# PLANETARY SOLAR ROTATION [1]
# Moon Separates from Earth Example

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**ABSTRACT**
This topic is referenced from a book completed in 1997 titled **Planets, Satellites and Landforms**[2][2] (PSL) by the same author. Some additional thoughts and further explanations are added to the original text. This text mainly explains the physical mechanisms required to launch satellite bodies from their host planets. The major focus is on the Moon separating from planet Earth.

## 1) INTRODUCTION

A protoplanet does not have any significant component of solar (axial) rotation as it condensed through electrostatic attraction from an orbiting dust cloud in tidal lock with the Sun, as shown in Exhibit 1 - Electrostatic Assembly of Proto-clouds.

Note planets are defined as worlds capable of launching satellites, and does not include those worlds which appear to be the result of launch action from another planet. The solar system consists of original planets Venus, Earth, Jupiter, Saturn, Uranus, and Neptune.

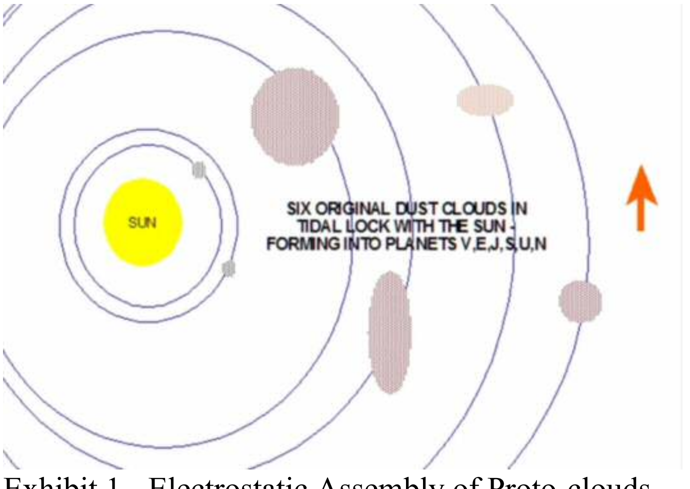


Exhibit 1 - Electrostatic Assembly of Proto-clouds

The direction of rotation throughout the Solar System is usually the same as the sidereal motion (posigrade). This strongly suggests the mechanism for initiating solar rotation is a common phenomenon. Subsequently sufficient mass accumulates to gravitate the mass into a cold hard spherical proto planet in tidal lock with the Sun, as shown in Exhibit 2 - Spherical Proto-Planet:

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[1] https://www.bosmin.com/PSL/PlanetarySolarRotation.pdf

[2] http://www.bosmin.com/PSL/PlanetsSatellitesLandforms.pdf

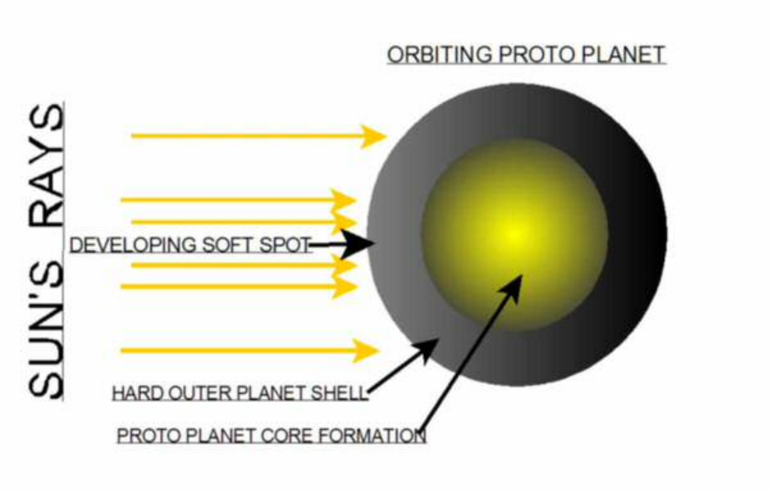


Exhibit 2 - Spherical Proto-Planet.

This included some radioactive minerals which reacted to start forming a heated core. Eventually, the developing hot spot forms a weakened planet face which explodes to form a new satellite which can orbit the planet or the Sun. Other orbiting options are discussed in the PLS text.

The larger the protoplanet, the more radioactive minerals existed. This factor has major implications for interpreting the dynamic history of Earth, because the rate of cooling in a planet is a function of the available radioactive material. So a study of larger planets can show how Earth existed during past geological times.

