From the desk of Pierre Beaudry

PART I
MIND AS A MATTER OF POWER OVER THE UNIVERSE

by Pierre Beaudry, class with Montreal LYM from June 5, 2009 to July 25, 2009

"…God created and bestowed vision upon us so that we, contemplating the orbits of intelligence in the heavens, might put them to use by applying them to the orbits of our reason, which are related to them…?"

(Plato, *Timaeus*, 47b)

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INTRODUCTION

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The purpose in building a planispheric astrolabe is not to study the stars per se, but to study the human mind. When you map the heavens onto a disk, you are not just mapping the stars; you are actually mapping the processes of interaction between your sense perception of the universe and the human mind. You are creating a new universal being inside of your being which is a composite between the deceit of your sense perception and the truth of universal physical principles. In reality, what that effort of investigation comes down to, is to establish *the mind as a matter of power over the universe*, as a matter, like Shelley said of Poetry, that "adds beauty to that which is most deformed; it marries exultation and horror, grief and pleasure, eternity and change; it subdues to union under its light yoke, all irreconcilable things." (*A Defence of Poetry*)

So, this brings up two questions for you. The first is: how can we demonstrate Plato's hypothesis about vision in *Timaeus*, when he said: "…God created and bestowed vision upon us so that we, contemplating the orbits of intelligence in the heavens, might put them to use by applying them to the orbits of our reason, which are related to

them…?" (Plato, *Timaeus*, 47b) And the second question is: how can we consider Poetry, as Lyn emphasized many times, to be the best-suited means to answer that first question, as opposed to mathematics?

First then, how can we compare the human mind with the sphere of the heaven? How are they similar? How are they different? Are we dealing with some visual similarity, or some sort of analogical construct? Why is it, for example, that when we map the sphere onto a plane, as in the case of an orange, we cannot physically do it without making a mess of things? Yet, when Hipparchus mapped the stars of the night sky onto a plane disk, he succeeded? Why? What is the difference?

Hipparchus of Nicaea (active 161-126 BC) succeeded in mapping stars onto a plane because he was mapping an ordering principle onto the human mind. And, it is only by doing that that he was able to solve the paradox of the spherical surface and the plane. So, not only Hipparchus did like Prometheus who robbed the gods of their fire, but he also did as Shelley said of Poetry:

> "All things exist as they are perceived; at least in relation to the percipient. 'The mind is its own place, and of itself can make a Heaven of Hell, a Hell of Heaven.' But Poetry defeats the curse which binds us to be subjected to the accident of surrounding impressions. And whether it spreads its own figures curtain, or withdraws life's dark veil from before the scene of things, it equally creates for us a being within our being. It makes us the inhabitants of a world to which the familiar world is a chaos. It reproduces the common universe of which we are portions and percipients, and it purges from our inward sight the film of familiarity which obscures from us the wonder of our being. It compels us to feel that which we perceive, and to imagine that which we know. It creates anew the universe, after it has been annihilated in our minds by the recurrence of impressions blunted by reiteration. It justifies that bold and true word of Tasso: *Non merita nome di creatoren se non Iddio ed il Poeta.* (No one merits the name of creator except God and the Poet." (Percy Bysshe Shelley, *A Defence of Poetry.*)

So, with this in mind, let's have a look at Hipparchus and see how he was able to map 1,026 stars onto a sphere.

1. **HOW HIPPARCHUS MAPPED 1,026 STARS ONTO A SPHERE**.

Let me give you a little historical background to this Hipparchus discovery. The initial astrophysical observations of Hipparchus at the observatory of Rhodes during the middle of the second century BC, involved the mapping of stars onto a sphere and the mapping of that sphere onto a plane disc. That

discovery became part of a French tradition of popular astronomy that Francois Arago had kept alive after the Napoleonic demise of Monge and Carnot at the Ecole Polytechnique, and which Charles Davies initiated at the West Point Academy where he taught that same subject for a period of about fifty years in the United States, right after the American Revolution.

What Hipparchus had done, from his observatory in Rhodes, at about 150 BC, was to create a large cardboard sphere representing a miniature copy of the celestial sphere on which he mapped all of the stars that he could see. The key was to establish a method of {*measuring the angular distances between stars*}

He started with Sirius, the brightest star in the night sky, which became both his starting point and his reference point to determine the rest of the stars. He first plotted Sirius arbitrarily anywhere, because, on any give sphere, any point is fully determined as the center of that surface. Then, he took a second star, Rigel, whose angular distance of 20º from Sirius he measured with some sort of portable angle-sighting device.

Hipparchus, then, opened his compass by an angle of 20º and traced a circle around Sirius as the center. He knew the location of the second star would be determined precisely on that circumference, but its exact location on that circle could not be identified. So, he decided on a definite perceived position, somewhere on that circumference, anticipating that it would be made definite only by locating a third star. The position of Rigel appeared to be arbitrary, but less so than the choice of the apparent position of Sirius had been.

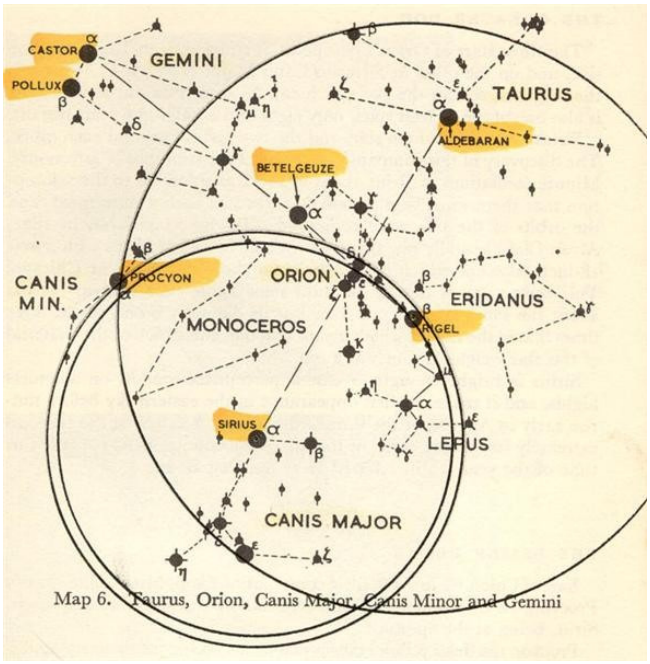


Figure 1. The Hipparchus method of plotting Sirius, Rigel, and Procyon by angular measurement.

His next move was to locate a third star, which was observed at 22 degrees from Sirius, and 30 degrees from Rigel. Here, there were only two possibilities and one of them had to be the location of Procyon. From that point on, everything else had to be precisely determined as if into situations of locked-in position, so to speak.

Thus, the position of any star was entirely determined by this construction of a triply-connected angular positioning, and Hipparchus obtained similar results when he chose to triply connect a fourth star, and so on, subsequently, until he came back to Sirius, 1,025 stars later. Now, what is the mental process involved, here? Look at his mind. What is Hipparchus doing? He is developing a process of determination from the less determined to the most determined power of a triply angular connected dynamic. What is the significance of that process? What does that process tell us about the behavior of the mind? He is establishing the boundary conditions of change in his astrophysical observation entirely by means of a triply connected angular measurement.

Thus, Hipparchus established a new form of self-bounding determination in a finite universe. He was throwing out the absurd Aristotelian illusion that the so-called fixed stars of mere sense perception were hanging from a series of fixed great circles on a sphere; and he was replacing it with a completely new dynamic idea of connecting heavenly bodies by projecting their angular distances that permitted change of position among them, including precession. This was done by means of a solid (*stereo*) conical projection that was capable of solving the paradox of incommensurability between the sphere and the plane.

