

## Slide Rules, the calculators that took man to the Moon.

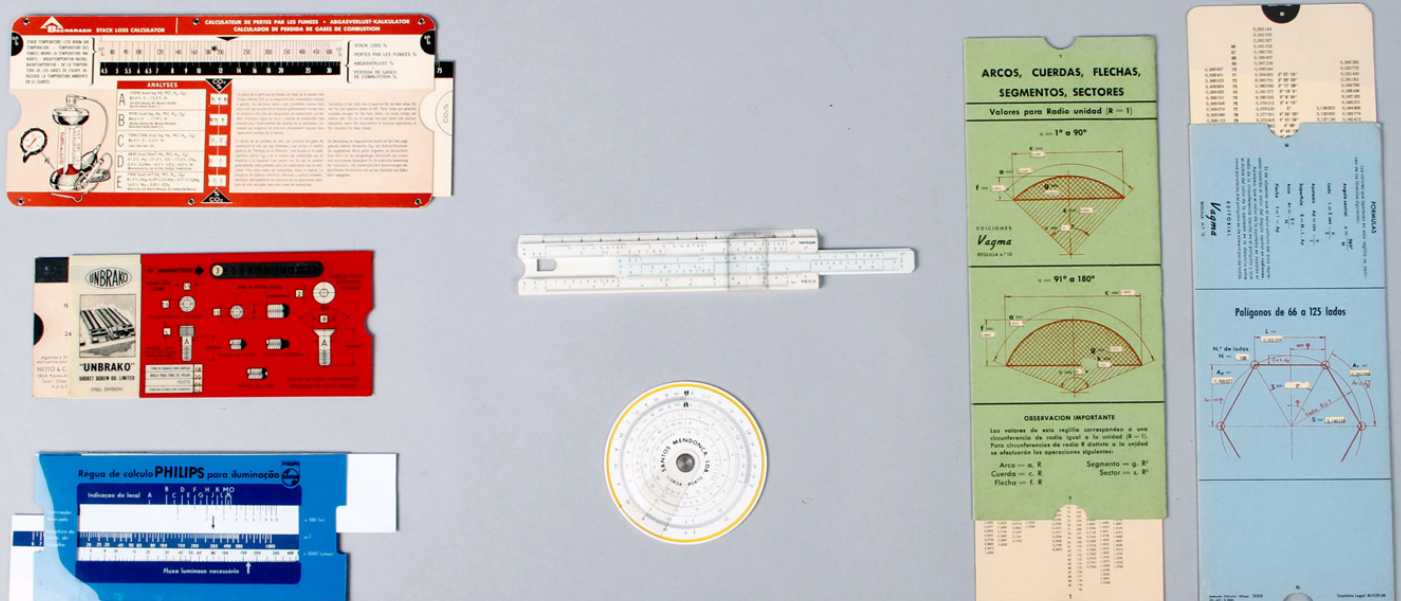
The establishment of the concept of logarithm and its applications in the sixteenth and seventeenth centuries simplified the practice of calculations of the time, both in commercial transactions and in studies of Astronomy and its applications to Navigation. The *Slide rule*, a specially adapted graphical table of logarithms that allowed greater ease and speed of calculation, was developed from the *Table of logarithms*, a book consisting of tables of already determined numbers. These tools were fundamental and indispensable for teaching and science for over 300 years, until the appearance of pocket electronic calculators in the 1970s.

The *Slide rule* allows arithmetic operations by means of displacements graduated rulers; each marked point represents its logarithmic distance from the origin. This combination of logarithmic scales in a small mechanical structure has been improved with the introduction of a larger number of scales adapted to different types of applications, namely for engineering calculations of different specialties. However, the *Table of logarithms* continued to be used in cases where the problems required more accurate results.

To support more specific calculations that do not require knowledge of the involved mathematical concepts, other slide rules without logarithmic scales appeared, usually made of cardboard paper. These rules (or calculation tables) have typically been created by companies as a promotional item to help employees and customers, such as physicists and engineers, who use their products.

A set of rulers from MUHNAC's collections, can be observed this month in the Museum lobby. These are devices that have been used by students and professionals around the world and have helped to solve extremely complex problems, including man's journey to the moon. Norman Chaffee, who worked on the propulsion system for Apollo ships, declared:

*We went to the moon with slide rules ... I didn't even have my first full-function calculator until 1972.<sup>1</sup>*



Boyle, A. (2004, jul), Apollo 11 crew poses new challenges – Trio honored on 35th anniversary of moon landing, NBC NEWS: [http://www.nbcnews.com/id/5470627/ns/technology\\_and\\_science-space/t/apollo-crew-poses-new-challenges/#.WDrPo\\_mLRPY](http://www.nbcnews.com/id/5470627/ns/technology_and_science-space/t/apollo-crew-poses-new-challenges/#.WDrPo_mLRPY)