

I love Plato, but I love the truth more,

- Aristotle.

9. THE PLANETARY SIGNATURE.

Now I will go through most of the theoretical properties of the signature, and I will try to show the amazing perfect match of all important features in the case of PLuto.

The very first thing about the signature, from the chapter about the theoretical signature, is placement. PLuto is the last big object in the Solar System known, and fits from the point of view of placing the signature at the end of the object. Of course, we do not know if there is anything bigger than PLuto farther from the Sun. This is the main assumption. If there is something bigger than PLuto farther from the Sun, this book does not make sense and can be burned. Why am I so sure that PLuto is the last object? Presently almost day by day new, the so called Trans-Neptunian Objects are being discovered, maybe one day something bigger than PLuto will be discovered, so why am I so sure ?

Here is the historic example first. On the first of January 1801 the first asteroid was discovered and its name is Ceres. It has a diameter around 950 km. It was discovered by Italian astronomer Giuseppe Piazzi (1746 - 1826) in Palermo. In spite of that fact of almost 200 years of improvements in technology of observations, never ever a bigger asteroid was observed. Simply the first discovered happened to be the biggest. It is easy to understand I believe. The bigger the brighter, and much easier to be found.

Second, in 1979 American astronomer Charlie Kowal finished a very detailed search, looking for objects up to 100 times dimmer than PLuto. There was only one object found in 1977. Its name is Chiron (diameter < 200 km), and it belongs to the so called Centaurs. This is the class of objects between the orbits of Saturn and Neptune, and today we know many members of this class of small objects. The fact that the discoverer of PLuto himself searched for more of Pluto type objects in the early thirties, also should be mentioned here. Not a single object found. It was the result of Clyde's Tombaugh very time consuming, and very precise search.

Third, in early nineties thanks to improvements in astronomical tools of observations, the so called Trans-Neptunian objects started to be discovered (TNOs), some of them are very far from the Sun, even more than two times farther than PLuto. They are very small when compared to PLuto. So far the biggest object belonging to this class of objects is only around 500 km in diameter. Of course the technology gets improved day by day, and maybe one day No, no way, if the theory of the signature is true, nothing bigger than PLuto is placed in the Solar System farther than PLuto. This is the main assumption of my book. Let me repeat my previous statement again. If there is a bigger object than PLuto farther than PLuto, this book can be burned, it does not make sense at all, because placement of the signature at the end of the object is one of signatures's main and very important properties. Do you know by the way, that the Sun on PLuto's sky looks like a star ? From the Earth and all other planets, the disk of the Sun is visible. From Pluto, no disk, just a very bright star on the very dark sky.

One more thing, that I can probably put here as an important one, is that the PLuto system is the last "planet+moon" system in the Solar family. What is important to observe, is that the Earth with its Moon, is the closest to the Sun system with a moon. Since most of the planets in the Solar System have their own satellites, the object with the moon fits better as the border marker, than a singleton object, say a planet with no moons, like for example Venus or Mercury. We can clearly see on Van Gogh's picture, that the signature is placed at the end, that is where there are no more sunflowers. For both, sunflowers and planets, the signature is placed logically in the same place, on the very border. Here is the first conclusion then.

THE PLACEMENT OF PLUTO, FITS THE THEORETICAL SIGNATURE
PLACEMENT, THE VERY END OF THE OBJECT, AND THE NAME OF THE
OBJECT IS THE SOLAR SYSTEM.

The abstract transformation of the Solar System to Van Gogh's sunflowers, was performed on assumption that the size of PLuto divides all objects into two categories of objects. Important objects that are bigger than PLuto are called "sunflowers", and all objects smaller than PLuto, that are included in the "background" after our transformation, which we are not very interested in. Why this way? A few reasons below.