The higher conical projection of the solid domain (stereography) was solving problems that the lower domain of surfaces could not solve. This was also a total rejection of the Euclidean outlook of his time, by proving that the higher dimensionality of the Solid Locus could solve problems that the Plane Locus could not solve. This is a nice reflection in the simultaneity of eternity with the Riemannean idea whereby you can only solve the paradox of a lower manifold by introducing a higher dimensionality. The new dimensionality was that of the solid geometry, or stereogeometry of Archytas and of Plato.

By measuring the precise angular distances of 1,026 stars, Hipparchus had also invented what Leibniz later called *analysis situs,* or geometry of situation. You should also know that the very first lesson that Gaspard Monge gave on January 20, 1795, at the Ecole Polytechnique, was entitled "*How to Determine a Point in Space,*" and he had used this very same Hipparchus method for his synthetic geometrical construction.

Once he had mapped all of the 1,026 stars on his sphere, the easiest part of the Hipparchus investigation was finished. Then, the difficult part began. How was he going to map these stars onto a circular plane disc and thus, invent the astrolabe? He replicated the same angular projection onto a plane piece of cardboard. The circles were not of the same size, but the same angular proportions interconnected them all. Low and behold, both angular compositions, plane or spherical, perceptual or mental, were different and

similar at the same time. *The stereographic projection was maintaining the same analog proportionality of angles between the azimuth and almucantar circles.* Hipparchus had discovered a way to defeat, as Shelley later said, "the curse which binds us to be subjected to the accident of surrounding impressions."

2- HOW HIPPARCHUS PROJECTED THE TWO HALVES OF A SPHERE ONTO A PLANISPHERE?

Just to give you a sense of how he constructed his model of the celestial sphere, consider the following five steps constructed by the British astronomer, W. Schroeder, and that I sent you by email. Take the first illustration of Schroeder's *Practical Astronomy* (Schroeder 1), and examine the projection closely because you are going to need to internalize that stereographic method dynamically into your mind.

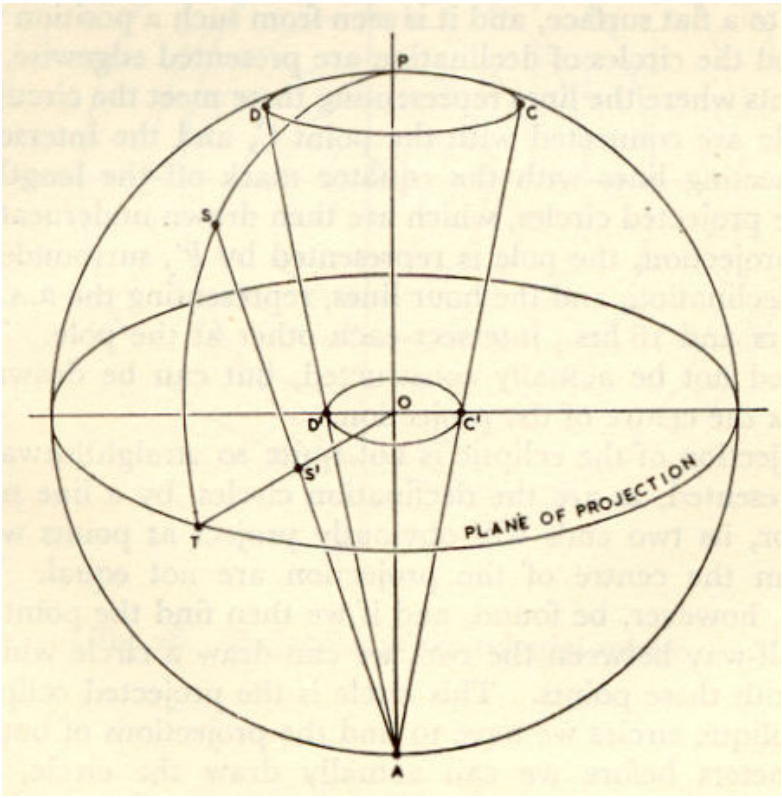


Figure 2. The stereographic projection. (Schroeder)

The principle of the Hipparchus stereographic projection is very simple at first, until it meets with a paradox for the sense perception of vision. Everything which lies on

the surface of the Northern hemisphere, like point S, can be projected downward from the South Pole A onto the Equatorial Circle, or the plane of projection. All of the harmonic proportions are maintained because angle SAP is the same as S'AO.

The most fascinating aspect of the Hipparchus projection was to determine how to map both hemispheres onto the same Equatorial Circle. (See Figure 2) How can Hipparchus map the Southern hemisphere when there was only room for the Northern hemisphere? The answer was not obvious and required some serious thinking and consideration. At a certain point, however, he must have said to himself: "If there is not enough room inside of the Equatorial Circle of the universe, I will then have to find more room outside of the universe." This is when Hipparchus discovered that he could solve his problem only by having the conical projection from the South Pole extend outside of the sphere of the universe. Now, that was quite a bold and provocative idea, a paradoxical idea, but it worked. The discontinuity was resolved. The southern hemisphere was going to be mapped, in a continuous manner, onto the equatorial circle portion that extended outside of the portion taken by the northern hemisphere. The sphere stays the same, but the plane of projection must double in size. How can this be done?

Here, the Aristotelians must have been screaming their heads off at the news of that discovery: "NO! THIS IS IMPOSSIBLE!" I can also easily imagine Hipparchus joking with his friends and collaborators about this new conception by saying: "So what! If it's impossible, it's probably the only thing to do." And so, the discovery was created with this incredible irony whereby the astronomer was allowed to go outside of the universe, but only under the condition that he did not have enough room for sense perception inside of it. That was a typical Platonic way to think about the universe as being unbounded, as long as it remained finite. Next, consider Figure 3.

