Quartz - observing, collecting, discovering: the beginnings of a science

Quartz is both abundant and spectacular, and it quickly attracted the attention of amateur natural scientists, the mining community and researchers.

Jean-Godefroy Schreiber

The first mining school was established in Freiberg (Saxony) in about 1700; in 1765 it became the «Bergakademie» (quartz is often known as Bergkristal, rock crystal) with a reputation Europe-wide: it was at the TU Bergakademie Freibung that Professor Werner established his famous mineral classification. The École Royale des Mines was created in France in 1783 but closed down during the Revolution. It was replaced in 1794 by the Agence et Ecole des Mines in Paris. This establishment was closed in 1802, considered too theoretical in nature, and was replaced by two practical institutions: one in Pesey in Savoy with Schreiber as director, and one which opened a little later in Geisslautern (in the Sarre). In 1815 the treaties of Vienna detached the regions of Sarre and Savoy from France … With the industrial revolution France began to need qualified workers for its mines: a royal decree re-established the École des Mines de Paris on 5 December 1816. The École des mines de Saint-Etienne was founded on 2 August 1816.

Abraham-gottlob Viemer

From observation to organised collection

From the Renaissance onwards interest was growing in the natural sciences, and this included mineralogy. «Curiosity cabinets» appeared, with collections of unusual items and works of art, including cut quartz. The larger collections were the predecessors of today's museums.

Mining and the start of the collections

From the 15th to the 18th century there was an expansion in metal mining. The word «quartz» is said to have been used by Saxon miners in Germany at the end of the Middle Ages to describe the worthless "gangue" mixed with the metal in the rock veins. The growing number of mines led to the founding of engineering schools in Saxony and France.

Investigations: the birth of a science

It was Steno in the 17th century who first suggested that crystals could grow, after examining the form of quartz crystals. In 1690 Huygens discovered an optical property of quartz which Bartholin had seen in calcite in 1669: a «double refraction» or double image. These and other discoveries led to the development of the science of mineralogy.

The term «Crystallography» (the description of crystals) was first used in 1723 by Capeller.

A quartz bowl, Louis XIV

The king and the aristocracy particularly appreciated the transparency of bowls and other tableware in «rock crystal».

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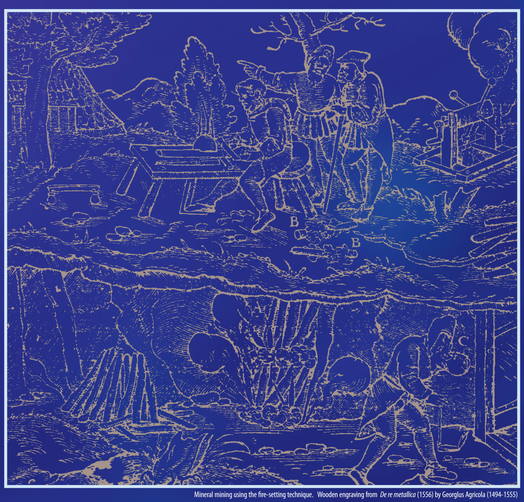

Mineral mining using the fire-setting technique. Wooden engraving from *De re metallica* (1556) by Georgius Agricola (1494-1555)