the microphenocrysts; these large enstatites contain less FeO than do the microphenocrysts. Many pyroxenes enclose tiny olivine grains. Minute spherules of troilite and intergrowths of troilite with nickel-iron are present in the interstices between phenocrysts. The bulk composition of one clast (determined by broad-beam microprobe analysis) shows that it contains more Na_2O (0.5 wt %) than does bulk Norton County (0.1 wt %). The presence of clasts of enstatite embedded in a rapidly cooled melt suggests that the microporphyritic clasts in Norton County formed from impact melts.

We propose the following history for the Norton County enstatite achondrite: The rock crystallized at depth in its parent body; its texture indicates simultaneous crystallization of enstatite and diopside, which implies that the melt was pyroxenitic in composition. The melt was probably derived initially by melting or partial melting of an enstatite-rich condensate from the solar nebula. The rock cooled slowly after crystallization as shown by the presence of exsolution within enstatite and of zoned taenite and kamacite. One or more impact events then excavated the rock, brecciated it, and mixed it with impact-melted material, represented by the microporphyritic clasts. Differences in bulk composition between microporphyritic clasts and the rest of the meteorite, however, demonstrate that the target material for these impact melts was not the plutonic pyroxenites.

THE ANTARCTIC ACHONDRITE ALHA 76005: A POLYMICT EUCRITE

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Olsen *et al.* (1978) described the Antarctic achondrite ALHA 76005 and concluded that it is a eucrite on the basis of major elements, but a polymict breccia based on the petrography of its clasts. Because eucrites are not normally described as polymict, we re-examined some of these clasts by petrographic, SEM and EMP techniques and sampled the bulk meteorite and one clast for trace element and oxygen isotopic analysis.

Six basaltic clasts were studied in detail. #1 contains plagioclase (An_{81-91}) laths (10-30 μm wide and 100-200 μm long) and pyroxene, pigeonite to sub-calcic augite, in a subophitic to ophitic texture. Pyroxene/plagioclase is 1:1. #2 and #3 are like #1, but are intergranular to subophitic. #2 has stubbier and #3 shorter plagioclase laths than #1. Pyroxene/plagioclase are 2:1 and 3:1, respectively. #4 is like #1, but contains plagioclase laths up to 2 mm long and pyroxenes more calcic (Wo $>$ 40) than the above clasts. #5 contains more albitic plagioclase (An_{76-87}) than the above clasts, both as skeletal crystals and laths up to 900 μm long, but none of its pyroxenes are as magnesian as many in #4 (En $>$ 50). #6 is also coarse-grained, has relatively albitic plagioclase (An_{74-83}), pyroxene/plagioclase of 1:2 and pyroxene which is less magnesian (En $<$ 27) than the other clasts. The achondrite is clearly polymict.

INAA data were obtained for 25-30 elements in the bulk meteorite and clast #4. Abundances of lithophile trace elements in the bulk meteorite fall within the concentration ranges for non-cumulate eucrites and outside those for howardites. Its REE pattern is intermediate between those of Stannern and the main eucrite group and is quite similar to that of Nuevo Laredo. Because its atomic FeO/FeO+MgO ratio of 0.60 is lower than that of Stannern, 0.62, it can safely be interpreted as the crystallization product of a melt produced after $>$ 4% and $<$ 10% partial melting of the same source region as Stannern and the main eucrite group, rather than in the special way required for Nuevo Laredo (Consolmagno and Drake, 1977). Clast #4 has a REE pattern very similar to that of the cumulate eucrite Moore County and could be interpreted in the same way: that of the crystals forming after $\sim$ 85% fractional crystallization of a melt having the composition of the main eucrite group (Consolmagno and Drake, 1977). Consequently, plagioclase in clast #4 should be no more albitic than that of Moore County, An_{90}, if the two objects were indeed derived from the same parent liquid. The mean composition is An_{86}, however, implying a parent more sodic than that of Moore County. It seems unlikely that the clast was derived from the same source as the main eucrite group and the bulk meteorite.

Ooxygen isotopic measurements by Clayton *et al.* (1979) underscore both this point and the polymict nature of ALHA 76005. The bulk meteorite and the basaltic clast came from different isotopic reservoirs, and perhaps even from different parent bodies.

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Consolmagno, G.J. and M.J. Drake, 1977. *GCA* **41**, 1271.
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