

V. METEORITICS

The study of meteorites.

What happened to left over planetesimals after the end of planetary accretion?

Ejection - a close encounter with a planet's gravitational potential, can eject the body from the solar system through a "sling-shot" effect. Can be a multistage process: earth-crossing --> Jupiter crossing-->ejection.

Collision - results in heavily cratered planetary surfaces. A few very large planetesimal collisions may be responsible for: Origin of moon?
Retrograde rotation of Venus?
Non-zero obliquities?

Fragmentation - destroyed by mutual collisions between planetesimals.

Capture - small planetary satellites.

Trojan asteroids at L_4 , L_5 of Jupiter.

Survival - asteroids and comets.

[Evolution of population: H Fig 6.5]

The Wonderful World of Meteorites

Some Definitions

Asteroid - a rocky body in space larger than a few hundred meters in size. Largest size is about 1000 km in diameter.

Comet - an asteroid-sized body composed of a significant proportion of icy material such that outgassing is observed when the body is near the sun.

Meteoroid - small body in space with a size between ~1mm and a few hundred meters.

Interplanetary dust particle (IDP) - anything smaller than ~1mm. Typically a few μ m.

Meteorite - A meteoroid that has reached the Earth's surface. Typically named after the place they are found. A distinction:

Fall - a meteorite whose arrival was witnessed.

Find - a meteorite that is "accidentally" found. No information on its arrival.