

accelerated and modified by structural influences associated with Basin and Range development, enhancing the illusion of "Colorado Plateau uplift."

RADIATIVE HEAT TRANSFER AND OPTICAL ABSORPTION SPECTRA OF MANTLE MINERALS AT HIGH TEMPERATURE AND PRESSURE

Shankland, T.J., Geosciences Group, Los Alamos Scientific Lab., Los Alamos, N.M. 87545; Nitsan, Uzi, Los Alamos Scientific Lab., Los Alamos, N.M. 87545; Duba, A.G., Lawrence Livermore Lab., Livermore, Calif. 94550

The transparency of iron-bearing minerals to heat transport by infrared radiation can be calculated from optical absorption measurements at high temperature and pressure. The coordination of iron is the most important single parameter; crystal field bands of Fe^{2+} in 4- and 6-fold coordination mostly block black-body radiation, while the black-body peak tends to fall within a transmission "window" for 6-fold coordination. Thus, radiative transfer is quite important in a principally olivine mantle. Measured absorption spectra at high temperatures and pressures show a strong closure of the window by temperature and a lesser effect of pressure. Oxygen fugacity also produces observable changes in the spectra, in particular in the resolvability of the dynamic Jahn-Teller effect.

SULFUR ISOTOPES AND SULFIDE DEPOSITION IN THE RED SEA GEOTHERMAL SYSTEM

Shanks, W.C., Department of Geological Sciences, University of Southern California, Los Angeles, Ca. 90007; Bischoff, J.L., U.S. Geological Survey, Menlo Park, Ca. 94025

The Red Sea geothermal deposits provide a unique opportunity to study a modern ore deposit in the process of formation. Of particular interest is the sulfide facies which is analogous to many ancient massive sulfides in ore potential, bulk composition and sulfur isotope composition. Detailed sulfur isotope analysis of 10 piston cores from the Atlantis II Deep reveals a complex and discontinuous history of sulfide precipitation. Sulfur isotope ratios (δS^{34}) within the sulfide facies vary from -45 to +15 o/oo. Values ranging from -45 to -20 o/oo are ascribed to bacteriogenic processes when brine activity is minimal. Hydrothermal sulfides have δS^{34} values from 0 to +15 o/oo and are directly related to hot brine activity. δS^{34} variations within hydrothermal sulfide zones are due to fluctuating physico-chemical conditions within the brine pool and, in some cases, admixture of biogenic sulfides. In addition, samples from 10 brine-filled deeps outside the Atlantis II area were analyzed. Most of these deeps contained typical marine sulfides. Three of these deeps, however: Thetis, Shagara, and Suakin, contained hydrothermal sulfides similar to the Atlantis II Deep sulfide facies.

The most likely process of sulfide formation is moderately high temperature reduction of sea water sulfate in contact with recent shallow intrusives in the axial rift zone.

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...ING STONES, RACETRACK PLAYA, Sharp, Robert P., Division of California Institute of Tech Carey, Dwight L., Department at Los Angeles, Los Angeles twenty-eight of 30 monitored stones moved within a 6-year interval. Movement occurred principally during 1973-74. Some stones moved in a few on other occasions. Movement other. Greatest cumulative movement was 202 m, were by stones weighing up to 25 kg moved in the direction of movement was north and southeast on occasions but most likely occurs within 1 km velocities on the order of 0.1 m/day. Characteristics and associated features at Racetrack, and eyewitnesses of frozen stones, being driven by wind. Photographs indicate that this may be a process earlier advocated. However, movement of iron stakes, large changes in stone movement, disproportionate correspondence, and other relationships suggest that some movements occurred without wind. Conclusion is reached that wind action was the prime moving force. A thin layer of fine slippery clay after playa flooding.

...E ORDOVICIAN BRACHIOPODS FROM BELGIUM Sheehan, Peter M., Département de Géologie, Montréal, Québec

Evidence is accumulating that there is a hiatus in the Ordovician, but the location and duration of the hiatus are in dispute. Late Ordovician brachiopods are known from 100 years, but they have escaped recognition. These faunas revealed zoogeographic evidence for the proposed collision of Belgium was part of the North European continent. Ashgill brachiopods were collected from the J. Lespérance, who is examining the fossils in mudstones. The faunas consist of brachiopods, and generally collected from one or a few species. Bryozoans and graptolites are present in smaller numbers. Diversity and evenness indicate a rich fauna. North European Province genera include *Prinia*, *Dicaelosia*, *Kullervo*, *Sampsonia*, *Manella*, *Reuschella*, *Oxoplecia*, *Manella*, *furcitellinid* (new genus), *Manella*. The fauna is typical of the North European Province (south of the Mediterranean Province (south of Africa) are becoming well known. Havlíček; endemics of this province are from Belgian collections.