The influence of Mathematics on the history of the world
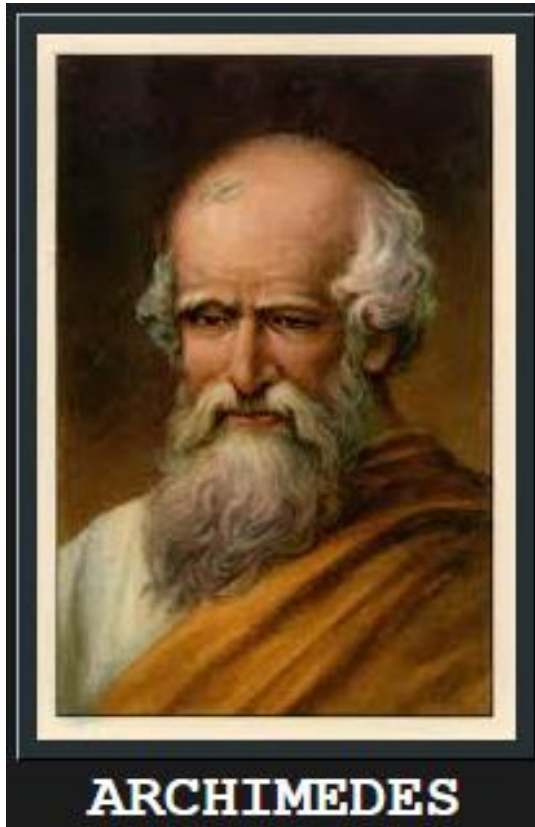
ARCHIMEDES

Archimedes, (born c. 287 BCE, Syracuse, <u>Sicily</u> —died 212/211 BCE, Syracuse), the most famous mathematician and inventor in ancient Greece. Archimedes is especially important for his discovery of the relation between the surface and volume of a sphere and its circumscribing cylinder. He is known for his formulation of a hydrostatic principle (known as Archimedes' principle) and a device for raising water known as the Archimedes screw (still used in places where pumps cannot be used) . He is also famous for application of the lever, and many other mathematical advances.

Heron of Alexandria (10 AD – 70 AD) was a Greek mathematician and engineer. He is often considered the greatest experimenter of antiquity and his work is representative of the Hellenistic scientific traditionn.

Heron published a description of a steam-powered device called an aeolipile (which was a rocket-like engine and the first-recorded steam engine). Among his most famous inventions was a windwheel. In his work Mechanics, he described pantographs.

In mathematics he is mostly remembered for Heron's formula, a way to calculate the area of a triangle using only the lengths of its sides.

Nicolaus Copernicus (19 February 1473 – 24 May 1543) was a Renaissance mathematician, astronomer who formulated a model of the universe that placed the Sun rather than Earth at its center. In all likelihood, Copernicus developed his model independently of Aristarchus of Samos, an ancient Greek astronomer who had formulated such a model some eighteen centuries earlier.

