

MINUTES OF WORKSHOP ON MARS PETROLOGY

6, 7 and 8 February 1978

ADDENDUM

The figures in these papers are from the following sources:

*B. Clark - Viking Geochemical Analyses - Status Report*

All figures are the author's work.

*R. Huguenin - Reflection Spectroscopy*

Huguenin R. L., Adams J. B. and McCord T. B. (1977).  
Mars: surface mineralogy from reflectance spectra  
(abstract). In Lunar Science VIII, p. 478-480.  
The Lunar Science Institute, Houston.

*L. Soderblom - Global Color Variations on the Martian Surface*

Figure 1 - Soderblom, unpublished.

Figure 2 - Soderblom L. A., Edwards K., Eliason E. M.,  
Sanchez E. M. and Charette M. P. (1978). Global  
color variations on the martian surface. Submitted  
to Icarus.

*R. J. Phillips - Thermal History, Structure, and Tectonics of Mars*

All figures are the author's work.

*E. Gibson - Mars - Wet or Dry*

All figures are the author's work.

*J. Smyth - Models for Surface Petrology*

McGetchin T. R. and Smyth J. (1978). The mantle of Mars:  
some possible geological implications of its high  
density. Icarus, in press.

*E. Schonfeld - Inferred Composition of Lavas from Lava Flow Morphology*

Schonfeld E. (1977). Martian volcanism (abstract). In  
Lunar Science VIII, p. 843-845. Lunar Science  
Institute, Houston.

*D. Walker - Overview on Basalt Genesis on the Moon and Earth*

The figure is the author's work.

D. *Presnall - Iron-bearing Systems and Their Bearing on Basalt Petrogenesis on Earth and Mars*

Figure 1 - Presnall D. C. (1966). The join forsterite-diopside iron oxide and its bearing on the crystallization of basaltic and ultramafic magmas. Amer. J. Sci. 264, 753-809.

Figure 2 - Muan A. and Osborn E. F. (1965). Phase equilibria among oxides in steelmaking. Addison-Wesley, Reading Massachusetts. 236 p. (figure is on page 104)

M. C. *Gilbert - Sulfide-silicate Relations*

Figure on p.67 - Shimazaki H. and Clark L. A. (1973). Liquidus relations in the FeS-FeO-SiO<sub>2</sub>-Na<sub>2</sub>O system and geological implications. Econ. Geol. 68, 79-96.

Figure on p. 68 top - MacLean W. H. (1969). Liquidus phase relations in the system FeS-FeO-Fe<sub>3</sub>O<sub>4</sub>-SiO<sub>2</sub> system and their application in geology. Econ. Geol. 64, 865-884.

Figure on p. 68 bottom - Haughton D. R., Roeder P. L. and Skinner B. J. (1974). Solubility of sulfur in mafic magmas. Econ. Geol. 69, 451-467.

P. 69 top - Shimazaki H. and Clark L. A. (1973). Liquidus relations in the FeS-FeO-SiO<sub>2</sub>-Na<sub>2</sub>O system and geological implications. Econ. Geol. 68, 79-96.

P. 69 bottom - Haughton D. R., Roeder P. L. and Skinner B. J. (1974). Solubility of sulfur in mafic magmas. Econ. Geol. 69, 451-467.

P. 70 top - Shimazaki H. and Clark L. A. (1973). Liquidus relations in the FeS-FeO-SiO<sub>2</sub>-Na<sub>2</sub>O system and geological implications. Econ. Geol. 68, 79-96.

P. 70 bottom - Tso J. L., Gilbert M. C. and Craig J. R. (1978). Sulfidation of synthetic biotites. Amer. Mineral., in press.

R. *Merrill - Role of Volatiles in Basalt Petrogenesis*

Figures 1 & 2 - after Merrill R. B. and Wyllie P. J. (1975). Kaersutite and kaersutite eclogite from Kakanui, New Zealand - water-excess and water-deficient melting to 30 kilobars. Bull. Geol. Soc. Amer. 86, 555-570.

