

GROWTH HISTORY AND GROWTH MARKS OF MINERALS

SCANDALE, E. Dipartimento Geomineralogico, Università di Bari Via E. Orabona 4 70125 Bari Italy

The growth history reconstruction of minerals is the outcome of a deduction process developing in two distinct directions that run side by side, in many cases without intersection. One has progressed mainly from geological and petrographic data, the other is based on chemio-physical studies of minerals. To find the missing link, it is possible to start from the microscopic end of the problem, studying structural defects. In fact they record variations of the (P, T, x) conditions and can be considered growth marks that characterise minerals grown in the same conditions and differentiate them from others grown in different, even if very close, conditions. Applications of the concept of growth marks will be illustrated by X-ray diffraction topographs of several different minerals. It will be shown that hydrothermal minerals belonging to the same drusy cavity are all marked by the same structural defects and that different hydrothermal druses are characterised by different structural defects which thus differentiate the druses and their related growth environments. The concept will be extended to pegmatite environment and generalised dividing growth marks into general- typical of the environment- and specific - typical of the local growth medium.