

CANCRINITE-GROUP MINERALS FROM THE SACROFANO CALDERA, ROME, LATIUM, ITALY

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Finding localities in Sacrofano Caldera.

Photo: G. Allori,
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View of Sacrofano caldera
from Mt. Cavalluccio.

Split crystal of **mottanaite** (1.5 mm).
Mt. Cavalluccio.



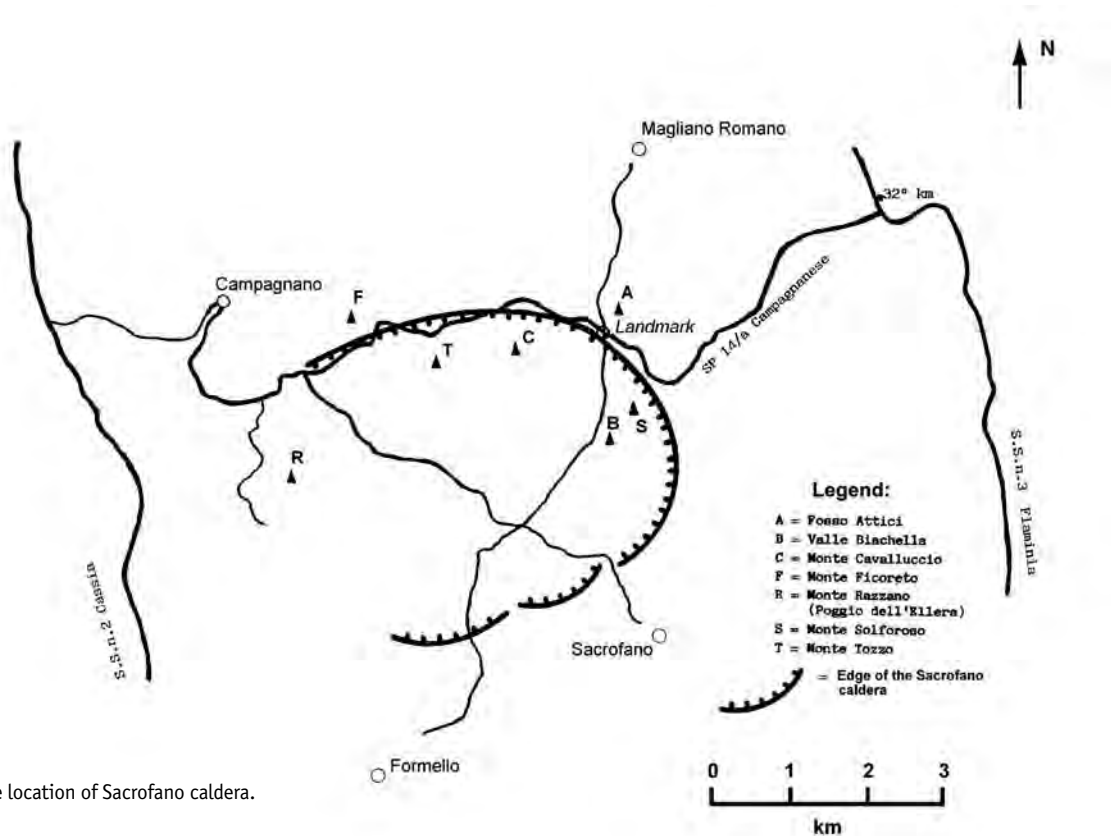
The caldera of Sacrofano volcano located about 25 km to the north of Rome city is one of significant mineralogical objects attracting attention of scientists and collectors for a long time. It is a classical young volcanic area and type locality of seven new mineral species. The variety of cancrinite-group minerals discovered within this area is unique. Of about 70 minerals described here, 10 species belong to the cancrinite group. Five of them were first discovered in localities situated within the Sacrofano caldera. Beautiful specimens of franzinite, pitiglianoite, giuseppettite, mottanaite-(Ce), peprossiite-(Ce) and other minerals from different localities of the Sacrofano caldera are present in the majority of large mineralogical museums and systematic collections. Usually crystals of these minerals growing on the walls of cavities of magmatic rocks (as a rule, sanidine) do not exceed several millimetres, but often they are perfect and very aesthetic.

Geological setting

Latium is a region of central Italy with a surface of 17227 km². It is marked by the remains of five large volcanic districts, namely Sabatino, Vicano-Cimino, Vulsino, Alban Hills and Middle Latina Valley. All these volcanoes started their activity almost at the same time, about 600 Ka ago, and it is still possible to detect their peculiar characteristics and effects.

One of the most interesting volcanic districts is Sabatino, also known as Monti Sabatini complex. It is sited at about 20 km north of Rome and it is





characterized by many eruptive craters over an area of about 1500 km². Among them, the most important volcano is that of Sacrofano, whose activity lasted, even if not uninterruptedly, from 600 Ka to 300 Ka ago (de Rita, 1999).

The volcano of Sacrofano was characterized by several different explosions which produced large quantity of different material. One among the firsts produced the yellow tuff still outcropping along the Via Tiberina in the shape of banks up to 50 m thick.

After this eruption the volcano was characterized by a strombolian activity which lasted, approximately, for about 150 Ka, even if not continuously. Owing to the decrease of the magmatic pressure, this activity terminated about 336 Ka ago. The pressure's falling allowed the surrounding waters to come into contact with the residuary magma so giving rise to great explosive eruptions.

The most violent one took place in proximity to the northern edge and originated a large pyroclastic flow, known as "*yellow tuff of Sacrofano*", consisting of pumices dipped in cinereous matrix and rich in often crystallized inclusions (de Rita *et al.*, 2001). The flow spread into an existing depression, the precursor of actual Biachella valley (Italian: Valle Biachella). It gave origin to the accumulation of lava and sedimentary blocks, as later it was possible to survey in this area. (de Rita *et al.*, 1993).

Following the emptying of the magmatic chamber, the volcano's base subsided causing the break-down of the whole cone, yet damaged on the top by the violent explosions. In such a way the Sacrofano caldera was shaped. Present-day Sacrofano caldera is a large depression with a diameter of about 4500 metres, round delimited by Campagnano, Mt. Razzano, For-

Gehlenite. Crystal sizes up to 9 mm.
Monte Cavalluccio.

