

We are in the process of unravelling the Nature's geometrician's measurement Scale!

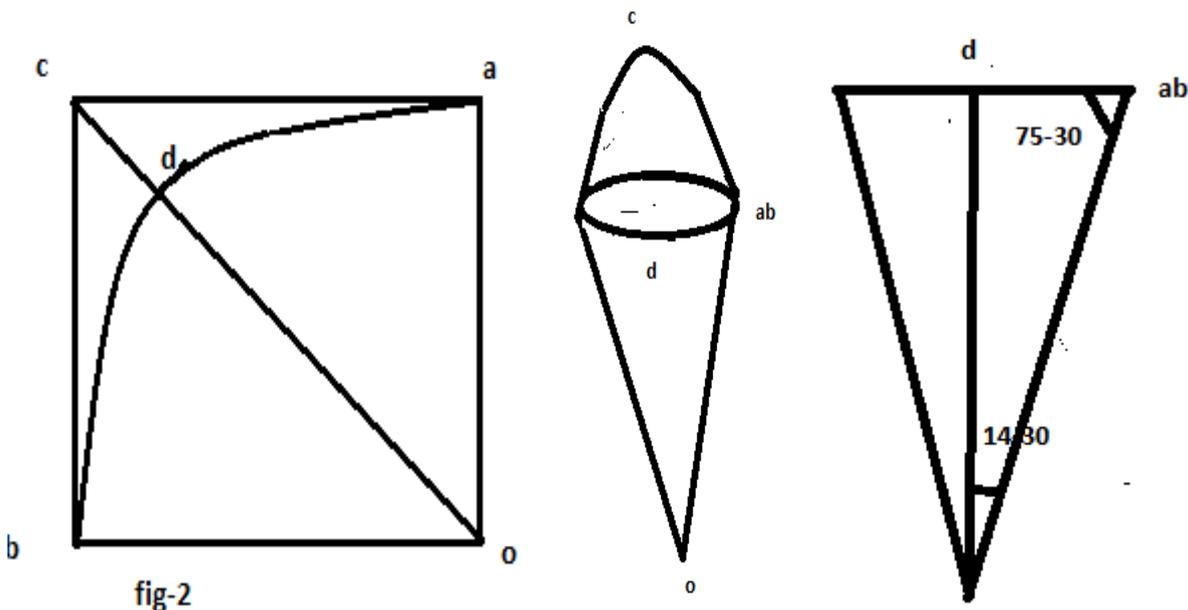


fig-2

Let a o b c be a square of unit length. Let the border a o twist via the 3rd dimension and kiss the border ob. The line o c being the diagonal of the square, the point d lies on the curve which joins the points a and b. So, a o and b o, once conjoined, completes our assignment. Our cone is ready!

We designate the generator of the cone o a of unit length. The curve a d b or the circumference is equal to;

$$\frac{90}{360} \times 2 \pi \times 1 = \frac{\pi}{2} \text{ units}$$

Now we have to find the radius of the circle: $2\pi r = \pi/2$ or $r = 1/4$ units. \Rightarrow dia= $1/2$ units.

So, the primary dimensions of the cone are:

slant length= 1 unit, the diameter of the base/ mouth = $1/2$ units:

If the slant length makes an angle of x° with the dia/ radius of the base, then

$$\cos x^\circ = 1/4 \div 1 = 0.25 \text{ implies } x^\circ = 75^\circ 30'$$

$$\text{And angle at the vertex} = 14^\circ 30'$$

To be very sure about my calculations, I twisted one myself from a soft square cardboard of side 16 cm.

But I felt that its shape was in no case symmetrical. The shape appeared bulged on either side of the diagonal of the plane. So, I filled it up with dry sand to allow it to shape up. Now the asymmetry was quite visible.

While one diameter measured exactly 8 cm the other one measured 9 cm. So, the mouth / base of the cone instead of being a circle turned out to be an ellipse with major axis measuring 9 cm and the minor one measuring 8 cm. This set me thinking but I soon realized that the two numbers presented me with an excellent opportunity to prepare the measuring tape of the Nature's geometrician. The primitive mathematics tells me that the fraction of the two radii is $8/16$ and $9/16$ when compared with the unit length. Nine is an odd number. Therefore, if the scale has to work, it should accommodate the conversion of the odd fraction as well.

