

ON THE ORIGIN OF THE MARE BASINS; Ralph B. Baldwin,
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The mare basins were formed as a result of giant impacts of planetesimals. These impacts were so vast that the lunar rocks locally behaved essentially as fluids, giant tsunamis formed the multiple ring surrounding the main basins. The energies of the waves outward fluidized the previous surface and destroyed practically all pre-existing craters.

If the earliest observable crater is 4.5×10^9 years old, the half life of the crater forming bodies in the first third of the moon's existence was 2.5×10^8 years. If, as isotopic ages seem to indicate, the oldest remaining craters are only 4.2×10^9 years old, the half life is 1.84×10^8 years. These bodies could not have been earth satellites but can be interpreted as forming a new type of primitive asteroid in eccentric solar orbits.

The further backward we go in time, the greater were the relative and absolute numbers of the smaller crater forming asteroids in proportion to the larger bodies.

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