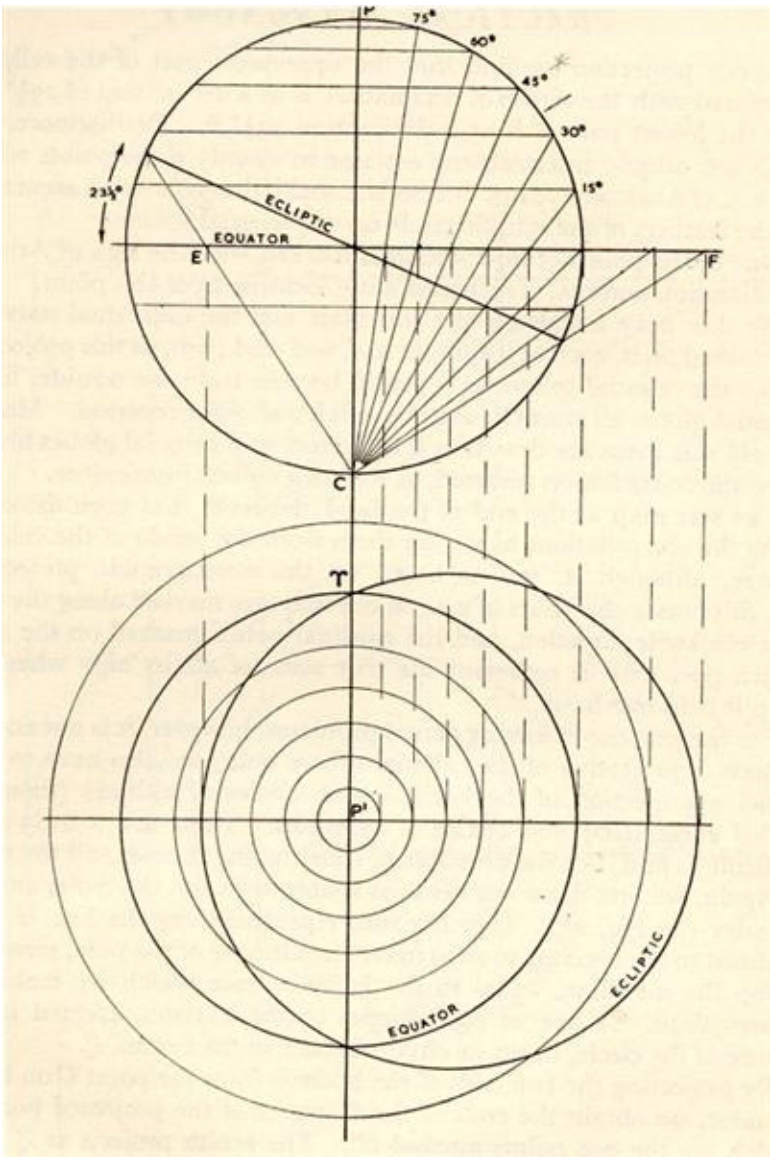


Figure 3. Projection of the celestial sphere (Schroeder)

In Figure 3, the source of projection is at C, from which you may project any point on the surface of both Hemispheres. The points of the Northern hemisphere are projected down onto the inside of the Equatorial Circle, and the points from the Southern hemisphere are projected upward and outside of the sphere of the Universe, onto the extended Equatorial Circle. Voila! The impossible has been achieved!

However, note that the projection of the circles parallel to the equator (almucantars) from the Northern hemisphere is centered along the axis of the sphere, but that is not the case for the circles projected from the Southern hemisphere. The projection of the Ecliptic shows that clearly, for example. The northern portion of the Ecliptic Circle is shortened and projected inside, while the southern portion of the same Ecliptic Circle is extended and projected outside. As a result, the center of that circle is no longer on the

axis of the sphere, but at some significant angular distance from it on the diameter of the Equatorial Circle.

Now, I want you to start this construction for your cardboard astrolabe, using a sphere whose diameter is in proportion with the diameter of your table of the Astrolabe. I recommended three different diameters: a Table of 41 cm, a Rete of 36 cm, and a Celestial Sphere of 22 cm. But, if those figures were too big for your compass, transpose the same proportions onto a smaller size. I also recommend a good set of Compass + extension and divider, like the German made Charvoz which is a very fine instrument that I have been using for over 40 years.

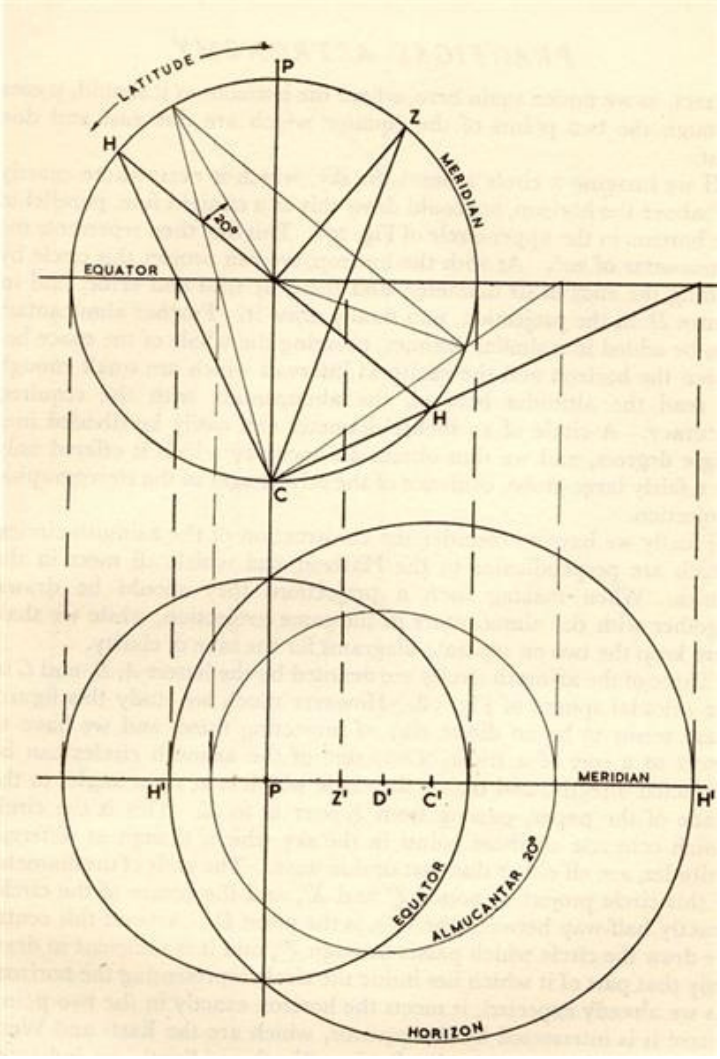


Figure 4. Projection of the horizon and almucantars and the Zenith point (Schroeder)

Figure 4 shows the crucial discovery of the Zenith point and an almucantar parallel to the Horizon of your position of observation. This invention is quite genial, because the Zenith is a point that does not exist on the Sphere of the Universe, but that the observer creates and projects up in the sky as a reflection of his own personal

location. This is the point that marks the latitude of your observation, and from which all of the almucantars and azimuths will be centered and projected. At this point in the construction, this Zenith function should appear to you as demonstrating that the entire discovery process of the astrolabe is subjective and not objective.

Moreover, this non-existing point in the heavens is not merely a reflection of your subjective location, but also, even more importantly, it is a reflection of the power of your mind over your perception of the universe. Thus, with the triply connected angular projection of 1) triply angular distances between stars, 2) the double angular mapping of the Northern hemisphere and the Southern hemisphere, both internally and externally, and 3) the singular creation of the Zenith function you have generated "a being within your being" in accordance with the principle of a self-bounding and finite universe. Now, apply a similar triply connected angular function to the orbit of Ceres and you will also discover the principle that lay hidden behind the Gauss discovery of Ceres.