By converting $9/16$ into its equivalent ratio, like $(9/16) \times (9/9)$ which is equal to $81/144$, I am in a position to propose the required scale. It appears that Nature's geometrician measures not in meters but in fractions which can be universally adopted. In this way I worked out the fundamental fraction which is equal to $1/144$. The lengths can now be converted into fractions as follows.

$$\text{Unit length} = 144/144 = 1$$

$$1/9 = 16/144; 2/9 = 32/144; 3/9 = 48/144 \text{ and so on.}$$

$$\text{Again } 1/8 = 18/144; 2/8 = 36/144; 3/8 = 54/144 \dots 8/8 = 144/144 = 1.$$

$$\sqrt{2} = 203/144.$$

Let me treat the number 300,000 which speed of light carries in kms. In case I filter this number, I get 299,952 which if expressed in kilometres can be standard speed of light.

But if we filter 300,000,000 the filtered number is 299,999,952 which if expressed in meters can be the standard speed of light. The difference shrinks to 48 meters.

Accepted rate is 299,792 km/s.

It is worth noting that 144 and 360 are related, as $(9 \times 8) 72$ is the HCF of the two numbers.

In order to make the things clearer, let me propose to construct a cone having the slant length

(side of the plane square) of 144×10^6 kms (1 A U approximately).

$$\text{Slant length} = 144 \times 10^6$$

$$\text{Major axis of the base} = (81/144) \times 144 \times 10^6 = 81 \times 10^6 \text{ kms.}$$

$$\text{Minor axis of the base} = (72/144) \times 144 \times 10^6 = 72 \times 10^6 \text{ kms.}$$

$$\text{Vertical axis from vertex to centre of the ellipse} = \tan 75^\circ 30' \times 1/4 = 0.9666 = 139/144 = 139 \times 10^6 \text{ km.}$$

This can only be a miniature version of the fusion reactor because the solar system is too big to entertain treatment by this toy model of the cone. But from these dimensions we can get an idea of the functioning of this fusion reactor. The natural asymmetry of the inner surface of the cone tells us that the velocities along the symmetrical and asymmetrical half portions are different in values. The velocity is faster on the symmetrical side which is capable of creating a drag and the attrition between the parallel streams of the gas flow, which must induce electrical charge of very high voltage rating. The static electricity in the ambience of low pressure and intense heat, in my opinion, created the appropriate conditions for the gas to roll up into a plasma ball, which in due course of time metamorphosed into our sun. **But the gas is not in the throes of the Einstein's $M = E/C^2$, ($E = MC^2$). There must definitely be some limit or speed barrier, imposed by the nature, which no particle can acquire in closed/ free conditions. I strongly feel critical fall in density tore apart atomic shells to trigger response.**

Not only are the physicists enamoured of the mass- energy equation proposed by Einstein but the art teachers and romantic intellectuals too are fascinated by its beauty. But I feel that the equation is *prima facie* incorrect. If darkness is designated as zero and brightness as one, both are absolute values and their very nature refuses them to be radicalized. Zero and one squared will refuse to budge and retain their primal values. Similarly, the value of C being absolute cannot be radicalized. Therefore, $C^2 = C$, $C^3 = C$, $C^n = C$. By his own admission, Einstein himself proposed or proved that nothing can move faster than the speed of light. If we compare this equation with the equation, kinetic energy = $\frac{1}{2} mv^2$ the comparison is intriguing. In mass- energy equation while the constant $\frac{1}{2}$ has been omitted, v has been replaced by C. The mass-energy equation appears to be a morphed version of the kinetic energy equation. I can't say which mathematical labyrinth Einstein negotiated to arrive at the result. But one thing is clear that in order to balance the equation dimensionally, he was compelled to square C. Therefore, squaring C was only a trick on his part to maintain the dimensional truthfulness of the equation. It is also possible that he worked in reverse order to build up his argument. It means that he first wrote the equation and then worked backwards to arrive at the theoretical proposition.