First reason is the planetary democracy (please do not confuse it with parliamentary democracy). What is the planetary democracy? Say that big objects, like moons and planets, have equal rights of existence in our Solar System, so that their numbers should be balanced. If we set the "border of importance" on the very small object (say diameter around 200 km), then there would be too many asteroids and KBO's (Kuiper Belt Objects called also TNO's for Trans-Neptunian Objects) in the group of important objects (not to mention the fact that the total number of objects would be big, I guess around 100). If we set the border higher, say around 1000 km, then all of the sudden moons will be dominant in our imaginary parliament. There would be precisely 17 moons and only 8 planets plus PLuto system. If we set the border too high, say the size of the smallest planet (diameter around 4 800 km), then planets would be predominant in our group of important objects. In such a case there would be only two moons included and eight planets plus PLuto. Say that optimal would be one planet for one moon, as in the case of Earth or PLuto. If the border is set at the size of PLuto, or in other words around 2000 km, then there are 8 planets and 7 moons. That gives us more or less democratic relationship, planets still have majority in our "Solar System Parliament", but only by one member. This is planetary justice in my opinion, more or less. Of course the logical question here would be, why not 8 planets and 8 moons. Then it would be perfectly democratic. It cannot be done. If I was supposed to include the next object (Titania), then I would be forced to include also moons Oberon, Rhea and Japetus that are just a little bit smaller than Titania. Why? Because we want to have a gap in size between our objects and the background, and I explain that below. Of course we still say that PLuto is excluded, because its role is different. It is the signature.

The second reason; Planets and moons differ very much. On one hand there is huge Jupiter, and on the other hand there is extremely small Mercury. However if we start to go down from the size of Mercury, going through all smaller objects, we will discover that the size drops gradually. First Mercury, then Jupiter's moon Callisto, then Jovian Europa, Io from Jovian family again, our Moon, finally Triton, then there should be PLuto, followed by the moon of Uranus called Titania. However the drop in size from PLuto, which has a diameter around 2300 km, to Titania (diameter around 1580 km) is significant. That is almost 30% of a difference in size. Down from the size of Titania changes are very continuous, going down to smaller and smaller objects, simply because the number of objects is bigger and bigger, that is mainly due to asteroids and Kuiper Belt Objects. From this point of view it looks also that PLuto, as a cutoff object is selected correctly. It looks at the moment, that there is another gap in size, down from the size of the biggest asteroid, Ceres. It looks like there are no known objects between Ceres (around 950 km diameter), and the asteroid Pallas (around 530 km). That would be almost 45% gap size. It is almost certain however (I WN guarantee that), that this gap will be filled soon, by the newly discovered class of objects called KBO's or TNO's, where the biggest member found so far has a diameter equal around 500 km.

The total number of them with diameters bigger than 100 km, is estimated to be around 70000, however because the objects are very far, not a big number of them was discovered so far (as of today a few hundred). Some astronomers say that objects bigger than PLuto can be discovered there in future. I believe that they are wrong. If they are discovered, this book does not make sense at all, so in my opinion maximum size should be around 1200 km, still in our “background”, and not in the “sunflower group”. It is important to mention here, that the border set around 2000 km of the size of the diameter can be also justified from yet another point of view (third reason). All objects bigger than 2000 km in diameter in the Solar System have atmospheres (with the exception of our Moon), while smaller objects including the biggest rejected object (Titania 1580 km, the moon of Uranus) have no atmospheres. There is also similar situation for internal activity. Most of the big object have tectonic and volcanic activity, while small objects do not have it. It looks to me that the border set around 2000 km does not look very artificial. We can say that objects bigger than PLuto are more “alive” (I mean more like the Earth), thanks to atmospheres and internal activities (volcanism etc.), while smaller objects are typically cold, heavily cratered bodies that are “not alive”.

THE SIZE OF PLUTO IS NOT TOO BIG AND NOT TOO SMALL,
WHEN COMPARED TO OTHER SOLAR SYSTEM COMPONENTS.
THIS IS AN IMPORTANT PROPERTY OF THE SIGNATURE.

One of the very important properties of the signature, that we know about from our general theory of the signature is uniqueness. Is PLuto enough unique to be qualified as an oddity? The answer is big YES. PLuto is an extreme oddity in the Solar System and here are I listed a few examples of its features in order to confirm that.

PLuto’s companion Charon is very massive when compared to PLuto. Charon’s mass is around one eighth of the mass of PLuto. It is the record holder in the family of the Solar System. Our Moon holds the second place. The mass of the Moon is equal around 1/81 of the mass of the Earth. The next one is Neptun’s moon Triton, with the value around 1/5000. Triton is however probably a captured object. For natural born satellites, like for example Titan (Saturn’s moon belonging to our sunflower group), or Jovian moons this ratio is even lower, and it is less than 1/10 000.

