different parent body. It appears impossible to make mesosiderites by local cratering events (Chapman and Greenburg, 1981; Hewins, 1982) and either internal processes (Chapman and Greenburg, 1981) or accretion (Hewins, 1982) seem necessary to generate stony-iron breccias. Whichever process generated mesosiderites, their parent body survived as or was eroded to become a source of stony-iron breccias, whereas Vesta appears to be a fully differentiated asteroid with crustal rocks intact. On this basis the achondrites and mesosiderites require different parent bodies.

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I-Xe STUDIES OF ALLENDE INCLUSIONS

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This work reports isotopic studies of xenon extracted in stepwise heating from five neutron-irradiated coarse-grained refractory Allende inclusions (EGGs). Besides trapped xenon, these objects contain xenon derived from I, Ba, Pu and U. The five EGGs display a range of xenon compositions indicating a wide variety of chemical and isotopic structures.

I-Xe: The xenon extracted from EGG-1 is almost entirely iodine-derived. The high-temperature fractions display one of the most precise I-Xe isochrons yet observed. The $^{129}I/^{127}I$ ratio at the time of isotopic closure was 1.0419×10^{-4} and uniform to 0.4 percent, corresponding to a precision of about 10^5 years. If differences in initial iodine ratios are interpreted strictly chronometrically, then EGG-1 formed 2.9 m.y. after Allende matrix (Swindle *et al.*, 1983). Furthermore, this ratio lies within the range of initial iodine values found in Allende chondrules (Swindle *et al.*, 1983) and is about the same as the least radiogenic (latest) initial ratio seen in Bjurbole chondrules (Caffee *et al.*, 1982). For EGGs 2 and 3, the trapped and I-derived xenon are more homogenized, and relatively large spallation corrections are required, but the initial iodine ratio in each case is in agreement with that of EGG-1. EGG-6 has a small radiogenic component superimposed on a large trapped component, but it also suggests a similar initial iodine isotopic ratio to that seen in EGG-1. While there is even less radiogenic ^{129}Xe in EGG-4, it too is compatible with isochronous formation.

Ba: Apparent Ba concentrations vary by a factor of 15 from one EGG to another, but the ratio of reactor-produced ^{131}Xe (from Ba) to cosmic-ray produced ^{124}Xe or ^{126}Xe is uniform, giving exposure ages consistent with previously derived values (Fireman and Goebel, 1970). Thus there is no evidence for any pre-compaction exposure to energetic particles. *Pu, U*: EGGs 2 and 3 display non-uniform initial Pu/U ratios, with initial $^{244}Pu/^{238}U$ values ranging from .004 to .010. *Isotopic anomalies*: There is an apparent excess of ^{130}Xe in EGG-3, which is a FUN inclusion, with some evidence for a ^{130}Xe excess in EGG-2.

It is possible to group the EGGs on the basis of their I-Xe structure. Such groupings are consistent with the suggestion (Meeker *et al.*, 1983) that some of the EGGs have undergone post-formation alteration. Presumably iodine, present in abundance, and trapped xenon were incorporated after formation of these refractory objects. Subsequent alteration resulted in the following signatures: EGG-1, with the highest I content (still correlated with its radiogenic daughter, ^{129}Xe) and a low trapped Xe content, seems to be least altered, while EGG-6, with the lowest I and highest trapped Xe, is the most altered. EGG-6 is similar to EGG-4, while EGGs 2 and 3 (which have the highest Ba and actinide contents) are intermediate.

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