The publication of Copernicus's model in his book „On the Revolutions of the Celestial Spheres" was a major event in the history of science, triggering the Copernican Revolution and making a pioneering contribution to the Scientific Revolution. In 1517 he proposed a quantity theory of money—a key concept in economics.
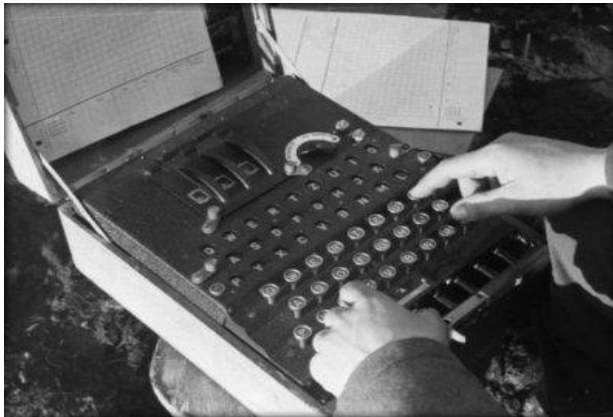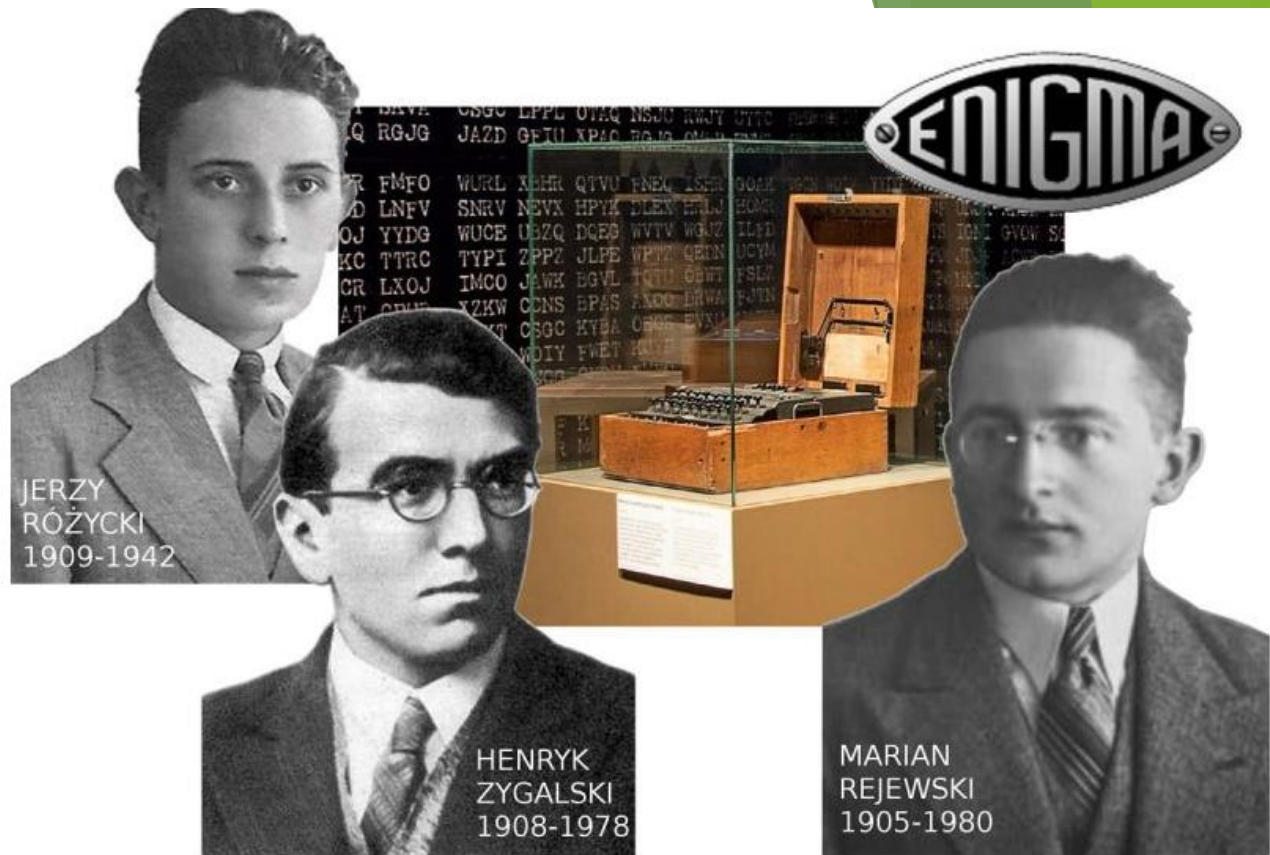
Galileo Galilei, (1564 – 1642), Italian natural philosopher, astronomer, and mathematician who made fundamental contributions to the sciences of motion, astronomy, and strength of materials and to the development of the scientific method. His formulation of (circular) inertia, the law of falling bodies, and parabolic trajectories marked the beginning of a fundamental change in the study of motion. Finally, his discoveries with the telescope revolutionized astronomy and paved the way for the acceptance of the Copernican heliocentric system, but his advocacy of that system eventually resulted in an Inquisition process against him.
