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## **Genetic Mineralogy**

Genetic mineralogy defines condition, processes and methods of formation and movement of minerals in nature.

There are recognized several independent sections:

- Theory of typomorphism of minerals connecting peculiarities of morphology, composition, and physical properties of minerals with geological and physicochemical conditions of their formation.
- Ontogenic and crystallomorphological analysis which interprets both history and mechanism of formation of mineral individuals and congeries.
- Thermobar-geochemistry which gives information concerning chemistry of mineral-forming environment and physicochemical characteristics.
- Isotopic studies which help to reveal source of matter during mineral formation.
- Tryphogenesis which considers method of feeding minerals in the process of their formation.
- Topogenesis which covers laws of mineral distribution over a distance, and mechanisms of formation of different types of mineralogical zoning.
- Paragenetic analysis as a method of studying evolution of mineral formation processes by means of showing up successively alternating mineral parageneses and controlling laws.
- Theory of coexisting minerals basing upon principle of phasic conformity which helps to use coexisting minerals as geothermometers and geobarameters.
- Power and thermodynamic calculations in mineralogy which help to evaluate acid-base properties of mineral phases as well probable sequence of their origin.

From the viewpoint of modern genetic mineralogy covering ontogeny and phylogeny mineral in factors of its composition, microheterogeneity, and variations of physical properties contains much information about its origin and later mutation which interpretation becomes possible if only modern physical, physicochemical, and crystal-chemical analyses are applied.

Experimental mineralogy neighbours genetic mineralogy and completes it with laboratory modeling of natural processes of mineral formation, analysis of physicochemical systems simulating natural parageneses as well as their formation environment. Synthesis and upgrading minerals widely used in jewellery and technology is independent section of experimental mineralogy.