

Special exhibition Wonder world agate - fascination between legend and science

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Due to their variety of colours and shapes, agates belong to the most fascinating mineral formations of nature and have played an important role as jewellery and gemstones since ancient times. The name "agate" appears in literature as early as 350 B.C. (Theophrast) and was probably derived from deposits on the river Achates (now Drillo) in Sicily.

Agate deposits and agate processing are recorded worldwide in both historical and currently mined regions. Of particular interest are the almost inexhaustible deposits of agate in the province of Rio Grande do Sul in Brazil, which have been supplying the world markets with raw agates for centuries. In China there is a centuries-old tradition of agate processing as a stone-carving art (Fig. 1). In the city of Fuxin in the province of Liaoning, also known as the "world city of agate", 60,000 people currently work in the agate industry. In Saxony, the systematic search for agate and "precious stones" was promoted early on by Elector August (1553 - 1586) and later especially by the Saxonian King "August the Strong". Therefore, systematic collections and descriptions already exist from this time. The region around Idar-Oberstein is also famous in history as a supplier and processing centre for high-quality agates.

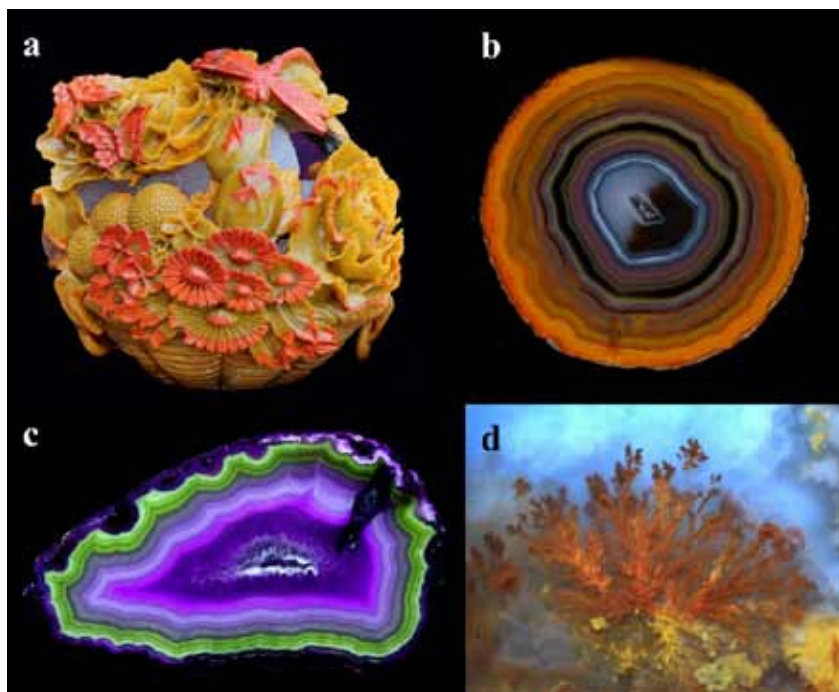


Figure 1. Different photographs and micrographs of agate samples. (a) stone carving art made from an agate from Xuanhua, China; (b) polished agate sample from Xuanhua, China; (c) luminescence colours under UV-light (254 nm) of an agate from Rancho Coyamito, Chihuahua, Mexico; (d) micrograph of an "Orpheus"-agate from Kardzhali, Bulgaria.

Besides their impressive aesthetics, agates also provide many clues for scientific research. This is mainly due to the fact that the formation of agate cannot be observed directly and also that until today no successful agate syntheses exist on a laboratory scale. One of the most discussed questions of the agate problem is probably the "secret" of agate formation, which has led to many speculations in the past and present. But the micro-world of agates also provides exciting insights into the complex processes of nature.

The exhibition gives an insight into the fascinating world of agates. With Wonder World Agate for the first time a combined special exhibition is housed in the three different collections in the city of Freiberg, which together form the largest mineralogical collection complex worldwide. The main part of the exhibition (Fig. 2), which presents impressive specimens from the most important agate deposits of the world, is displayed in the terra mineralia. You can find the different showcases arranged according to the different continents and most important agate deposits. Additionally, there are some thematic display cases (e.g. different types of agates, special agates or pictures in agates) as well as interactive elements explaining for example luminescence effects in agates or different microstructures. The whole exhibition is accompanied by numerous knowledge boards and art-like pictures of microstructures in agates to explain some exciting questions regarding the formation and properties of agates.

The Mineralogical Collection of Germany hosts agate samples from whole Germany. This part of the special exhibition shows the great variety and importance of German agate deposits.

The third part is housed in the Wernerbau framed by the historic mineralogical collection of the TU Bergakademie Freiberg. This exhibition part displays agates from some special localities in Saxony and shows the relation between primary and secondary agate deposits in one of the mineral richest states of Germany.



Figure 2. Some impressions of the actual special exhibition Wonder World Agate.