



Mineralogy and Lithology. History of the collections: the collectors

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The Koekkoek collection is made up of 3,500 specimens, almost all of very small dimensions and contained in a small cubic box of 2,5 cm each side.

The samples are representative of numerous mineralogical species (around 2,500). It is a collection of exclusive scientific interest; there is a manuscript list that accompanies the samples.

The research carried out on the specimens confirmed the value of the collection, which has reserved a great surprise: the discovery of the first natural quasi-crystal by Luca Bindi, involved in the research activities of the Museum of Natural History of the University of Florence of which he is now Full Professor.

What is a quasi-crystal? According to the classical rules of crystallography, the atoms in the minerals are arranged in a regular manner, that is, periodically. This occurs in the presence of certain elements of rotation symmetry, in particular those of the order one, two, three, four and six. Rotation symmetries of the order five, seven, eight or higher are "prohibited". The quasi crystals are, however, characterized by a "quasi" periodicity, that is, they do not respond to the classic laws of crystallography and show rotational symmetries of order five. The first quasi-crystals were discovered in 1982: only after more than 20 years was there evidence that such materials could also exist in nature, precisely with the discovery of the first example found as a mineral. The new species was called Icosahedrite and its holotype is deposited, according to international rules, at this the Mineralogy and Lithology section of the University of Florence Museum System.