After the Cratered Highlands Stage and before the Basaltic Maria Stage, objects from a discrete source region formed about 50 large basins on the Moon over approximately 400 million years. Four possibilities for sources of the impactors of the Large Basin Stage appear plausible at this time [21,22,23,8]. Of these possibilities, the initial breakup of the original Main Belt planetesimal would appear to be the best present choice as a discrete impactor source.

UrKREEP Mobilization: The striking differences between young, mascon basins (~3.92-3.80 b.y.) and old, non-mascon basins (~4.2-3.92 b.y.) indicate that the older, isostaticly compensated basins triggered the regional intrusion, extrusion, and solidification of mobile urKREEP-related magmas prior to the formation of the younger, uncompensated basins [24]. This suggests that the fracturing of the lunar crust by the older basin forming events permitted urKREEP liquids to migrate into the crust, removing the potential was lost for rapid, post-basin isostatic adjustment by urKREEP magma movement at the crust-mantle boundary.

Cryptomaria: The clear stratigraphic correlation of cryptomaria [25,26,27,28,29] with the Old Large Basin Substage suggests that these units are related to KREEP basalts or to partially melted, low titanium, late cumulates of the magma ocean. They underlie ejecta from the young large basins and may be represented in the Apollo samples by basalts of ages clearly greater than 3.92 b.y. [30,31] or by KREEP-related basalts with model ages of 4.2-4.4 b.y. [32].

Core Formation: The association of lunar magnetic anomalies with the antipodes of post-Nectaris basins [33,34] and the initially low accrection temperature of the lower mantle suggest that the $Fe_xNi_yS_z$ liquid separated from the early magma ocean did not coalesce into a circulating core until about 3.92 b.y. ago. As anomalies do not appear to be antipodal to the Nectaris basin, and are apparently of lower intensity antipodal to Orientale, then a dipole field may have been active only between about 3.92 and 3.80 b.y., the respective apparent ages of these basins.

Vesicles in Crystalline Melt Breccias: Remobilized solar wind hydrogen imbedded in the megaregolith of the cratered highlands probably was the dominant component of the fluid phase that formed vesicles in crystalline melt breccias produced by large basin forming events [35].

Vesicles in Mare Basalt Lavas and Volatiles Associated with Pyroclastic Eruptions: Remobilized hydrogen, derived from the decomposition of primordial water presumably was the dominant component of the fluid phase associated with mare basalt vesicles [36] and pyroclastic eruptions. The total absence of any indication of water associated with this fluid phase demonstrates that all primordial water in the source materials for the magma ocean has been lost to space or decomposed by $Fe_xNi_yS_z$ liquid separation [37] and migration.

Hydrogen Concentrations at the Lunar Poles: The probability is high that the epithermal neutron anomaly detected over the lunar poles [38] is largely if not entirely the consequence of concentrations of solar wind hydrogen rather than cometary water ice [38,39]. Hydrogen and other solar wind volatiles can be expected to be concentrated in permanently shadowed areas [41]. A continuous blanket of cometary water ice, unless fortuitously covered by protective ejecta from larger, but very infrequent impacts probably would erode [3] and be lost in a geologically short interval.

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