FELDSPATHIC CLASTS IN POLYMICT UREILITE DaG 319: THE PROBLEM OF PRISTINITY. B. A. Cohen and C. A. Goodrich, HIGP, University of Hawai'i at Manoa, Honolulu HI 96822 USA (bcohen@hawaii.edu).

Introduction: Basaltic meteorites complementary to the ultramafic monomict ureilites are unknown in the meteorite collection. However, feldspathic clasts that may represent ureilitic basalts occur in polymict ureilites [1-3], which are regolith breccias. A new ^{53}Mn-^{53}Cr age of one feldspathic clast is provocative [4] but the meaning of the age will not be clear until the petrogenesis of the clast is understood. In particular, we are interested in distinguishing between primary igneous rocks and secondary products such as impact melts. This distinction is not straightforward for the UPB.

Primary vs. Secondary Characteristics: Rapid cooling in impact events produces glassy and quench-textured rocks, but if explosive volcanism occurred on the UPB [5-7], remnants of volcanism might also be glassy and quench-textured. Because metal separation and core formation probably did not occur on the UPB, siderophile elements are not depleted in ureilites and contamination by chondritic impactors is not evident in the siderophile and REE signature of feldspathic clasts [1]. Both igneous and secondary products should be strongly reduced, owing to ubiquitous carbon in all ureilites. Whether the bulk composition of a feldspathic clast results from igneous processes or impact mixing cannot yet be modeled because the compositions of primary basalts and their derivatives are not known. In addition, petrologic and chemical modeling of a clast requires knowledge of all coexisting phases and an accurate bulk composition, which may not be obtainable from single, small clasts. A survey of feldspathic clasts can identify populations of materials, whose characteristics can then be better understood and modeled.

Feldspathic clast populations: We identified 40 feldspathic clasts in a single thin section of DaG 319; we report on 22 here. Of these, 2 are pilotaxitic (class C2 of [2]), 9 have an intersertal texture, 8 are plagioclase grains, and 2 are feldspathic glass.

Intersertal: The most common multi-phase feldspathic clasts contain fine-grained (2 µm) albitic ($An_{2-13}Ab_{84-93}Or_{2-7}$) plagioclase laths interspersed with skeletal pyroxene ($Wo_{9-37}En_{25-53}Fs_{25-55}$) and minor ilmenite, phosphates, and glass. These clasts often have large (100 µm) plagioclase phenocrysts and in a few cases, large (100 µm) phosphate grains. They may be a primary igneous product and are described more completely in [8]. Several single plagioclase grains and one glass clast have compositions similar to the intersertal clast components and probably belong to this population.

Pilotaxitic: Two pilotaxitic clasts have similar normative feldspar compositions ($Or_{1-8}Ab_{55-61}An_{37-38}$) though the plagioclase mode differed by 30%. The mg# was different in the two clasts, leading to normative pyroxene compositions of $Wo_{20}En_{10}Fs_{70}$ and $Wo_{16}En_{69}Fs_{15}$. The Fe-rich clast contains normative ilmenite; both clasts contain minor normative apatite, chromite, and quartz. A swirly-looking glass clast and two plagioclase grains have the same composition. The intermediate plagioclase compositions and pilotaxitic texture suggest that these are impact-generated melts.

Single grains: The compositional range for all single plagioclase grains is $An_{5-98}Ab_{2-90}Or_{0-16}$. The largest is an anorthite grain (An_{91}) with small inclusions of augite ($Wo_{44}En_{53}Fs_{3}$).

References: [1] Guan and Crozaz (2001) *MAPS* **36**, 1039. [2] Ikeda *et al.* (2000) *Ant. Met. Res.* **13**, 177. [3] Ikeda and Prinz (2001) *MAPS* **36**, 481. [4] Goodrich et al. (2002) *this volume.* [5] Scott *et al.* (1993) *GRL* **20**, 415. [6] Warren and Kallemeyn (1992) *Icarus* **100**, 110. [7] Wilson and Keil (1991) *EPSL* **104**, 505. [8] Goodrich and Cohen (2002) *this volume.*