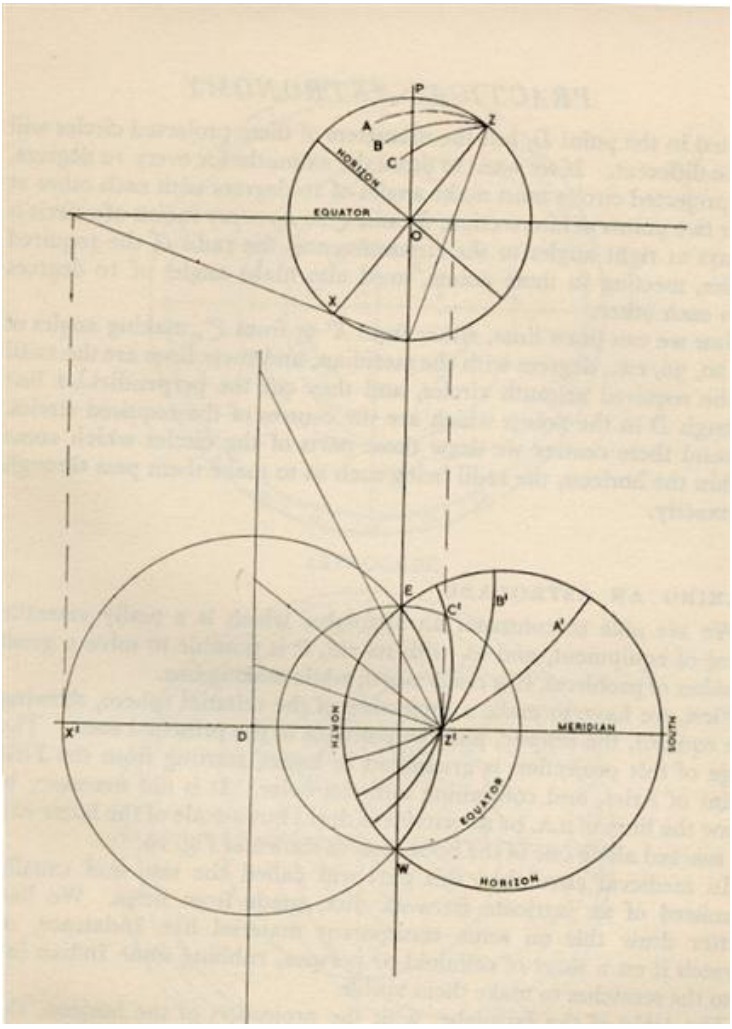


Figure 5. Projection of azimuths (Schroeder)

However, if the projection of the almucantars does not represent a problem, the projection of the azimuths may pose a difficulty (See Figure 5). If the almucantars are generated by orthographic parallel projection, you will easily discover that the azimuths are not projected in the same fashion. For example, ask yourself: why are circles A, B, C in the sphere inverted as C', B', A' in the plane?

What is made visible in Figure 5 is that the azimuths are transformed onto the plane by an angular projection. In reality they are generated by the same angular projection in the sphere as in the plane. What you are looking at, in the plane, is merely the transposition of the same angles. In other words, you have transposed the spherical view onto the plane with the same angular change of the solid domain.

This subjective Zenith-centered nesting of almucantars and azimuths is the high point of the entire discovery of Hipparchus. This is the solution to the paradox of peeling the orange and spreading it over the plane. This is also where you discover that it is the pure power of your mind which establishes the non-existing Zenith projected onto a non-existing Sphere, as the central axis that shall make everything proportional in the universe as a whole. Here, Hipparchus succeeded where everybody else had failed, because he had discovered a way to make all of the angles of the plane become completely proportional with those of the sphere.

It is through the creation of this Zenith function of proportionality that the idea of stereography came into full bloom in Hipparchus' mind. That is what demonstrates the real power that the human mind had over the physical universe. Once you have relived that process, and have completed the construction of the astrolabe, you have acquired the right to say that the universe is yours, and that you can do with it as you wish, because you can identify, as you wish, the position of any star at any time, as if in the simultaneity of eternity.

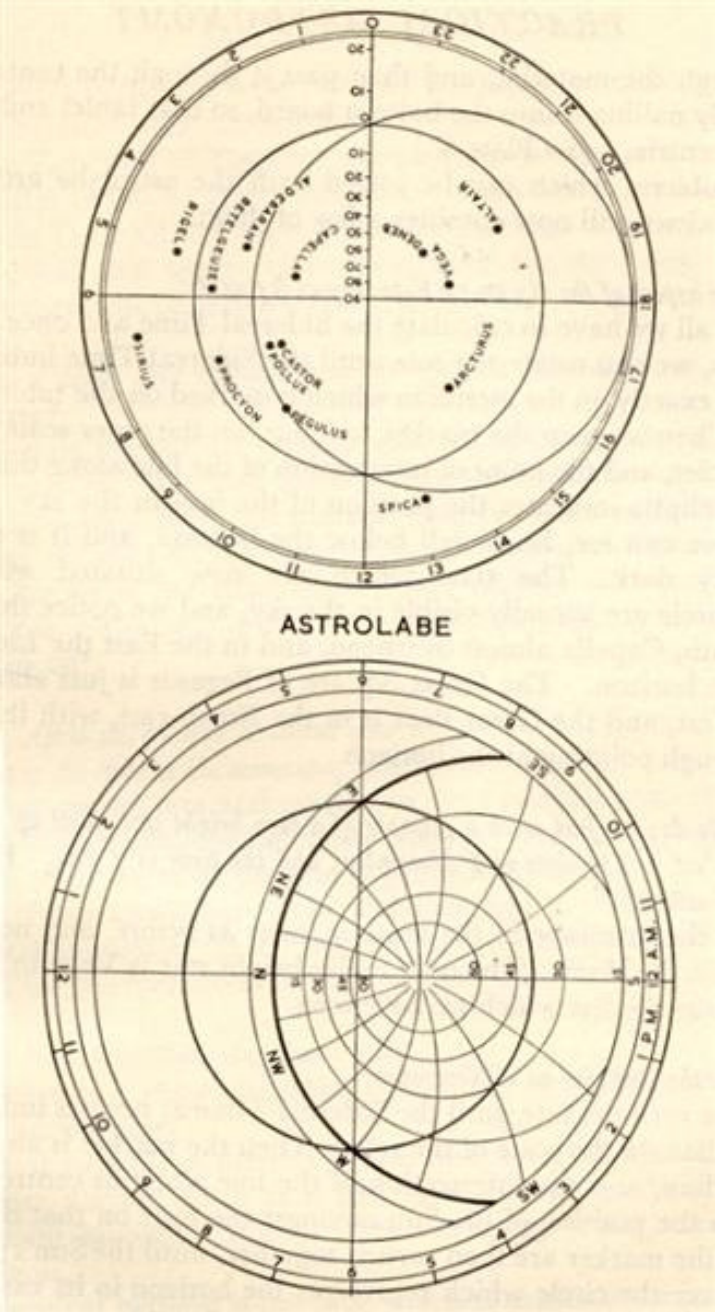


Figure 6. Rete and tablet of the astrolabe. (Schroeder)

In Figure 6, the projection shows the finished product of your astrolabe. What remains to be done is to join the two main parts, the Rete and the Table, by means of a central pivot to which a rotating Alidade pointer will be attached later. The top Rete shows the stars to be plotted around the North Pole located in the center of the disk marked with the 12 hours of the day and 12 hours of night. The bottom Table shows the division between night (right) and day (left) with the horizon of your observation separating the two on a larger disk showing the 24-hour division of the heavens. The

Table's fixed horizon determines the physical limit of your astrolabe and of your local observation. In other words, your nightly observations are enclosed within the dark circle identifying the northern limit by E, NE, N, NW, W, and the southern limit of the rim circle of the Rete identified by SW, S, SE. Both the North-South Pole axis and the Zenith-Nadir axis are measured along the same meridian of your observation, that is from:

Longitude 73º West and Latitude 45º 68' North for Montreal.
Longitude 74º West and Latitude 4º00 North for Bogotá.
Longitude 77º 56' West and Latitude 39º North for Leesburg.

Finally, if, by the time you have reached this point, in your construction, you have not experimented the true power of your mind over the universe; that is to say, you have not discovered the power of locating any star that you wish to discover in the entire universe with respect to your own position; then, without any further hesitation, start the entire process all over again, and repeat it until you have reached that point of total confidence in your mastery of the universe. Otherwise, if you should have failed, then, do what I do when I search for a location on a Subway Map. Concentrate your attention on the spot where it is written, "YOU ARE HERE," and ask yourself:

"HOW THE HELL DO THEY KNOW?"

