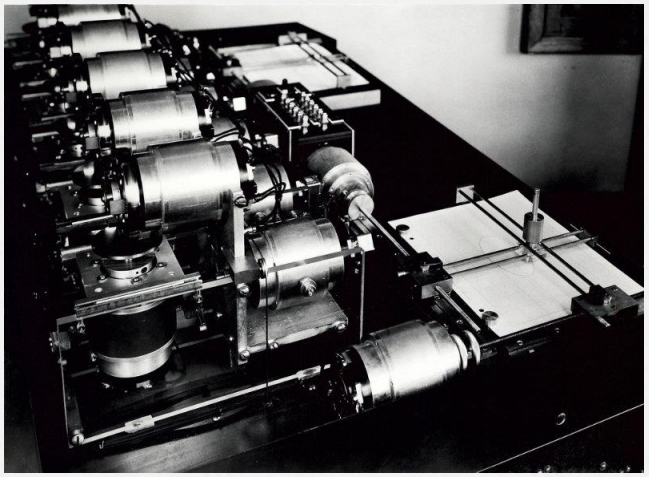
- Punch cards were used to keep track and count all the other wildlife in Britain too
- When they had all the information punched into the cards, they were transferred to files
- Maurice Wilks made the information easier to access by printing out the dots on a piece of paper

Analog Computers

Analog computers were used to model problems and generate answers quickly using the flow of electricity. They were the preferred tool until digital computers came about which were based on electronic switches.

Nordsieck's Differential Analyzer

- Using supplies from World War II that was worth $700, Arnold Nordsieck created an analog computer in 1950
- Used electronic connections not mechanical shafts
- Cost $700 dollars

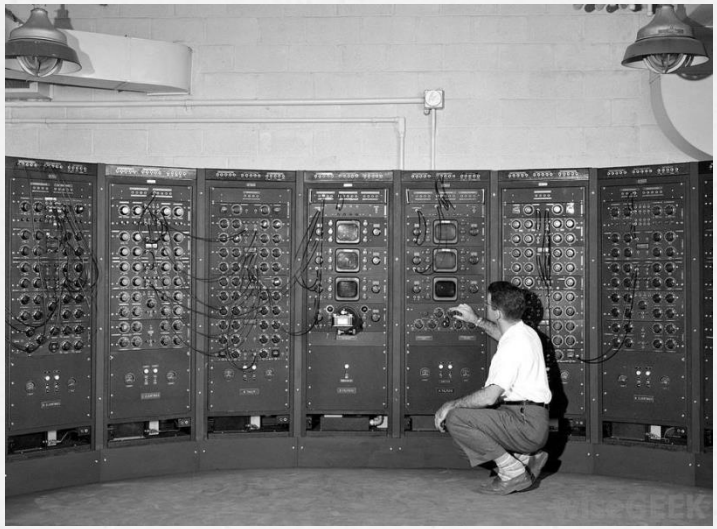


Bush's Analog Solution: The Differential Analyzer

- Vannevar Bush was trying to solve the problem of electric circuitry
- Didn’t know how to solve the tough equations
- His differential analyzer filled a whole room with complicated gears
- Could solve arbitrary sixth-order differential equation

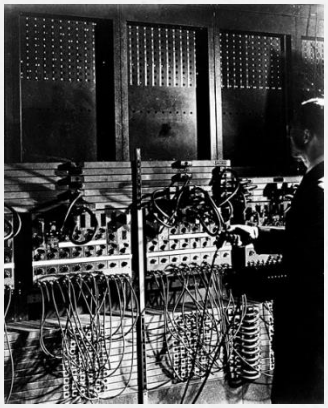
Analog Goes Electronic

- Analog computers were much faster than mechanical ones before them
- They weren't always better than the mechanical ones



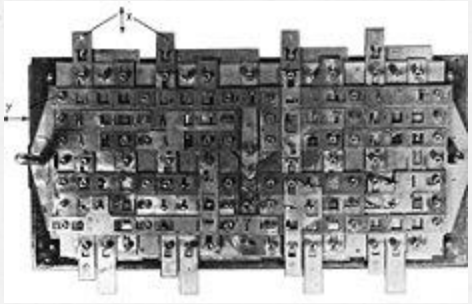
Birth of the Electric Computer

- World War II brought about the birth of the electronic computer
- Electronic computers were built for specific tasks
- Were difficult to set up and they were also big



Konrad Zuse

- Was a brilliant engineer who worked on programmable computers in 1936
- His machines were destroyed in World War II
- His first computer was the Z1 was the first of many mechanical computers that



George Stibitz

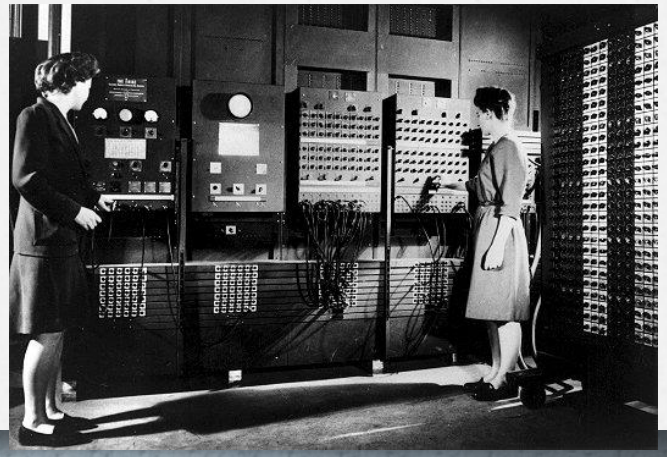
- Developed the principles behind relay-based computers
- Did his research at Dartmouth College
- Built the Model K adder which could add two binary digits in 1936

Howard Aiken

- A physicist who was tired of having to solve equations
- Realized that one way to reduce human error was to reduce human involvement
- Proposed making an automated calculating machine
- IBM and Harvard built it for him

ENIAC (Electronic Numerical Integrator and Computer)

- Programmers of this machine were Frances Spence and Jean Bartik
- Both had degrees in mathematics
- Was the first large scale computer to run at electronic speed without being slowed by mechanical parts



Breaking the Code

- Nazis were able to send encoded messages
- Mathematicians and engineers were able to create a machine that was able to break the code
- Among some of the machines was the Colossus which was an electronic code-breaking computer

JOHNNIAC

- Was based on the stored-program computer developed at Princeton's IAS
- Had a 13 year lifespan
- Was repeatedly expanded and improved over its lifetime

Cites

- http://edtechhistory.sidarous.net/aspects/calc-page
- http://www.computerhistory.org/revolution/calculators/1/41
- http://mvpportfolio.com/gamedesign2.htm
- http://journomel.com/category/growing-up-digital/
- http://www.computerhistory.org/revolution/analog-computers/3/intro
- http://www.computerhistory.org/revolution/punched-cards/2/8
- http://www.computerhistory.org/revolution/birth-of-the-computer/4/85
- http://www.wisegeek.org/what-is-an-analog-computer.htm#slideshow

Thanks for Watching!!