The speed barrier appears to me responsible for the fusion, which means creation of heavier particles as a means of slowing down of the gas flow. The great spinning and rolling of the solar reactor became orderly once the entire stock of hydrogen gas was sucked in by the reactor and ever since the sun has maintained the limiting values of the spin and the displacement. But the story of the solar system is still in the womb of the future. At this stage we cannot fix the position of the sun in the reactor. But we are on the true course to arrive at that position.

The following table, about the solar system in a rearranged form, has been prepared from the data available on the internet but verified by comparing the same with the D K Illustrated Family Encyclopaedia. As is evident from the table the planets have been serialized according to the density of each planet, which means that they have separated from the sun at different epochs. **But I have further improved the argument as we move on.**

Planet	Density g/cm ³	Dist from Sun (hyp, H)	Orbital Radius R	Cos α = R/ H	α
1 Saturn	0.687	1425 x 10 ⁶	886.28 x 10 ⁶	0.6219	51° 30'
2 Uranus	1.279	2880 x 10 ⁶	18783.64x10 ⁶	0.6193	51° 42'
3 Jupiter	1.326	780 x 10 ⁶	483.59 x 10 ⁶	0.6199	51° 42'
4 Neptune	1.638	4515 x 10 ⁶	2796.54x10 ⁶	0.6193	51° 42'
5 Mars	3.9335	225 x 10 ⁶	141 x 10 ⁶	0.6266	51° 12'
6 Venus	5.243	108 x 10 ⁶	67.27 x 10 ⁶	0.6228	51° 30'
7 Mercury	5.427	57.9 x 10 ⁶	35.62 x 10 ⁶	0.6151	52° 00'
8 Earth	5.51	150 x 10 ⁶	92.99 x 10 ⁶	0.6199	51° 42'

From the above table it is clear that the planets have separated from the sun at different points of time, regularly till it got rid of its fault lines.

Asteroid Belt

The equally fascinating episode that happened during this calamitous period was the formation of the Asteroid Belt. It is possible there was another planet situated in between the Mars and Jupiter. This planet in all probability must have broken up while cooling which supplied moons/satellites to Jupiter, Saturn on one side and on the other side, Mars two and Earth one. The remains of this planet is perhaps the proto-planet Ceres. The absolute spherical shape points it to be a very fast spinning celestial body in its earlier avatar.

The possible explanation I can offer is this hypothetical planet cooled down so fast that it got hermetically sealed forming a substantial crust. The core being extremely hot, in a liquid state and the planet spinning like a centrifuge with no possibility of heat getting released into space, the planet converted itself into a huge pressure cooker. In case the density inside was minimum 1.5 kg/m³ it became a recipe for great disaster.

As the planet spun fast the matter inside tried to synchronize its spin with the mother planet. It is evident the geometry of the sphere allows matter to be almost in a static frame at the center. But as we move up towards the circumference every layer accelerates till it reaches maximum level away from center. In this way a drag is created which tries to average the spinning velocity. This condition is ripe for centripetal force to suck in energy and supply it to molten matter. The heat created by drag resulted in shooting up temperature and pressure while outside absolute zero temperature was directing it to shrink. The cumulative resulted in a big-bang. The hard crust broke up to smithereens supplying rubble which created the belt of junk we call asteroid belt.

IV

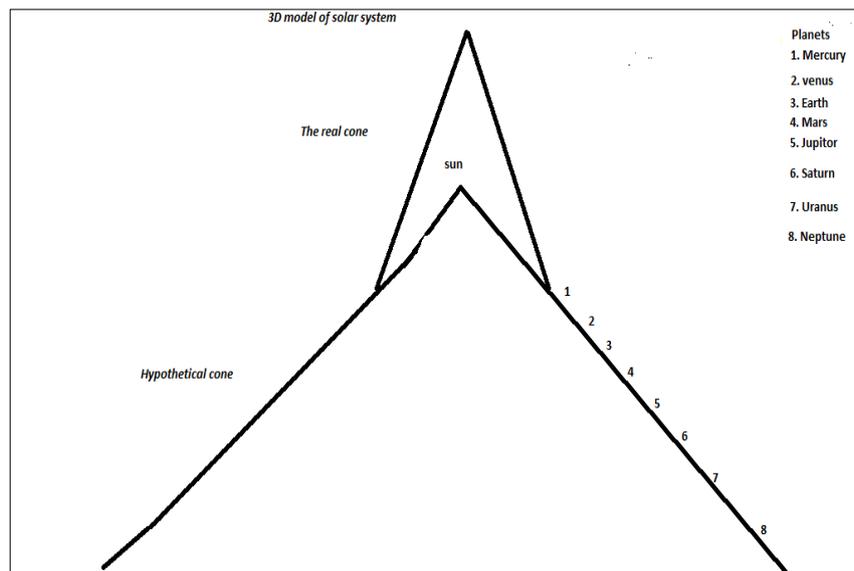
True to the geometry of the celestial cone there is a variation in the spinning speeds of the sun; the outer peripheral speed and inner core speed. The sun has shed portions of its mass due to the appearance of one fault line on its outer periphery. Once the fatigue, similar to what metals experience in long stress situations, reached the yield points in each case, the mass was separated from the parent body. The separated mass, once ejected, retained the dynamic parameters as were acquired by it at the point of separation.

