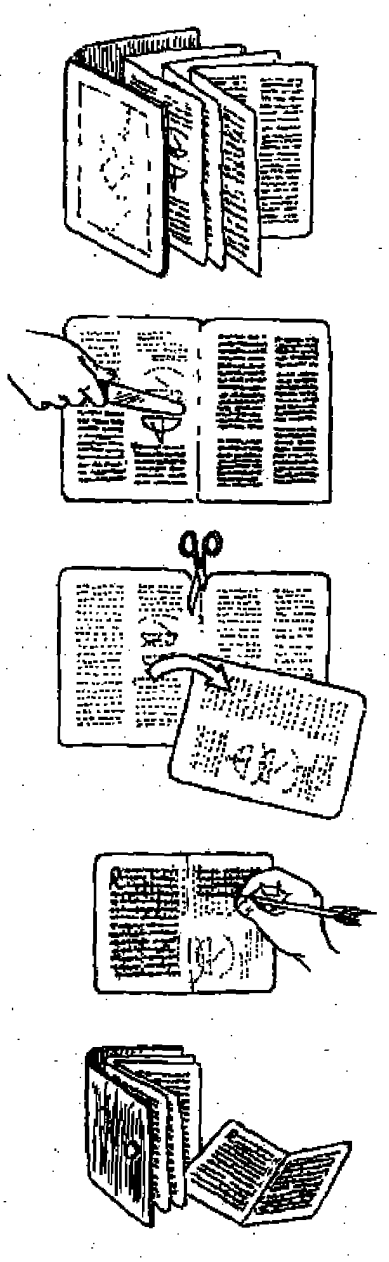
Archimedes and the Palimpsest



Source: The Walters Art Gallery
www.thewalters.org/archimedes

When most people hear the name Archimedes, they picture a gaunt figure with a long beard screaming "Eureka!" and running around the streets naked, dripping with bathwater. Whether such a scene ever occurred is debatable, but what is certain is that Archimedes was a man obsessed with numbers. In his lifetime he found a good approximation for pi; calculated the areas of a circle and a sphere; and developed a system for expressing large numbers. And on the side, he found time to invent military devices and discover the principle of buoyancy.

Although Archimedes was on the verge of inventing calculus around 250 B.C., it wasn't until nearly 2,000 years later that Sir Isaac Newton published *The Principia*, a work in which Newton developed the laws of both modern physics and calculus. Why the delay? Unfortunately, much of Archimedes' work was lost until modern times. The earliest known copy of his work—a manuscript created more than 1,000 years after Archimedes died—was "recycled" by Christian monks in the Middle Ages to use as a prayer book. They scraped or washed the pages, rotated the manuscript 90 degrees, and wrote over the ancient text. This created a book known as a palimpsest.

In 1906, Danish scholar Johan Ludwig Heiberg received word that the Palimpsest was located in a library in Constantinople. After traveling there, Heiberg attempted to reconstruct Archimedes' work, with only a magnifying glass to aid him. The manuscript is being more closely examined today, with the help of digital enhancement and ultraviolet light.

NOVA's "Infinite Secrets" program introduces the scientists, translators, and curators who are deciphering and preserving Archimedes' text. The program documents Archimedes' many contributions to the fields of math and science and describes the importance of the Palimpsest, the only copy of work by Archimedes that describes how he made his discoveries. "Infinite Secrets" also asks the question: If Archimedes' manuscript had not been lost, how much further advanced would the fields of math and science be today?

What Is a Palimpsest?

A palimpsest (păl´ĭmp-sĕst´) is a book in which the original text has been erased and the pages written on again. The word palimpsest is derived from a Greek word meaning "scraped again." These books were usually made out of papyrus or parchment (sheepskin). As illustrated in the drawings to the left, the Archimedes Palimpsest was made by taking the original manuscript apart, scraping off the text, cutting the pages in half, rotating the pages, writing over the original text, and rebinding the book.