## 2) MOON-EARTH SEPARATION

At the point of initial eruption, the gas jet force reacts on the surface of the planet as shown in Exhibit 3 – Common Solar and Satellite Rotation Initiation: Earth - Moon example. Simultaneously, the sidereal orbit of the planet moves the centre of centrifugal attraction (planet's centre-of-gravity) ahead of the jet force action. This establishes a turning couple comprising the jet stream reaction with the centrifugal force. Turning couple forces cause planets to accelerate on their axes, developing solar angular velocity, or axial rotation. The reaction to the jet stream force also causes the planet to move into a higher elliptical orbit around the Sun.

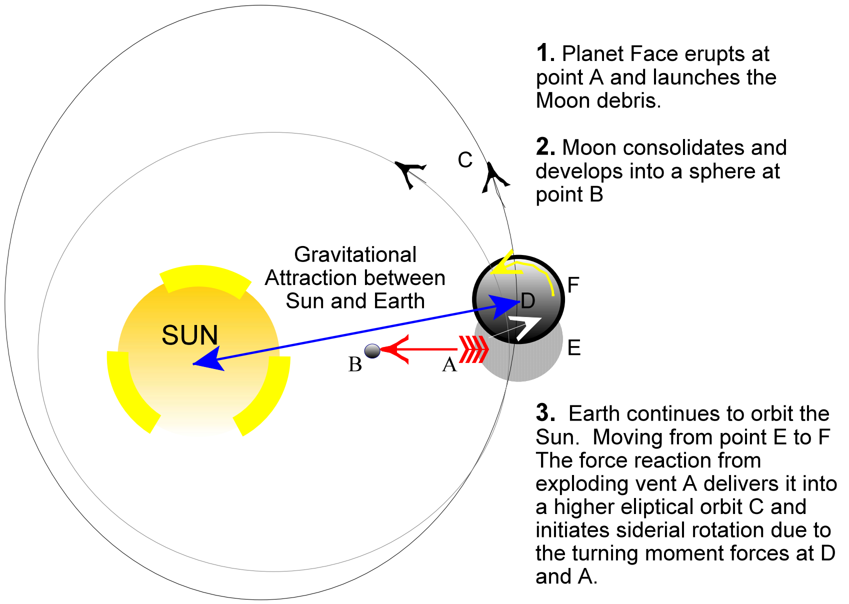


Exhibit 3 – Common Solar and Satellite Rotation Initiation: Earth - Moon example

Venus had strong surface heating due to its proximity to the Sun, and this resulted in premature diffusion of pent-up gas pressure, before any satellites could launch. Other solar orbiting planets are discussed in PSL between Chapters 13&20.

Other mechanisms are recognised to describe the separation of the Moon from Earth including the leading Theia planet impact theory, illustrate at Exhibit 4-Theia&Earth Impact:[3][3]

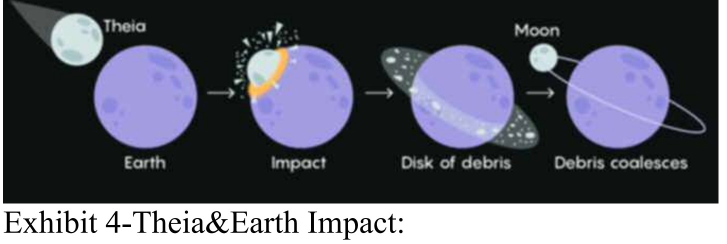


Exhibit 4-Theia&Earth Impact:

[3] https://en.wikipedia.org/wiki/Giant-impact_hypothesis

## 3. MOON'S DISCHARGE DISTANCE

The Earth – Moon system can be checked for discharge velocity and angular momentum. Earth has slowed since the initial spin sequence, as evidenced from coral core information. This maybe due to friction loss and/or due to an expanding Earth. The Moon's orbit has also moved further away from Earth which is consistent with friction loss due to tidal interaction.