So, we observe unique dynamic parameters in each case. The intriguing part of the story is that it appears as if the sun has a launching pad from where it has launched the planets at regular intervals at an angle of $51^{\circ} 30'$.

Now it is easier for us to construct the three- dimensional model of the solar system. The sun is in the fusion reactor. The angles at which it has launched the planets tells me that the sun is somewhere in the middle of the reactor. Let me fix the position of the sun in the reactor. Since all the planets are on the tangent line which makes an angle as shown above, means that tangent makes the angle of $51^{\circ} 30'$ with the minor axis. Let the sun be 'h' from the centre of the ellipse inside the reactor. Therefore:

$$h \div 1/4 = \tan 51^{\circ} 30' \quad \text{or} \quad h = 1.2527/4 = 0.3132.$$

since we have already calculated the length of the axis (from the vertex to the centre of the ellipse) which is equal to **0.9666**, means that the sun is exactly at 1/3 from the mouth of the reactor leaving perhaps 2/3 space for storing the helium.



So, we have the 3-D model of the solar system ready. There is a cone which houses the sun. The sun is situated at a distance of $\frac{1}{3}$ of the length of the axis, which connects the vertex with the centre of the ellipse. There is one more hypothetical cone on which rests the fusion reactor housing the sun.

The distances from the sun are measured along the outer periphery of the hypothetical or planetary cone. It is something like the sun being at the top of a conical mountain and the planets circling down below at different distances from the sun **except planet Mercury**. The travelogue of this planet has bluffed observers but no more. The cone makes an angle of $51^{\circ} 30'$ with the base. The sun is wearing a conical cap (base angle $75^{\circ} 30'$) which rests, not on its head but on the mountain cone in such a way that it leaves a hollow space whose dimensions can be calculated from the data now available with us. It is now for the astronomers to utilize the services of their powerful computers to reconstruct by reverse calculations the accurate solar model.

I shall limit the study to earth's orbit only because observations made are dependable. In order to arrive at the correct dimensions of the ellipse, I shall proceed as follows:

The velocity of earth in its orbit around the sun = 30kms/sec. (data available on internet)

Distance covered by the earth in one year = $30 \times 60 \times 60 \times 24 \times 365$ kms. = 946080000 kms
 $= 946 \times 10^6$ kms. Appx.

Let the earth move in a circular path; in that case the above distance represents the circumference of the path.

Therefore, if r is the radius of the circle, then $2\pi r = 946 \times 10^6$ or $r = 150 \times 10^6$ kms. (Approximately.)

This gives us an idea of the vicinity within which the lengths of the major and the minor axis lie. Keeping in view the constraint of sticking to 9: 8 ratios, a few hits and trials gave me the correct dimensions of the two axes.

Mercifully, I have the ratio 9:8 at my disposal.

After many hits and trials, I fixed the length of the Semi-major axis equal to 158×10^6 kms. The semi-minor axis worked out equal to 141×10^6 kms. I will not verify the ratio but leave it for the students to prove that the exact ratio is 9: 8.031. The beauty of this ellipse, I must say is breath taking. Imagine Helen of Troy, a would be mother half way through her pregnancy, standing on the balcony watching the full moon rising from the sea and her philanderer observing her from a balcony 10^0 off the parallel. The beauty of the curve in proportion to the imagined background monotony, is a breath- taking sight.