PLuto, as well as its moon Charon, are the only objects in the Solar System that rotate around the common center of mass, that is not located inside the main object. The center of mass for PLuto+Charon system, is in space between Pluto and Charon. This is the reason why PLuto cannot be called a planet. Planets go around the Sun, and PLuto does not go around the Sun, period. PLuto is just PLuto. Providing that one insists on the common name then it can be called “a double moon”.

PLuto is a record holder for the duration of the day. The day on PLuto is 124 years long. The night on PLuto is also 124 years long.

PLuto is the only big object in the Solar System, locked with its companion Charon, so that each one faces the other one all the time on the same side. There is the “dark side” of PLuto for the observer from Charon, and there is the “dark side” of Charon for the observer from PLuto. It is the same like the “dark side” of the Moon for the observer from the Earth.

PLuto is the record holder of orbit inclination when compared to planets included in our “sunflowers group”. There are of course small objects in the Solar System, that we included in the “background” for which orbits are inclined more, but again, they are not important, since they are in the “background”.

PLuto is the record holder of orbit eccentricity when compared to planets included in our “sunflowers group”. There are of course small objects in the Solar System, that we included in the “background” which orbits are more eccentric, but again, they are included in the background.

PLuto is the smallest object in the Solar System with an extensive atmosphere.

PLuto is the largest object in the Solar System, with synchronized orbit with another planet (resonance 3:2 with Neptune). This means that for every two rotations of Neptune around the Sun, PLuto performs three rotations.

PLuto is the biggest object in the Solar System that “crosses” the orbit of the other planet. As a result PLuto was closer to the Sun than Neptune from 1979 to 1999.

PLuto has one of the biggest albedo differences on its surface in the Solar System. This means, that there are bright and dark areas on the surface of PLuto.

The orbit of Charon is inclined to the orbit of the pair (PLuto+ Charon) around the Sun by 122 degrees (almost perpendicular). Only satellites of Uranus are placed on similar orbits.

PLuto comes to Uranus as close as 10 astronomical units, while it comes only as close as 15 AU to Neptune. This is not natural, Neptune is the planet before PLuto, and not Uranus. Uranus is closer to the Sun than Neptune. However, thanks to the fact that PLuto is in 3:2 resonance with Neptune PLuto and Neptune avoid each other. No other planet in the Solar System is able to do this “trick”.

Some astronomers believe that PLuto is the largest object from the so called Kuiper Belt objects (KBOs). There is suppose to be around 70 000 of such objects with diameters more than 100 km. However two largest of them all are PLuto and Charon, and they are ... together in one system (!). What is the probability that from many thousands of objects, two biggest of all would be together, connected in one physical system? I guess it is not very high, agreed?

**PLUTO IS A VERY UNIQUE OBJECT.
UNIQUENESS IS A VERY IMPORTANT PROPERTY OF A SIGNATURE.
THE MORE UNIQUE THE SIGNATURE THE BETTER.**

Also among all important properties of the signature, the time resistance was mentioned. How does it fit in the case of PLuto? PLuto is very far from the Sun. In fact PLuto is so far, that the Sun looks like a star on PLuto’s sky. The amount of the sunlight, that PLuto is receiving for every square inch of its surface, is more or less one thousand times smaller than in the case of Earth. One can imagine without problems, that PLuto is almost always in a deep freeze state. Changes related to the influence of the sunlight, are for sure not as important as in the case of any other “planet like” object in the Solar System.

Because PLuto is this far, it moves extremely slowly when compared to other objects in the Solar System. It takes almost 250 years for PLuto to complete one rotation around the Sun. The linear speed of PLuto on its orbit, is equal only 16% of the Earth's speed. Probability of collision with small objects is lower thanks to this fact. One can say, that on the other hand PLuto is very close to recently discovered class of objects called Kuiper Belt Objects, so maybe there is a high danger of collision. It is true, there is a big number of these objects, but they move slowly, and their orbits are not concentrated in one plane. Instead they occupy wide variety of inclined orbits. Please remember that PLuto and Charon are small with very weak gravitation, and it would be hard to hit them.

