

be in phase equilibrium at the run conditions are held in separate crucibles in a one bar flowing noble gas atmosphere at 1300°C. After 14-18 days the samples are quenched and the gas concentrations measured by mass spectrometry. In reversal experiments mineral and glass powders are initially exposed to 20 bars of Ar for 48 hours. The samples are then split into aliquants. One phase pair is reserved for analysis, while the other is placed in the one bar Ar atmosphere as above, accompanied by a control pair prepared in air. The samples exposed to 20 bars of Ar should lose gas while those prepared in air should gain it, thus converging on the equilibrium partition coefficient.

Table 1
Initial experimental results: 1 bar Ar, 1300°C

Number	Sample	Total ⁴⁰ Ar ccSTP/gm
AN409	anorthite	6.23×10^{-6}
AN137041	anorthite	2.83×10^{-6}
AN117779	anorthite	5.68×10^{-6}
AN HO 228	anorthite	8.05×10^{-5}
DJM 3AN	melt	9.63×10^{-5}

Table 1 lists initial results for our current experimental series. Five different anorthite samples were run simultaneously with a silicate melt to investigate the possibility that prior sample history affects noble gas solubility in minerals. Further analyses, including those of the reversals, are in progress. A tentative value for the partitioning of Ar between anorthite and melt is 0.05, ignoring sample HO 228 which appears to have a high Ar abundance for reasons which cannot be properly evaluated until the dataset is complete. Consideration of our results and those of Lux (1986) and Hiyagon and Ozima (1986) indicate strongly that the noble gases as a group are incompatible in olivine and anorthite, but not uniformly so; thus they will be fractionated by igneous processes. Furthermore, a substantial volume of the gas dissolved in the minerals must be held in very retentive sites as melting temperatures are required for complete outgassing.

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Hiyagon and Ozima, 1986. *GCA* **50**, 2045-2057.
Lux, 1986. *GCA*, submitted.

THERMAL MIGRATION III: ITS OCCURRENCE IN CAPE YORK AND OTHER IRON METEORITES
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Cape York is the largest iron meteorite shower on record. New data include the 48 kg Thule mass, the 250 kg Tunorput mass and numerous explosion fragments, ranging in size from a few g to 711 g. Tunorput was found September 1984 by Jeremias Petersen, a hunter from the settlement Savigsivik. It is the first meteorite ever to be found in the ocean. It was lying close to the shore, and was exposed at low tide. The total mass of the 12 most important fragments is 58,138 kg. A violent break-up must have occurred in the atmosphere, so that the fragments became shattered over an elliptical area, about 100 x 15 km in extension. The reconstruction suggests a flight path from NW to SE, with the small Thule fragment lying in the northwestern