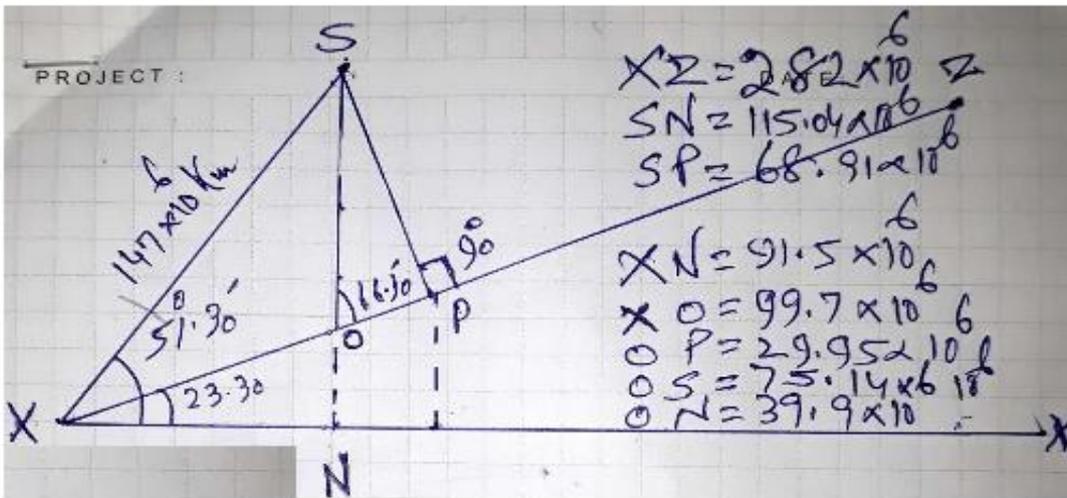
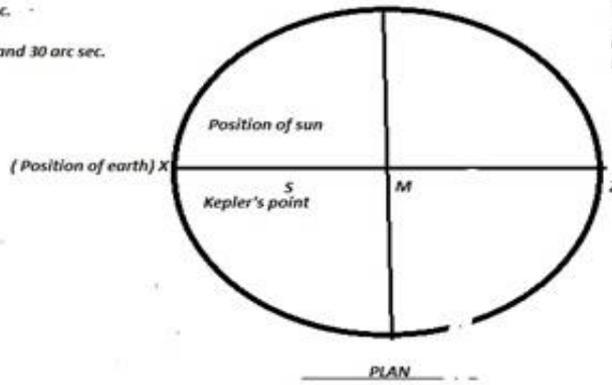
Next, we calculate the perimeter of the ellipse

Perimeter of the ellipse = $2\pi \sqrt{[(158 \times 10^6)^2 + (141 \times 10^6)^2]}/2 = 940.116 \times 10^6$ kms. When we compare this value with the distance covered by the earth in one year (946×10^6) the margin of error is almost negligible.

In this way we have constructed the ellipse or the path on which the earth goes around the sun. Imagine that the path is parallel to the plane of the sun. In that case the sun will be located somewhere in the space, but approximately 1 AU from the point of inflection of the major axis. If we lift this entire ellipse from the right tip of the major axes while keeping the left tip.

- A. Speed/velocity of Earth 30Km/sec.
- B. Ratio of major:minor axis::9:8
- C. Angle of elvation at X=51degree and 30 arc sec.

Semi Major Axis: 158 million kms
 Semi Minor Axis: 141 million kms
 Note: The earth subtends an angle of 52 1/2 degrees with the sun at point X



Anchored at the left tip through an angular displacement of $23^{\circ} 30'$, the sun's position will shift. Let us calculate the position of the sun in the changed circumstances.

As shown in the figure (elevation), S represents the position of the sun. X is the position of the earth at the point of inflexion. Its minimum distance from the sun is 147×10^6 kms. The earth is at an elevation of $51^{\circ} 30'$ parallel to the plane of the sun, as already calculated above. Since the earth's path subtends an angle of $23^{\circ} 30'$ the minor axis XZ' goes through the angular displacement and XZ is the actual locus of the earth. The projection of the sun on XZ' at N shifts to P. Point Z represents the aphelion point on the locus.