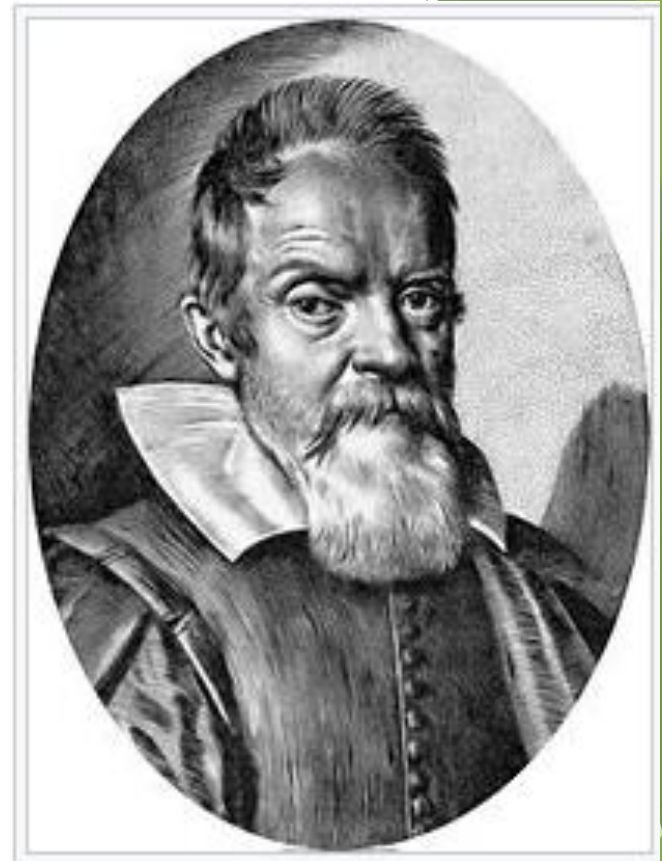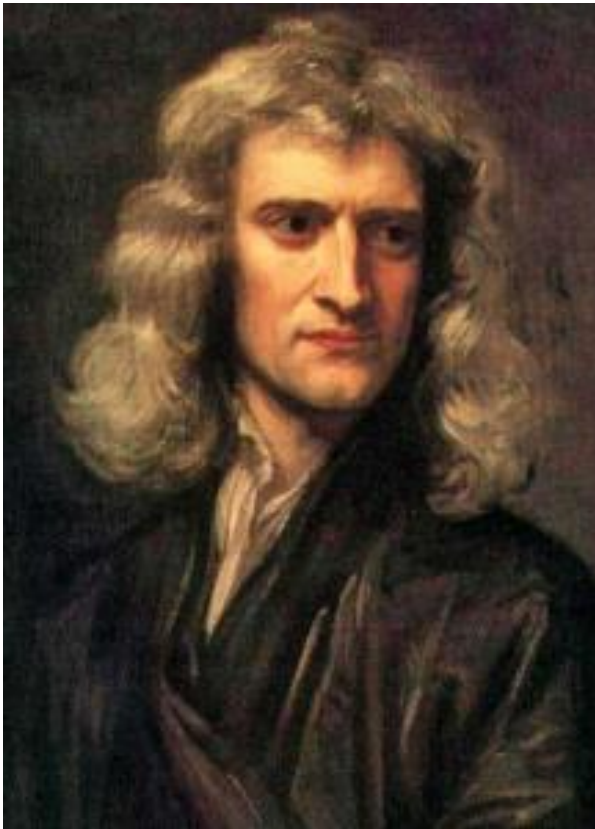
Isaac Newton, (1643 - 1727), English physicist and mathematician, who was one of the most important figures of the Scientific Revolution of the 17th century. In optics, his discovery of the composition of white light integrated the phenomena of colours into the science of light and laid the foundation for modern physical optics. In mechanics, his three laws of motion, the basic principles of modern physics, resulted in the formulation of the law of universal gravitation. Newton's „Mathematical Principles of Natural Philosophy" was one of the most important works in the history of modern science.

▶ Jerzy Różycki, Henryk Zygalski and Marian Rejewski were Polish mathematicians and cryptographs who broke the Enigma code which was used by the Germans during the WWII. Their actions saved many innocent lives since they helped to end the war faster.

JERZY
RÓŻYCKI
1909-1942

HENRYK
ZYGALSKI
1908-1978

MARIAN
REJEWSKI
1905-1980

The End

by Emilia Kusiak