Participants will discuss science as well as grant application concerning the interrelationships among ancient genome sequences, the phenotypes inferred based on the reconstructed biological functions (metabolic pathways, metallo-proteins, developmental programs, etc.), and the environments in which those hypothetical ancestors inhabited, from a wide variety of viewpoints, including geohistory and biohistory studies, geometallomics, microbial ecology, organic geochemistry, developmental genetics, and genome sciences.