In triangle, SXN, $SX = 147 \times 10^6$ Km. Therefore, $XN = 147 \times 10^6 \times \cos 51^{\circ} 30'$

$$\text{Or } XN = 91.5 \times 10^6 \dots\dots\dots (1)$$

$$SN = 147 \times \sin 51^{\circ} 30' \text{ implies } SN = 115.04 \times 10^6 \dots\dots (2)$$

In triangle XON $XN/OX = \cos 23 30$ or $OX = 91.5 \times 10^6 / \cos 23 30$

$$OX = 99.77 \times 10^6 \text{ Km} \dots\dots\dots (3)$$

$$ON = 91.5 \times 10^6 \times \tan 23.30 = 91.5 \times 10^6 \times 0.4348 = 39.9 \times 10^6 \dots\dots(4)$$

$$SO = SN - ON = 115.04 \times 10^6 - 39.9 \times 10^6 = 75.14 \times 10^6 \dots\dots (5)$$

In Triangle SPO, $SP = SO \times \sin 66.30 = 75.14 \times 10^6 \times 0.9171$; $SP = 68.91 \times 10^6 \dots(6)$

$$OP = 75.14 \times 10^6 \cos 66.30 = 75.14 \times 10^6 \times 0.3987 = 29.95 \times 10^6 \quad (7)$$

$$XZ = 282 \times 10^6$$

$$PZ = XZ - XO - OP = 282 \times 10^6 - 99.77 \times 10^6 - 29.95 \times 10^6 = 152.28 \times 10^6 \dots(8)$$

$$SZ = \text{Root of } (68.91)^2 + (152.28)^2 = 166.65 \times 10^6$$

Aphelion in elevation is 167.11×10^6 Km

As the narrative moved on, analysis of NASA fact sheet data revealed that the sun developed a fault line when its density reached 568 kg/M^3 or less. At this point it ejected matter which cooled to become first planet-Saturn. Next Uranus and Jupiter left. Then other planets left. I can't say in what order but the table below speaks for itself.