FIN

PART II
MIND AS A MATTER OF POWER OVER THE UNIVERSE

June 12, 2009

3. CONSTRUCTING THE SENSE-CONCEPTION OF THE ASTROLABE.

With the astrolabe of Hipparchus, humanity has taken the bold step away from sense-perception and has entered the domain of what can be called sense-conception. That is to say, the astrolabe was the first universal astrophysical instrument to demonstrate that the sense-perception view of the universe is a complete fallacy, and that only a sense-conception could give a truthful view of the universe. The astrolabe usefulness, therefore, lies in the fact that it establishes a fundamental difference between shadows and the source of light that produces those shadows. This is an important distinction that Lyn keeps making for the benefit of those among us who are looking for ironies in the universe.

Irony, thus, represents the currency of the Platonic sense-conception domain, because the failure to discover its true value, through sense-perception alone, demonstrates not only our attachment to money as the basis of our worldview, but also feeds into the designs of thoughtless imperialism. In substance, the design of the Hipparchus astrolabe is anti-imperialist and anti-Euclidean in character for that very reason that it generates ironies. Remember that irony works like credit: it creates more wealth than what you require for your own existence. People obsessed with the idea of money don't understand that. This is why irony must replace money in terms of value in society, because only irony is capable of increasing potential relative population-density.

So, in that sense, this Hipparchus project is also aimed at helping to eliminate the idea of a money system internationally and at replacing it with a credit system. That is why I would like to have the LYM of Canada, of Columbia, and also eventually of the Philippines, do this sort of poetic project. That would cause the entire world to go

through a real physical change from sense-perception to sense-conception. Now, let's venture onto the difference between the shadows and the principle that cast those shadows. In case you thought the construction of the astrolabe was merely a "practical" instrument, I remind you the warning that Lyn gave recently on the subject:

> "Therefore, when I hear the sententious utterance of the word "practical" in the name of policy and politics, I shudder at that chill I feel crawling up my back, as I glance at the fanaticism in the eyes of that speaker. What can I say, then, which might give honest reassurance to those children who might find a chill running, shuddering up their spines, if they sense that they might be the victims of having heard that speaker's malicious intentions? "Who," those children might ask themselves, "is that whom I sense might be soon walking on my grave?"" (Lyndon H. LaRouche, Jr., *The Substance of Tensors: The Ontological Matter,* May 21, 2009 LPAC.)

The purpose of sense-conception, therefore, is not practical. It's real. Its purpose is to explore the experience of the internal relationship between sense-perception and the powers of human cognition. Let us, then, investigate how the senses and the mind reflect the internal dynamics of interaction between those two domains.

4- THE SINGULARITIES OF THE DODECASPHERICAL PARTITIONING.

Now, with this in mind, look at the characteristic stereography of the sphere as a mental object that goes back to the Egyptian time of the Great Pyramid, that is about 3,400 BC. From that time, the sphere has been divided into 360 degrees with 12 great circles generating 24 intervals of 15º degrees each. Thus, in physical space-time, 15º represent one hour of apparent celestial rotation, and consequently, a celestial hour of astronavigating ocean travel.

That partitioning of the sphere into twelve circular arcs was based on the astronavigators' knowledge of the equinoxes that divide the 12 month-year in half, as well as the 24 hour day into two equal 12 hour periods. Interestingly enough, all that is required for the construction of those divisions are two triangles that are derived from 4 of the 5 Platonic Solids, none of which is a dodecahedron. Note also that the dodecaspherical partitioning is precisely the same as the partitioning of the well-tempered musical system, and has the same Lydian division built into it. Moreover, this is also the origin of the Platonic idea that the dodecahedron reflects the heavens. These are just the most obvious sense-conception singularities that transpire from the Hipparchus sphere. There are more singularities that remain hidden, of course, but we shall discover them in time.

These are the sense-conception data that challenge the human mind about the mental nature of reality. Our job, now, is to investigate the properties of this sense-conception reality, as a mental object and not a sense-perception object. However, the

problem we will have during this class, and on the subject of which you should take some time to reflect, is that you are not used to dealing with mental objects as being real. Like most people do, you have a tendency to think of mental objects (geistesmassen-thought object) as being merely ideal, or abstractions, as opposed to reality. That is a real physical problem, not just a mental one! It's an Aristotelian problem that identifies ideas as "Platonic ideas"; that is, as not being real. In other words, ideas are reduced to something like "Platonic Love," in the event of which, as you all know, there is no intercourse with the physical universe.

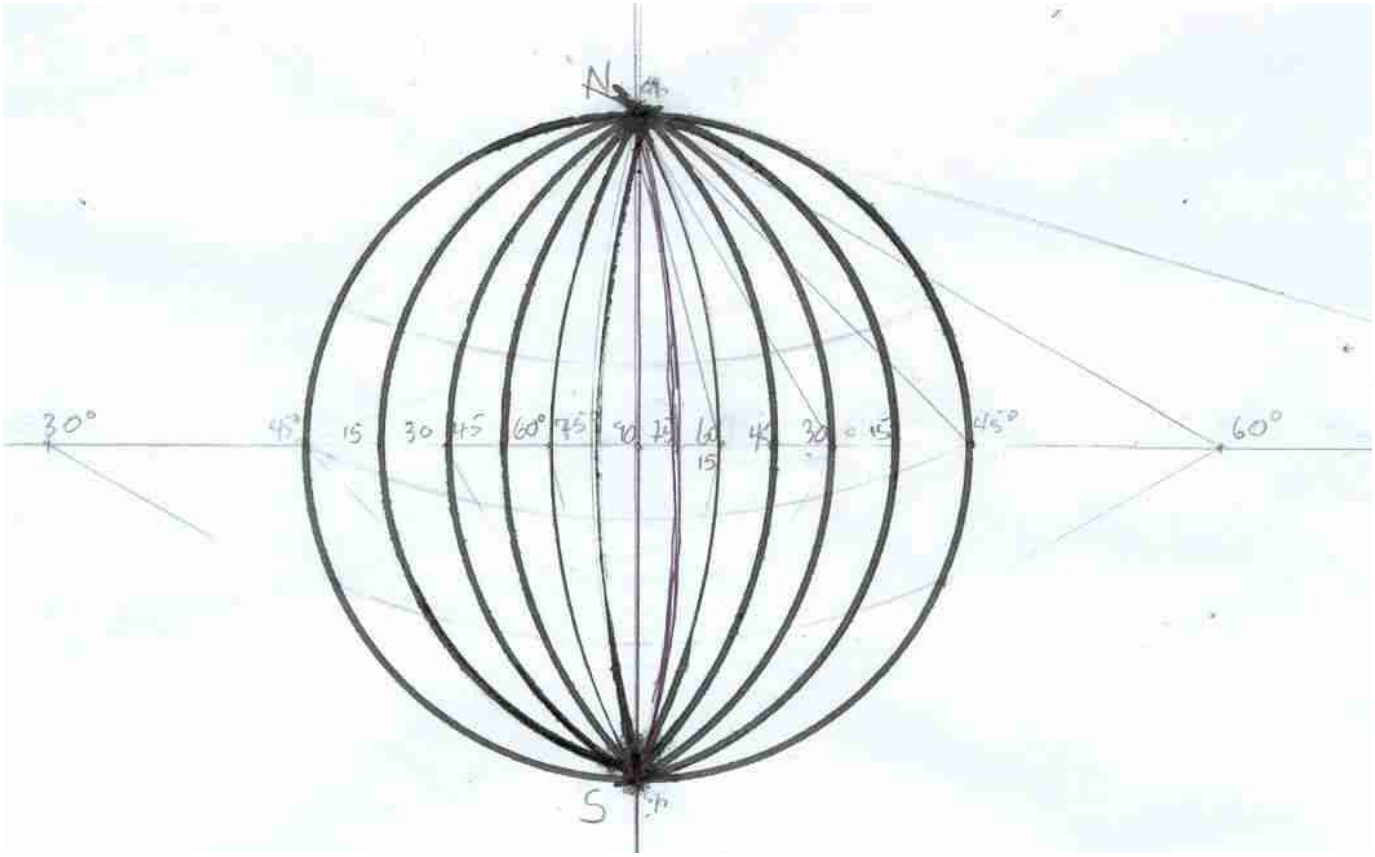


Figure 7. The twelve azimuth partitions of the stereographic sphere.