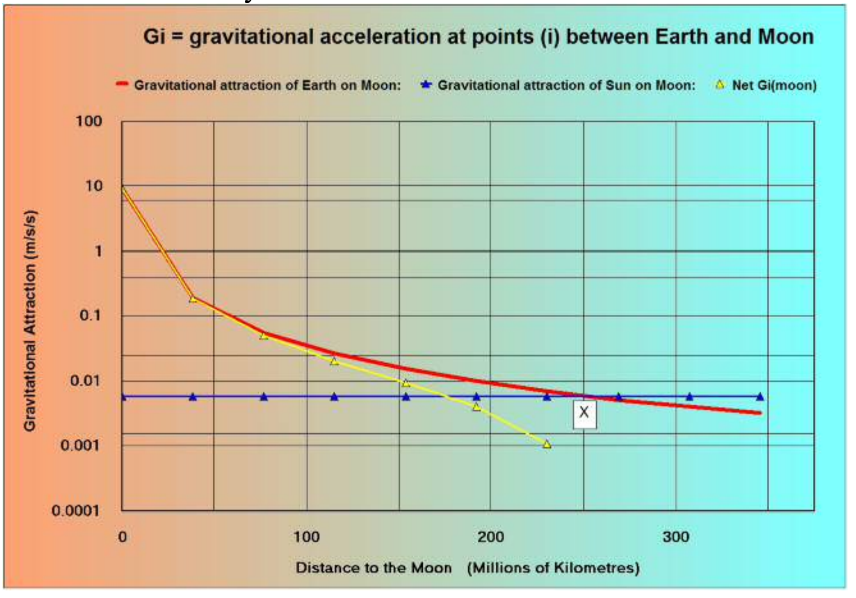


Exhibit 5 – Gravitational Variation from Earth Towards the Sun

The gravitation variation between the Earth and Sun shows in Exhibit 5 – Gravitational Variation from Earth Towards the Sun. This illustrates the maximum distance the Moon could have travelled, after its initial launch (Point X), before being captured by the Sun's gravity.

If the Moon travelled further than 250,000 km from Earth in the direction of the Sun, it would have gone into a solar orbit. However, this did not occur so the distance travelled by the Moon is limited to a maximum of 250,000 km. This raises the question of what the discharge velocity (U) of the Moon was, Exhibit 6 – Moon Earth Initial Separation? Calculations show this to be 10.75 km/sec, or just below the escape velocity of the planet.

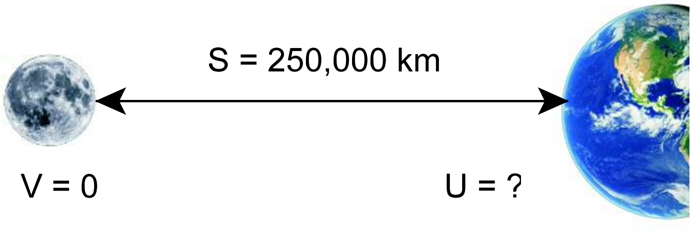


Exhibit 6 – Moon Earth Initial Separation

## 4. LUNAR ORBIT

This velocity had no tangential component to the planet, and could have resulted in the Moon crashing back to Earth. However, by the time the Moon returned to the Earth's previous location – under Earth's gravitational influence, the Earth had accelerated into a faster and higher ellipsoid, sidereal path illustrated in Exhibit 7 – Moon returns to pass below Earth's location and Mercury launches into lower solar orbit.

This impetus to the Earth was due to the escaping volatile jet. The Moon therefore missed hitting the Earth as momentum was developed in travelling to the Earth's initial position. The Moon passed behind the Earth and developed a lunar orbit. Escaping volatiles continued to exit the vent which helped keep the Moon from returning to Earth's surface.

This initiated the Moon's posigrade rotation around Earth that has continued ever since.

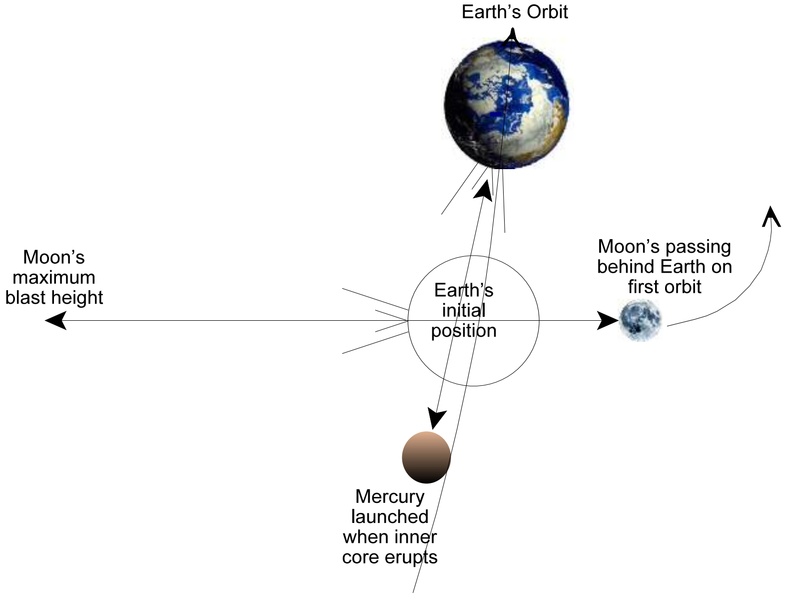


Exhibit 7 – Moon returns to pass below Earth's location and Mercury launches into lower solar orbit

Mercury launched as shown in Exhibit 7 with escape velocity between 11.18 and 18.25 km/sec. Mercury's orbital anomaly is further discussed at:[4][4]

It is worth noting that the Mercury method of launch and orbit location near to our Sun would provide an explanation for how very large planets are orbiting close to their suns, as recently discovered at several locations in the Milky Way.