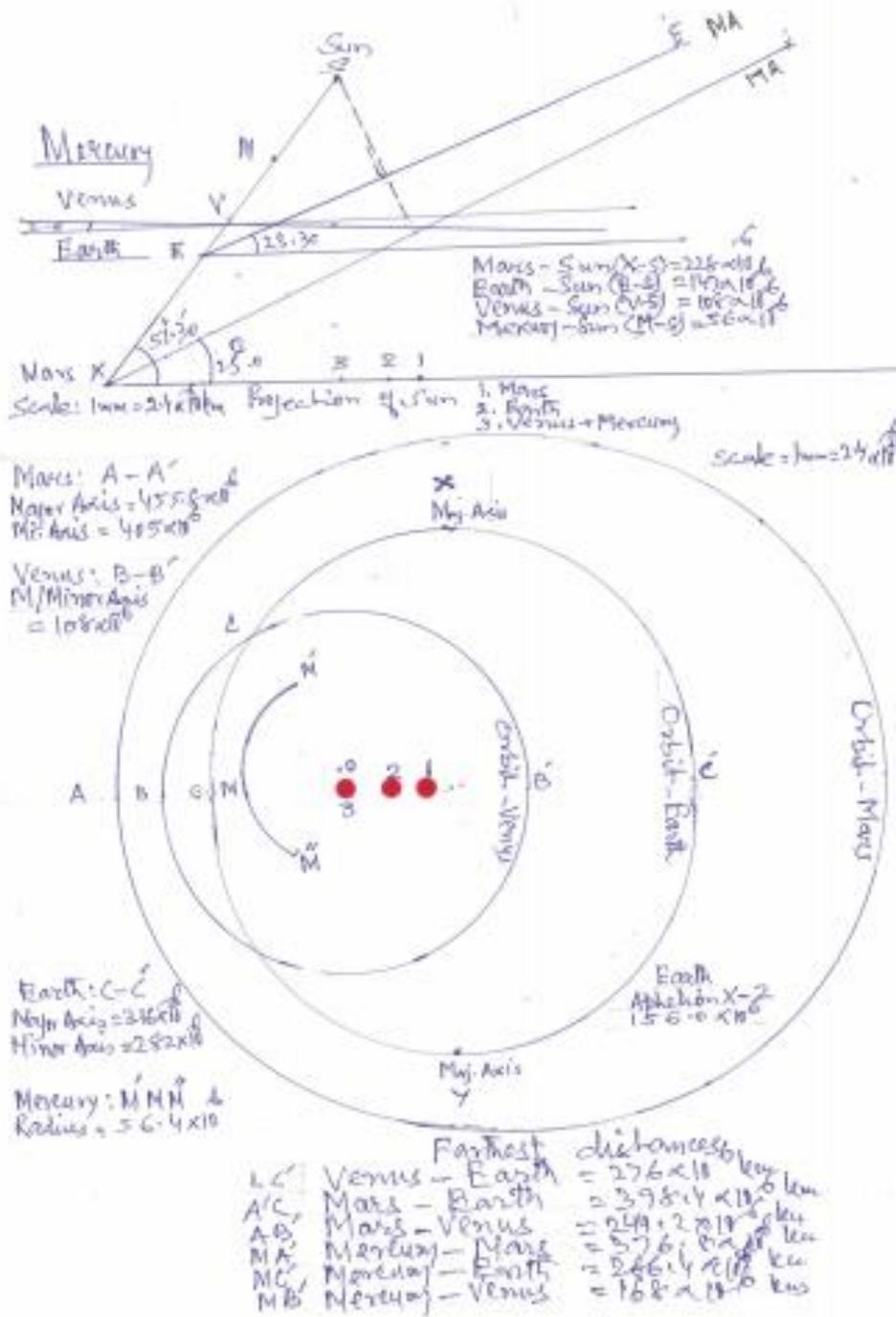
Planet	Birth radius	Present radius	Birth density	Present density	Shrinkage
Mercury	3800.7	2439.5	1408 Kg/M^3	5427 Kg/M^3	35.81%
Venus	9380.6	6052	- do -	5243 Kg/M^3	35.5 %
Earth	10204.8	6378	- do -	5514 Kg/M^3	37.5%
Mars	4893.6	3396	- do -	3933 Kg/M^3	30.6%
Neptune	25804	24762	1408 Kg/M^3	1638 Kg/M^3	4.0 %
Pluto	1481	1185	- do-	2095 Kg/M^3	20.0%

The radical improvement in density was possible only after a near collapse happened. The rapid cooling of the outer surface might have resulted in the initial shrinkage. Since the volume shrunk, crowding of matter generated more heat. This resulted in creation of metals. The inner core of all these planets is just oceans of molten mixture of metals.

V

I sum up the scenario as follows:

3-D Mathematical Modal of Solar System



Imagine a mace; its head the Sun and the shaft- long, very long inclined to the ecliptic plane at $51^\circ 30'$. All planets are tied to this shaft one way or the other. It is this uniting tickle, if I

may use the phrase which makes the sun carry entire stuff in its yard to move around the galaxy on a path whose curvature I have calculated.

The orbital paths of Mercury, Venus, Earth and Mars have been plotted to scale. All distances are available on the A-4 sheet. The perihelion of Earth is measured from major-axis as shown.

The farthest distances are given as under:

Venus – Earth $LC' = 276 \times 10^6$ Km

Mars – Earth $A'C = 398.4 \times 10^6$ Km

Mercury – Mars = 376.8×10^6 Km

Mercury – Venus = 168×10^6 Km

Radius of Mercury path = 56.4×10^6 Km

Mercury, as is shown has three positions. Maximum & minimum distance from the sun as also the distance from other planets say earth.

1. Maximum distance from Sun = 69.7×10^6 Km
2. Minimum distance from Sun = 46.0×10^6 Km
3. Minimum distance from Earth = 77.3×10^6 km
4. Points X, M, Y have a centre at O.
5. The radius of the curve is 56.4×10^6
6. The curve generates angle 128° at the centre O.
7. The distance covered by planet on the curve is 126.6×10^6 Km. Total distance covered in 88 days is 253.2×10^6 Km.
8. Earth Major Axis = 316×10^6 Km ; Minor Axis = 288×10^6 Km