From the physical point of view, the pair PLuto+Charon looks like a giant gyroscope. Since the two objects face each other in the locked position, one can imagine, that it is like they are connected by an invisible wire. Thanks to this the orbit is very stable, since there is no friction in the system. The two objects are almost like one, or they look like Siamese twins in other words. Actually it is even better, because the orbit of each object (PLuto and Charon) around the common center of mass is very circular. Instead of the invisible wire, it would be probably better to call it invisible massless stick, since the distance between the two objects is always the same. From the mechanical point of view the two objects look like one. Probably it must have been like this for billions of years. Gyroscopes change their direction of spin due to external force. This is called precession. For the Earth, the combined forces of the Moon and the Sun force the Earth to precess. One rotation takes around 26 thousand years. For PLuto the influence of the Sun also forces the orbit of PLuto+Charon to precess. However again, thanks to the extreme distance from the Sun the precession is extremely slow. It takes a few billion years for one rotation (I calculated that) !

PLuto is in resonance with Neptune. For every two Neptune's rotations around the Sun, PLuto performs three. The high inclination of PLuto's orbit also plays a significant role here. The resonance with Neptune, shields PLuto from being captured by the giant planet, or being ejected from the Solar System. The resonance of orbits with Neptune (by the way, Neptune is placed on a very circular orbit and that helps) guards PLuto's orbit.

PLuto is placed on extremely elliptical orbit, and because of that the perihelion point of PLuto should rotate around the Sun. This effect was observed for Mercury (the second most elliptical orbit of the planet in the Solar System after PLuto) and explained by Einstein. For Mercury, which is also on the elliptical orbit, it takes 13 thousand years for one rotation. For PLuto the same value is equal around hundred billion years (!) , again thanks to its extreme distance !

The orbit of PLuto system around the Sun, and the orbit of PLuto+Charon around its common center of gravity probably have not been changed during a few billion years !

PLUTO IS A VERY TIME RESISTANT OBJECT, AND THIS IS AN IMPORTANT PROPERTY OF A SIGNATURE.

In spite of the fact that PLuto is such an odd object as I tried to show, PLuto is still a member of the Solar System. PLuto is placed on the edge, between the background and the sunflower group. It was suggested in the chapter about the properties of the signature , that visibility is an important property of the signature. PLuto placed at the end of the Solar System is not that easily visible from Earth, it is very far.

However on the other hand, PLuto is extremely bright from the point of view of its albedo. Albedo tells us how good the reflectivity of the object is. In a sense it tells us how good the object would be, if we wanted to use it as a mirror. Pluto is a good “mirror”, and it reflects almost 50% of the light. It is very high value when compared to other objects in the Solar System. The darkest known objects (bad mirrors) are asteroids that can sometimes reflect as little as 3% of light. Also comets, or rather their nucleuses are very dark close to the same value around 3% - 4%. For our Moon it is equal only 12%. On the other hand there are objects in the Solar System that reflect most of the light that they receive from the Sun. Ice covered moons of Saturn are very good examples. Typically also planets with atmospheres reflect light very well. Venus and giant planets (Jupiter, Saturn, Uranus, Neptune) can be good examples with values of their albedos around 0.4 to 0.6 (40% to 60% of the light reflected). Pluto has an atmosphere and that is partly why it is so reflective.

Since PLuto is placed on such an elongated orbit, sometimes it comes very close to the Sun, even closer than Neptune, then of course it is visible a bit better. PLuto was closer to the Sun than Neptune for 20 years (1979 -1999) and during this time some important discoveries of the PLuto+Charon system were made. The last time when PLuto was at its closest point to the Sun (called perihelion) in the year 1989, mutual eclipses in the PLuto+Charon system took place.

PLuto is very well visible, when we look at the drawing of the Solar System. A very high eccentricity of its orbit, plus the very high inclination to the main plain of the Solar System, make PLuto easily visible as something special on such a drawing.

IN SPITE OF THE EXTREMELY LONG DISTANCE TO PLUTO FROM THE SUN, PLUTO CAN BE CONSIDERED AN EASILY VISIBLE OBJECT. VISIBILITY IS AN IMPORTANT PROPERTY OF THE SIGNATURE.

One of the most important properties of every signature is the information encoded in it. Any signature without encoded information is not the real signature, no matter how unique, time resistant, well visible etc. it is. The information encoded in our planetary signature is EXTREMELY IMPORTANT and that is why it is presented in the separate chapter.