For purpose of construction, all of the twelve azimuth circles are determined by the angular conical projections of only two triangular functions. They are the 45º - 90º right triangle and the scalene 30º - 60º - 90º right triangle. The construction of Figure 7 requires that you find the angular position of the twelve spherical circles by means of angular projection of those two triangles from the North Pole and the Equatorial line of the sphere. That is where you should put the two points of your compass.

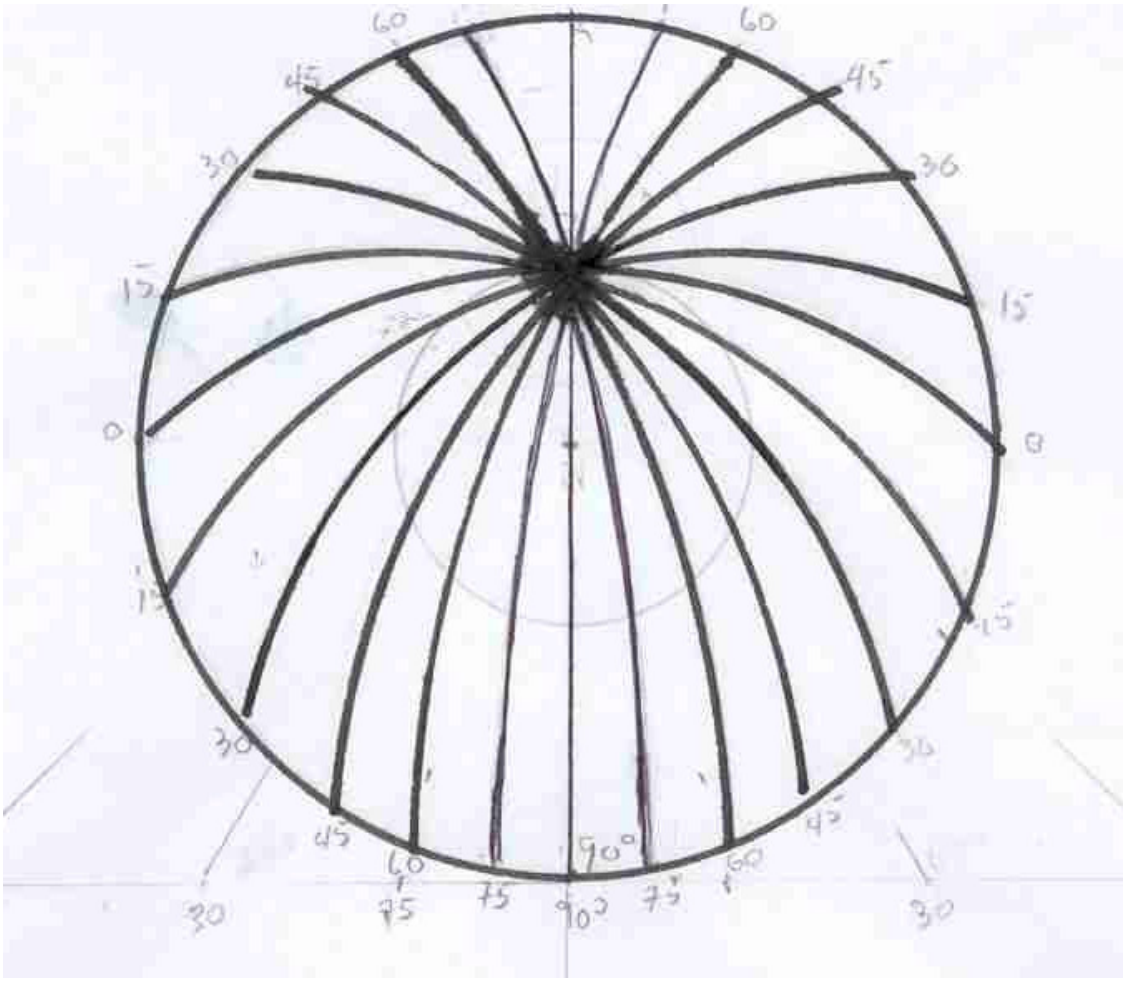


Figure 8. The twelve azimuth circles projected at the Zenith of 23.5º on the stereographic sphere.

Note that all of the 24 intervals of Figure 8 are partitioned by 12 azimuth circles that are generated by 6 angular measurements of the compass conical projections of 15º, 30º, 45º, 60º, 75º, and 90º degrees from the base line of the sphere. The angles of the projection all appear to be different but they are all the same. It is by this conical function that the stereographic projection maintains the proportionality of angles in the transformation between the Solid Locus and the Plane Locus. It is in this manner that the stereographic projection maintains the proportionality of azimuth and almucantar circles in the transformation. Construct those two spheres of Figure 7 and Figure 8 and you will begin to master the anti-Euclidean of Hipparchus.

I want to stress that the stereographic projection maintains the proportionality of angles in the transformation generated between the two dimensionalities of the Plane Locus to the Solid Locus. The proportionality between the azimuth and almucantar circles is the key to the entire construction. As a matter of fact, you will find that it is impossible to project orthographically a “perceived” equal spacing by 15 degrees in the

Solid Locus. The only way to judge of the feasibility of the method is to discover the proportionate spherical equivalent in the Plane Locus by means of your compass hyperbolic function. Again, when you are confronted by the reality of the simple fact that your sense-perception is lying to you in reporting equal angular intervals, that should be enough to tell you that you are no longer a prisoner of the domain of sense-perception.

Furthermore, the very idea of stereography developed by Hipparchus is quite different from the Euclidean-Cartesian approach, or even the reductionist Poincarre model. The projection of Hipparchus, understood both from the standpoints of epistemology and of practical astrophysics, takes fully into account the Apollonius distinction of principle between a Plane Locus and a Solid Locus, which I will discuss later with Pierre de Fermat. From that vantage point, the construction is also anti-Euclidean in the sense that it is based on the Riemannean creative process of passing from one dimensionality to another dimensionality.

Let's just say, for the time being, that the distinction between Plane Locus and Solid Locus is reflected by the fact that there cannot be a direct orthographic bi-univocal projection of an Azimuth circle from a sphere onto a plane. The only two spherical points that can be projected orthographically are the zenith and the nadir points. Here, there is an epistemological leap between the two dimensionalities, an incommensurable gap, which must be bridged by an angular conic projection relating the two domains proportionately as an object of sense-conception.

The crucial singularity, here, is to discover how this spherical projection can be mapped onto a plane in a form of projection that is anti-Euclidean, that is to say, not based on perception of a-priori axioms, postulates, and definitions, but based on a principle of change. In other words, if anyone in the group is successful in discovering the principle of composition of this stereographic sphere with azimuths, he, or she, should immediately help the others make the same discovery. That change is absolutely anti-Euclidean, because other individual minds in the class are also part of your sense-conception dynamic. The crucial point is to discover that this mapping is anti-Euclidean in character, which means that nothing is based on the sense-perception of any a-priori axioms such as: "How am I doing?" The change in dimensionality is from sense-perception to sense-conception, as in: " How is my fellow man doing?" By the way, this was precisely the method used in class by Gaspard Monge to recruit his brigade leaders.

