

tilted, with one corner down, and by applying xylene with a dropper to the upper edges wash the index oil to the lower corner, where it can be wiped off. Patting the mount with tissue usually knocks off grains and leaves bits of fiber. Blowing strongly upon the amount removes most of the xylene and the remainder will evaporate within a few seconds. When first using this technique it is wise to examine the mount at this point with a binocular microscope to insure that all the index oil and xylene have been removed. Mounts with biotite and feldspar have had the index oils changed by this method as many as 25 times without noticeable deterioration of the mount.

Provided the slides are protected from physical damage, they will serve as permanent mounts. They are particularly handy for heavy mineral suites, because they enable the suite to be preserved, and yet all the minerals can be accurately identified by their refractive indices.

These mounts also permit accurate identification of the opaque minerals, because it is extremely easy to take a needle and pry off a single opaque grain which can then be identified by the *x*-ray techniques commonly used for ore minerals (Berry and Thompson, 1962).

When moderately strained, the epoxy becomes anisotropic, and consequently it is unsuitable as a mounting media for thin sections, except perhaps to cement on the cover slip.

#### REFERENCES

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HESS, H. H. (1960) Stillwater Igneous Complex, Montana. *Geol. Soc. Am. Mem.* 80.

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#### ADDENDUM NOTE TO "REACTION SERIES FOR SUBALKALINE IGNEOUS ROCKS BASED ON DIFFERENT OXYGEN PRESSURE CONDITIONS"

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In Fig. 4 of the paper, "Reaction Series for Subalkaline Igneous Rocks Based on Different Oxygen Pressure Conditions" (Osborn 1962), I indicated by dashed lines some simple, inferred phase relations for the right face,  $\text{CaSiO}_3\text{-Fe}_3\text{O}_4\text{-SiO}_2$ , of the tetrahedron,  $\text{CaSiO}_3\text{-Mg}_2\text{SiO}_4\text{-Fe}_3\text{O}_4\text{-SiO}_2$  in air. The precise relations on this face are not important as far as the argument of the paper is concerned. There was no intention however of omitting available data. The data published by Phillips and Muan (1959) and plotted as the diagram for  $\text{CaO-Fe}_2\text{O}_3\text{-SiO}_2$  were obtained in an air

atmosphere and hence are directly applicable. On their diagram wollastonite does not have a field. This phase appears only at subsolidus temperatures at this oxygen pressure. A field for hematite however is present, as well as one for magnetite. The absence of wollastonite at liquidus temperatures and presence of hematite thus change the configuration of the right face of the tetrahedron as sketched in Fig. 4. The general relations within the tetrahedron in the neighborhood of points R, D and E in Fig. 4, however, remain as shown in this figure; for as MgO is added to the system represented by the right face, liquidus temperatures drop and at the same time the temperature of stability of wollastonite rises as  $Mg^{2+}$  enters the structure. Hence wollastonite is the phase in equilibrium with liquid, tridymite and crystalline iron oxide in the vicinity of the point E in Fig. 4. Similarly,  $Mg^{2+}$  entering the magnetite structure stabilizes this form relative to hematite, with the result that magnetite may be expected to displace hematite in equilibrium with liquids in the central part of the tetrahedron even though temperature decreases. This latter has been found to be the case by Roeder (1960) in his study of a similar tetrahedron,  $CaAl_2Si_2O_8-Mg_2SiO_4-Fe_3O_4-SiO_2$ . Whether magnetite or hematite is the iron oxide phase in equilibrium with liquids in the neighborhood of points R and D of Fig. 4 is however only a minor detail from the standpoint of the use made of Fig. 4 in the paper.

I am indebted to D. C. Presnall for calling this lapse to my attention.

#### REFERENCES

- OSBORN, E. F. (1962) Reaction series for subalkaline igneous rocks based on different oxygen pressure conditions. *Am. Mineral.* **47**, 211-226.
- PHILLIPS, BERT AND ARNULF MUAN (1959) Phase equilibria in the system CaO-Iron Oxide- $SiO_2$  in air. *Am. Ceram. Soc. Jour.* **42**, 413-423
- ROEDER, P. L. (1960) Phase relations in the  $Mg_2SiO_4-CaAl_2Si_2O_8-FeO-Fe_2O_3-SiO_2$  System and their bearing on crystallization of basaltic magma. Ph.D. Thesis, The Pennsylvania State University.

#### ADDENDUM

(Pegmatites at Ryrs, Sweden—examples of fluorite exomorphism, *Am. Mineral.* **47**, 924-931, 1962.)

Dr. A. A. Levinson has kindly brought to my attention an article by Olav H. J. Christie (On the occurrence of a two-layer orthorhombic stacking polymorph of lepidolite, *Zeit. Krist.* **115**, 464-467, 1961).

By presentation of selected powder x-ray data, Christie shows that the unidentified lepidolite polymorph from the Gundlebo pegmatite described in my article is actually a mixture of polymorphs—the 1M and 2O types.

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