

Australopithecus to Mindat: Mineralogy through the ages

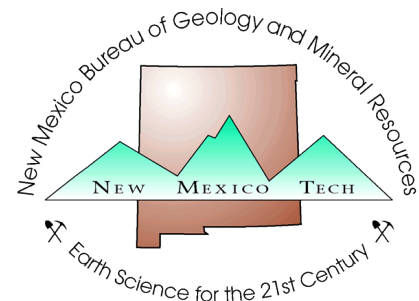
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The annual [New Mexico Mineral Symposium](#) provides a forum for both professionals and amateurs interested in mineralogy. The meeting allows all to share their cumulative knowledge of mineral occurrences and provides stimulus for mineralogical studies and new mineral discoveries. In addition, the informal atmosphere encourages intimate discussions among all interested in mineralogy and associated fields.

The symposium is organized each year by the [Mineral Museum](#) at the [New Mexico Bureau of Geology & Mineral Resources](#).



Abstracts from all prior symposiums are also available: <https://geoinfo.nmt.edu/museum/minsymp/abstracts>

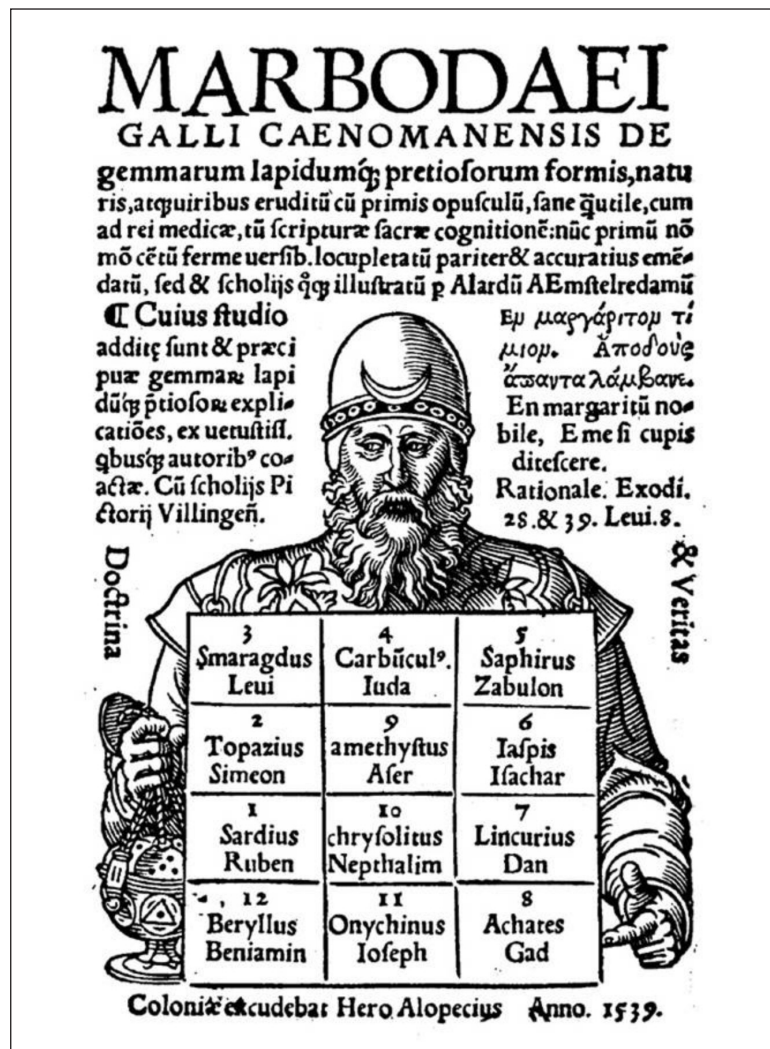
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Australopithecus to Mindat—Mineralogy through the Ages

Nathalie N. Brandes and Paul T. Brandes

The study of minerals has a long, colourful history. As early as 3.39 Ma, *Australopithecus afarensis* were using stone tools. While not a scientific study, these early hominins were making observations about different rocks and minerals to determine which would make the best tools. These observations were continued by early humans during the Stone Age as they refined their stone tool making and used mineral pigments for artwork. During the Chalcolithic, Bronze Age, and Iron Age different methods of smelting were discovered and minerals were exploited for various metals.

The earliest well-documented attempt at a scientific study of minerals is *On Stones*, written by Theophrastus in the 3rd Century BC. In this work, Theophrastus attempts to describe the composition of different minerals and includes physical descriptions of each. A few centuries later, Pliny the Elder wrote *Natural History*, an encyclopedia that attempted to compile all the scientific knowledge of the time, including a section on minerals. Until the Renaissance, *On Stones* and *Natural History* remained the authoritative texts on minerals.



A page from Marbod of Rennes medieval work, "Liber de lapidibus (Book of Stones)."



René Just Haüy, for which the mineral Haüyne is named after.

In the Middle Ages, lapidaries became very popular. These books included physical descriptions of minerals, but added many magical, medicinal, moral, and protective properties. During the Renaissance, attention shifted from alleged supernatural qualities of minerals to experimentation and observation, ultimately leading to important discoveries such as the crystalline structure of minerals.

In the 19th Century, the polarizing microscope and method for creating thin sections were developed, resulting in the discovery of many previously unknown mineral species. One of the most important developments of this time was James Dwight Dana's system of mineralogy, which classifies minerals based on chemistry and crystal structure. With the discovery of X-rays, mineralogy further advanced with the use of X-ray diffraction to calculate the distribution of atoms in the crystal lattice. In the mid-20th Century, the scanning electron microscope and microprobe were developed, further increasing the number of known minerals.

Currently, around 5,400 mineral species are recognised. Just as Pliny the Elder attempted to compile and disseminate scientific information in the 1st Century AD, today Mindat is an online collection of data concerning the vast universe of minerals including physical characteristics, petrographic data, crystallography, localities, and other information available to anyone with internet access.