5- THE SENSE-CONCEPTION OF THE HUMBOLDT COSMOS .

Now lastly, take the case of the projection from the region of Quito, Ecuador. How can you project an almucantar from the Earth's equator? Bear in mind that there exist interesting singularities both in Quito Ecuador, and in Montreal, because the former is at a latitude of 0º degree and the later is at a latitude of 45º degrees. Therefore, both of your locations are at the two Lydian divisions of the sphere. As a result, the observer of the equator will have the total view of the universe in his sight. But, in order to make

observations from your instrument, you will require having both sides of the astrolabe to view both the Northern Hemisphere and the Southern Hemisphere. No one else, on this planet, has this advantage. Look at your equatorial position in Figure 9 and you will begin to understand your predicament.

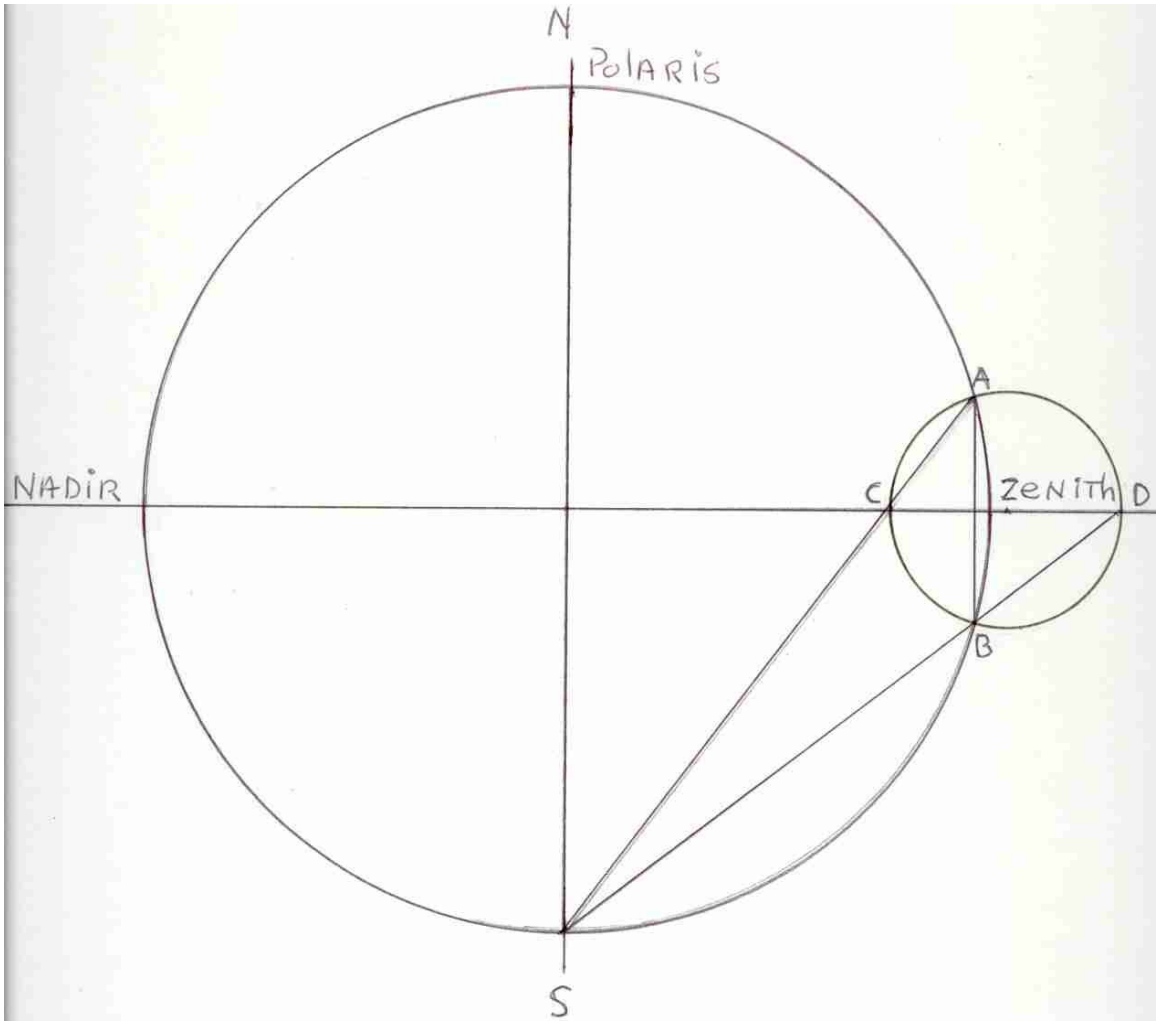


Figure 9. Spherical almucantar AB transformed into a plane almucantar CD at the latitude of Quito, Ecuador, the most exciting place on the equator of the planet to connect with the extraordinary idea of the Humboldt *Cosmos*.

The construction of an astrolabe for Quito, Ecuador represents most exciting possibilities, because as Humboldt demonstrated, this is the only location on earth where the entire universe is compacted into a small region, integrating both the totality of the celestial phenomena and vegetation species from all of the different climate zones of the Biosphere. Thus, with an eye on that minimum-maximum expression of living processes, consider how Humboldt identified this singularity:

> "This portion of the surface of the globe affords in the smallest space the greatest possible variety of impressions from the contemplation of nature. Among the colossal mountains of Cundinamarca, of Quito, and of Peru, furrowed by deep ravines, man is enabled to contemplate alike all of the families of plants, and all of the stars in the firmament. There, at a single glance, the eye surveys majestic palms, humid forests of bambusa, and the varied species of Musaceae, while above those forms of tropical vegetation appears oaks, medlars, the sweet-brier, and umbelliferous plants, as in our European homes. There, as the traveler turns his eye to the vault of the heaven, a single glance embraces the constellation of the Southern Cross, the Magellanic clouds, and the guiding stars of the constellation of the bear, as they circle around the arctic pole. There, the depths of the earth and the vaults of heaven display all the richness of their forms and the variety of their phenomena. There, the different climates are ranged the one above the other, stage by stage, like the vegetable zones, whose succession they limit; and there, the observer may readily trace the laws that regulate the diminution of heat, as they stand indelibly inscribed on the rocky walls and abrupt declivities of the Cordilleras." (Alexander von Humboldt, *Cosmos*, Vol. I, p. 33.)

This leaves you with something to think about, doesn't it?

FIN PART II

PART III
MIND AS A MATTER OF POWER OVER THE UNIVERSE

June 19, 2009.

6- HOW TO EXPRESS THE DYNAMICS OF SHADOWS?

> "At first glance, we might, admittedly, think, mistakenly, that the mind's experience is limited to the role of sense-organs, which are merely a source of instrument readings. This means either inborn sense-organs, or supplementary, man-made instruments which serve as extensions of those functions of those built-in senses, which were delivered with the package which was the new child. Thus, that child's primary experience of the universe which mankind inhabits, is not a direct representation of the actual universe which we inhabit; but, rather, it is a kind of shadow cast on the mind, which is expressed, cumulatively, as a *dynamic* pattern among shadows; it is that, subsuming, *dynamic* pattern, in the sense of the *dynamis* of the ancient Pythagoreans and Plato, or the *dynamics* of Gottfried Leibniz, from which we are to adduce that higher principle, such as the universal gravitation discovered, uniquely, by Johannes Kepler, as in his *The Harmonies of the World*, which has cast such patterns among shadows." (Lyndon H. LaRouche Jr., ECONOMIC SCIENCE, IN SHORT, May 29, 2009.)