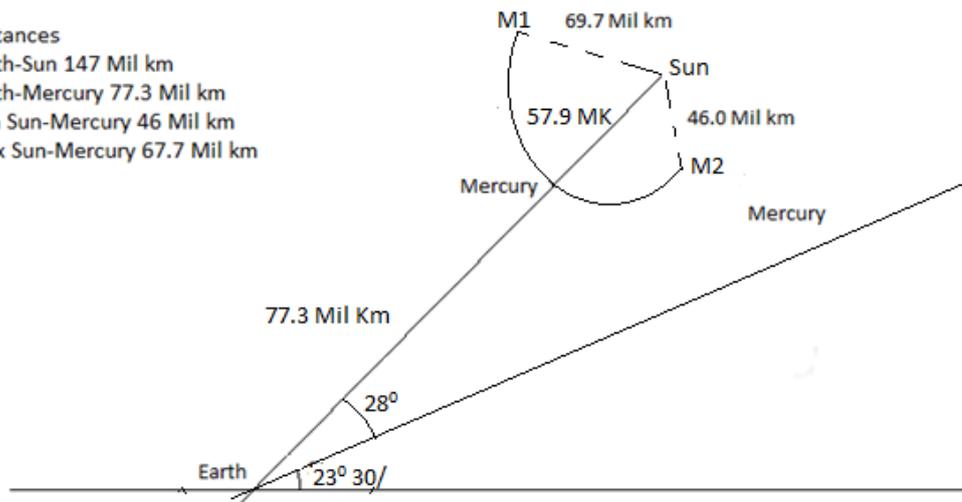
Mercury Regression

The observations made by astronomers has bluffed them to the extent that it became like Sphinx Riddle. But as Francis Bacon in his essay on the topic says:

Sphinx is a metaphor for science; monstrous to the ignorant and unskilled.

Not to Scale

Distances
 Earth-Sun 147 Mil km
 Earth-Mercury 77.3 Mil km
 Min Sun-Mercury 46 Mil km
 Max Sun-Mercury 67.7 Mil km



These three points lie on a curve as explained earlier. So, its path is governed by a point in space while the radius calculated by me is 56.4×10^6 Km. its path is restricted to $M' M M''$. Its orbit is restricted. Once it covers 128° it makes a U-turn at M' and again at M'' .

So, instead of covering 360° it covers 256° only. Now the question is: Why does it reverse its direction periodically.

NASA probe to Mercury found to the surprise of scientists that it is a magnetic di-pole. It means it has two poles say like a permanent magnet; N-pole, S-pole. In 1974 Mariner 10 discovered this property of the planet. The origin of this phenomenal characteristics became a subject great debates and wild theories were advanced. Dynamo theory is one such theory. I have already stated that Mercury like other denser planets experienced collapse which in case of Mercury core turned into iron with magnetic property. As matter became denser and denser so did orderliness of magnetic molecules happen? In literal sense it means approaching a state of order or absence of conflict. In scientific sense it means magnetic molecules approach maximum entropy level. Since there is a time interval between the births of the two planets explains why the magnetic strength of Earth is improved when compared with Mercury?

But the Sun too has a high magnetic strength. It is a spherical magnet with high polar strength. It seems to have same pole image as that of the Mercury. Therefore, when Mercury was ejected, it chose its centre for orbital motion which I have measured to great accuracy. As it started on its chosen path, it clocked 128° but experienced a fire wall made a quick U-turn and continued in moving reverse direction till it reaches point Y and here the similar but more powerful magnetic pole strength of the Sun sent it back. At point Y, it is 46×10^6 Km from the Sun. In return journey it covers 128° and is 69×10^6 away from the Sun where the

magnetic strength of the Sun sends it back. So, it travels to and fro like a Foucault's pendulum and while maintaining its proximity and distance from the Sun constant because the radius is fixed, it enjoys the liberty like a pendulum enjoys. **Hence the Retrograde observation!**

The Earth Dialogue which forms the essential part of this narrative shall be uploaded after I complete it. The Earth dialogue is meant for young students to make them understand that a moving frame in space which is not accelerating has zero gravity because its entire rest momentum has been converted into dynamic momentum. But the passengers of the moving frame; animate or inanimate have conserved velocity vector which they utilise at the time of free fall.

The session 4 will come up on 15th Nov 2020 hopefully.

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