

Editorial

The Biogenic Iron Minerals symposium and workshop was held from May 20 to 23, 2000 in Tihany, Hungary and attended by researchers from nine countries. The meeting was organized by the University of Veszprém and the European Mineralogical Union, and sponsored by the Hungarian National Committee for Technical Development and EU/Erasmus.

The symposium reflected the burst of activity in the field of "biomineralogy" over the past few years. Themes included the characterization of the formation processes, compositions, morphologies, and magnetic microstructures of iron oxides and sulfides, the use of iron minerals as biomarkers, the contribution of biominerals to rock magnetism, and the functions of magnetic minerals in organisms. In addition to the oral presentations, the meeting was made memorable by a rainy field trip where we collected magnetotactic bacteria, an accidental bath of some participants in a cave lake, a double rainbow over Lake Balaton, and a stimulating atmosphere created by the fifty participating biomineral enthusiasts.

In this special issue six papers give a sampling of the themes discussed at the meeting. High-iron ZnS is shown to form in the tubes of Alvinella, a deep-sea hot vent worm (Zbinden et al.). Winklhofer et al. report the presence of superparamagnetic magnetite clusters in the beak skin of homing pigeons, and discuss the possibility of the use of this magnetite as part of the bird's sensory system. For the first time in the mineralogical literature, the powerful method of off-axis electron holography in the transmission electron microscope is presented by Dunin-Borkowski et al., and its use demonstrated by the determination of the magnetic microstructures of magnetite chains from magnetotactic bacteria (Dunin-Borkowski et al. and McCartney et al.). The possibility of identifying biogenic iron sulfides in geological specimens is discussed by Pósfai et al. Châtellier et al. study the differences between iron oxides formed in the presence and absence of bacteria. Two additional papers will appear in the next issue of this journal: the discovery of nanocrystalline magnetite in plants by Gajdardziska-Josifovska et al., and a study of the self-organized crystallization of nanoscale botanical iron oxides by McClean et al.

The Biogenic Iron Minerals symposium highlighted many interesting aspects of "biomineralogy" by combining results from several disciplines. With continued scientific interest in organism/mineral interactions, exciting discoveries are likely to follow and expand our knowledge of biogenic mineral formation.

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