Figure 3 & 4 - after Wyllie P. J. (1977). Mantle fluid compositions buffered by carbonates in peridotite-CO<sub>2</sub>-H<sub>2</sub>O. J. Geol. 85, 187-207.

Figure 5 - Brey G. and Green D. H. (1977). Systematic study of liquidus phase relations in olivine melilitite + H<sub>2</sub>O + CO<sub>2</sub> at high pressures and petrogenesis of an olivine melilitite magma. Contrib. Mineral. Petrol. 61, 141-162.

A. J. Irving - *Partial Melting of the Earth's Mantle and Basalt Petrogenesis*

Figure on p. 78 top - Green D. H. (1970). The origin of basaltic and nephelinitic magmas. Trans. Leicester Lit. Philos. Soc. 64, 28-54.

P. 78 bottom - Green D. H. and Ringwood A. E. (1967). The stability fields of aluminous pyroxene peridotite and garnet peridotite and their relevance in upper mantle structure. Earth Planet. Sci. Lett. 3, 151-160.

P. 79 - Wyllie P. J. (1977). Kimberlite magmas from the system peridotite-H<sub>2</sub>O-CO<sub>2</sub>. Extended Abstracts, 2nd International Kimberlite Conf., Santa Fe, New Mexico.

P. 80 - Usselman T. M. (1977). Experimental petrology flow diagram for selecting dry primary (?) basalts (abstract). In Papers Presented to the Second Inter-team Meeting of the Basaltic Volcanism Study Project, p. 62-64. The Lunar Science Institute, Houston.

P. 81, upper left - Kay R. W. and Gast P. W. (1973). The rare earth content and origin of alkali-rich basalts. J. Geol. 81, 653-682.

P. 81, upper right - Green D. H. (1973). Experimental melting studies on a model upper mantle composition at high pressure under water-saturated and water-undersaturated conditions. Earth Planet. Sci. Lett. 19, 37-53.

P. 81 bottom - Carter J. L. (1970). Mineralogy and chemistry of the earth's upper mantle based on the partial fusion - partial crystallization model. Bull. Geol. Soc. Amer. 81, 2021-2034.

D. Wenner - *Palagonites*

Figure on p. 84 - Peacock M. A. (1926). The volcanoglacial palagonite formation of Iceland. Geol. Mag. 62.

Figures on pp. 85-87 - Honnorez J. (1972). La palagonitisation; l'alteration sousmarine du verre volcanique basique de Palagonia (Sicile). Zuer., Eidg. Tech. Hochsch., Kristallogr.-Petrogr. Inst., Vulkanist., Publ., No. 9, 131p.

Figure on p. 88 - Soderblom L. A. and Wenner D. B. (1978). Possible fossil H<sub>2</sub>O liquid-ice interfaces in the martian crust. Icarus, in press.

L. Soderblom and D. Wenner - Possible Fossil H<sub>2</sub>O Liquid-ice Interfaces in the Martian Crust.

Figure on p. 90 - Soderblom L. A. and Wenner D. B. (1978). Possible fossil H<sub>2</sub>O liquid-ice interfaces in the martian crust. Icarus, in press.

R. Stewart-Perry - Desert Soils - Composition and Surface Properties

Figures 1 and 2 are the author's work.

Figure 3 - Jackson T. A. and Keller W. D. (1970). A comparative study of the role of lichens and "inorganic" processes in the chemical weathering of recent Hawaiian lava flows. Amer. J. Sci. 269, 446-466.

Figure 4 - In Desert Biology (Brown G. W. ed.), p. 184. Academic Press, 1974.

M. Booth - Simulation of Martian Surface Conditions

Figures on p. 98 - Booth M. C. and Kieffer H. H. (1978). Carbonate formation in Marslike environments. J. Geophys. Res., in press.