[4] https://principia-scientific.com/wp-content/uploads/2022/11/Beatty-Newton-and-Mercury-paper-r1.pdf

## 5. SOLAR ROTATION

Coral-core records[5][5] suggest there were 410 days per year in the Devonian period of the Paleozoic (230-620 million years ago). This implies the Earth initially (4.5 B.y.) spun at speeds somewhere between 690 and 1,931 days per year when the Moon originally launched.

Let's assume the speed was 800 days per year (4.03E-6 radians/second). The Earth picked up solar rotation and increased sidereal momentum during the surface discharge of the internal volatiles.

The energy imparted to the Moon during its launch was equal and opposite to that imparted to the Earth (after Newton): = **4.17E+24 Mj**

Therefore the energy provided to the Earth by the 'catherine wheel' effect, after the Moon launched is shown to be = **1.234E+30 Mj**

Thus, the vast majority of the angular momentum present in the Earth during Archean times, developed from escaping volatiles reacting against the centrifugal force of the Sun. This is evident, because energy provided to the Earth is much larger than that provided to the Moon.

## 6. ENERGY CHECK

To check the availability of this quantity of energy, consider the Earth has a cold compact exterior shell. Internal heating and segregation starts from within, as discussed at PSL, Chapter 3.

While the core settles away from the light volatile material and heating continues, pressure builds in the volatiles. The chamber of heating volatiles is considered to be continuous rather than in discrete pockets. The temperature profile develops as estimated for pre-Archean times to some 200°C to 1,000°C, depending on depth, higher than at present.

The heat energy associated with this temperature profile shows there was sufficient energy available in a 12km depth of crustal material, to initiate Earth's angular momentum. The 12km depth figure seems reasonable given that most volatile materials eventually condensed to form seas and atmosphere, broadly equivalent to this consolidated depth.

It is noted that larger planets with more radioactive material would produce a much greater explosive satellite launch force, lasting longer and leaving more evidence of that thermal release.

## 7. PLANET RINGS

Such a violent discharge of material (Eye Stage) produces many small projectiles besides the main satellite body. Some fragments of crust and cooled magma, also orbit the planet. Over time the orbits decay, showering the planet surface with a rain of meteorites. The Eye Stage ring structures are likely to be dark coloured, similar to the Asteroid belt, and rings at Uranus.

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[5] https://www.theatlantic.com/science/archive/2016/02/fossilized-coral-calendar-changes-leap-day/471180/

## 8. CONCLUSIONS

A. Sidereal motion is common to both planets and their solar rotations. This suggests the mechanism for initiating solar rotation is common throughout the solar system.

B. Dust clouds are likely to associate through electrostatic attraction before being subject to gravitational collapse.

C. Protoplanets are likely to be in tidal lock with the Sun.

D. Satellites commonly have posigrade rotations, but retrograde rotations do exist.

E. The initial explosive discharge of volatiles from a protoplanet can launch satellites, move the planet into a high elliptical sidereal orbit, and establish a solar rotation.

F. The maximum distance the Moon could have travelled, after its initial launch from Earth at a sub escape velocity of 10.75 km/sec, was 250,000 kilometres towards the Sun.

G. Coral-core records suggest there were 410 days per year in the Devonian period of the Paleozoic, 230-620 million years ago, but Earth would have spun faster when launched.

H. The majority of the angular momentum present in the Earth during Archean times developed from escaping volatiles reacting against the centrifugal force of the Sun.

I. There was sufficient energy in a 12km depth of crustal material, to initiate Earth's angular momentum during the Moon launch sequence. The 12km depth is broadly similar to the condensed seas and atmosphere depth today.

J. Larger planets with more radioactive material, would produce a much greater explosive satellite launch force, lasting longer and leaving more evidence of that thermal release.

K. The Moon's non volcanic surface represents how the Earth surface was before the internal volatiles burst through the outer shell.

L. Mercury launched from the Earth into a sidereal orbit shortly after the Moon launch at speed in excess of the escape velocity between 11.18 and 18.25 km/sec.

M. The Mercury method of launch and orbit location near to our Sun would provide an explanation for how very large planets are orbiting close to their suns, as recently discovered at several locations in the Milky Way.

**KEYWORDS**
protoplanet, tidal lock, posigrade, turning couple, axial rotation, Mercury, Venus, Moon, Sun, Earth, Expanding Earth, lunar orbit, radioactive

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