What Lyn is proposing, here, with respect to a child's primary experience of the universe, is to take a peek just over the shoulder of the perceived phenomenon in order to

investigate the principle that lies just behind it. However, this is not the simplest thing to do, although it might be the most natural one. This experience involves making the difference between cause and effect, between reason and sense-perception. It involves making the difference between the fact that geometrical models can become fallacies, if you are seeking the cause of the motions of the planets, but that they can become very truthful if you are seeking to express the effect of their motions. What I am attempting to establish, here, with Hipparchus is the differential between the two, between the cause and the effect. In other words, like Kepler asked in his *New Astronomy*: how can you discover the measure of reason and the measure of sense perception, when all you know is their difference?

In this case, we must examined this difference from the standpoint of the principle of human vision, in accordance with Plato's governing proportionality between the orbs of intelligence in the heavens and the orbs of our reason. As Lyn showed, the answer to knowing this measure is most explicitly found in Shelley's *A Defense of Poetry;* and that is, in understanding the winds of change in the "spirit of the age", when it comes and affects an entire people. Such a moment as now has not occurred since the Italian Renaissance, which is why, yesterday, Lyn was reminding the Italian Senate of their historical role, on that subject. Never underestimate the effect of the social dynamic that a general economic breakdown of the world has on its populations, and on you, personally.

This is the time when the creative role of a handful of individuals comes in to change everything by means of discovering precisely that difference between cause and effect. It is the poets and not the practical people whose creative powers are required for this job. And this is when a discovery like that of Hipparchus excites the human mind by steeling the fire from heaven. However, this fire is given to humanity through the form of a subjective shadow and reflection, as opposed to an objective thing. So, the question is: how are we going to express this dynamics of those shadows? As Lyn indicated, the mistake would be to look at shadows as things in themselves, as if they were the real world projected on the screen of our sense-perception, as opposed to reflexive products of some interval instrumental function that comes in between the source of light of universal physical principles and the projected shadows. As a result, we don't know things; what we know is our relationship to processes of change which are brought about by our instruments.

In other words, look at shadows as the result of change caused by some principle that cannot be observed directly, but can only be known to exist through an intermediary instrument that causes the truth of that principle to be distorted. That distortion we must live with because that is the only function, identified here with the *zenith function*, that acts like a bridge that we must cross to get to the truth of the principle of projection. Therefore, the light of truth must be sought and found only and exclusively through those bridging instruments, because we will be blinded if we look at the truth of light in the face. That is why we must see as if through a glass darkly. That is our situation. We are as if condemned to live in Plato's Cave, either as prisoners of shadows, or as bridge makers. In any event, this is the freedom of necessity.

For example, project from Montreal the *zenith function* from your latitude of 45º degrees and construct the web of almucantars first in the sphere of the heavens (Figure 10), and secondly, in the plane (Figure 11). This will establish the angular measure of all of the stars above your heads, not as you see them, but as you know the shape of the intelligence that ordered them to be seen as such. Do the same thing in Quito, Ecuador, and compare the results.

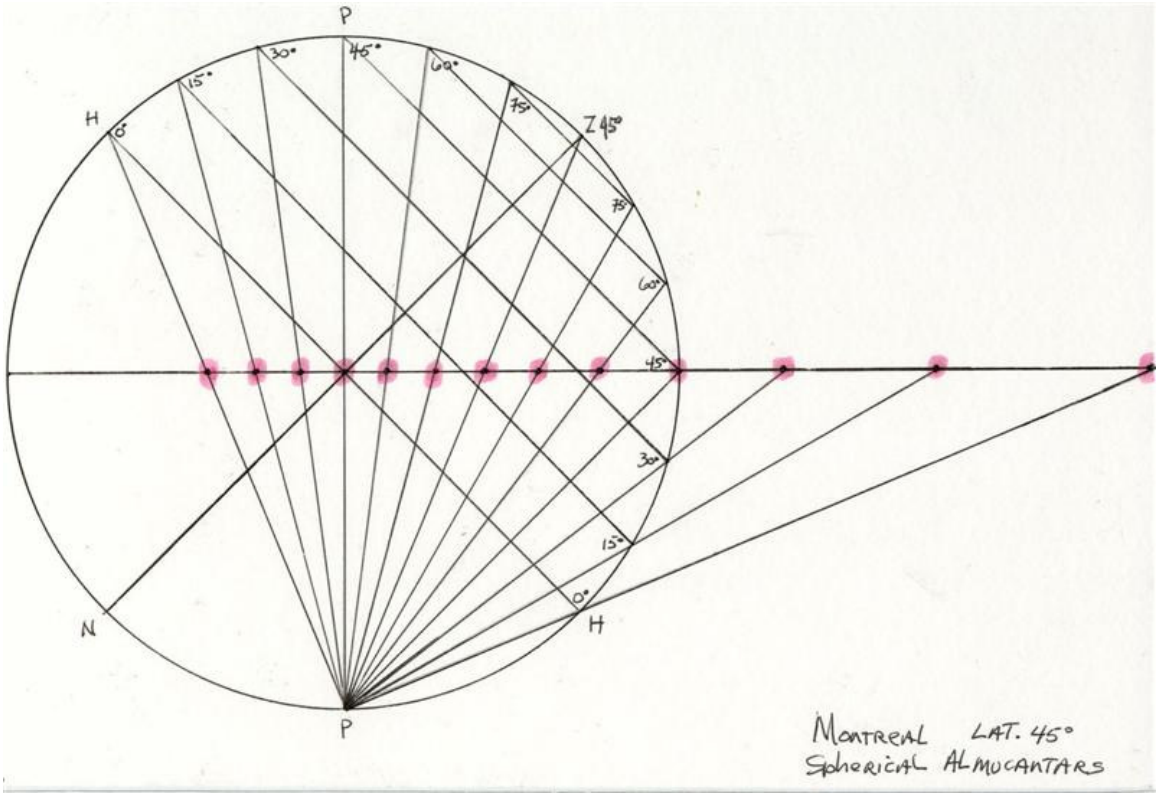


Figure 10. Montreal almucantars in the sphere at the latitude of 45º degrees.

First, identify all of the angular measures of half the sphere for the six almucantars of 0º, 15º, 30º, 45º, 60º, and 75º degrees located at a right angle to your zenith-nadir axis. Note that your viewing capability does not extend to more than half of the sphere. The reason for this is that you can never see more than half of anything, at any one given time. You can actually demonstrate this fact by observing a dodecahedron, for example. Since the dodecahedron has a total number of 12 faces, the maximum number of faces that you can visualize, in one sighting, will be 6 faces.

However, from your pole-zenith position at 45º degrees, you will experience the same phenomenon of limitation, and you will not be able to observe the stars of the Southern Hemisphere unless you move south. And if you move south, you will not be

able to observe the stars from the north. Now, ask yourself: why is it that someone at the equator, as Humboldt observed from Quito, will be able to observe all of the stars of the universe?

Secondly, project a series of rays from the South Pole point P onto all of the almucantar angular points of Figure 10. All of those rays intersecting the diameter of the equatorial circle will form a different proportional series of shadow points (highlighted in pink). Those are the projected points that define, two by two, all of the almucantar diameters for the plane of your astrolabe. (See Figure 11.)

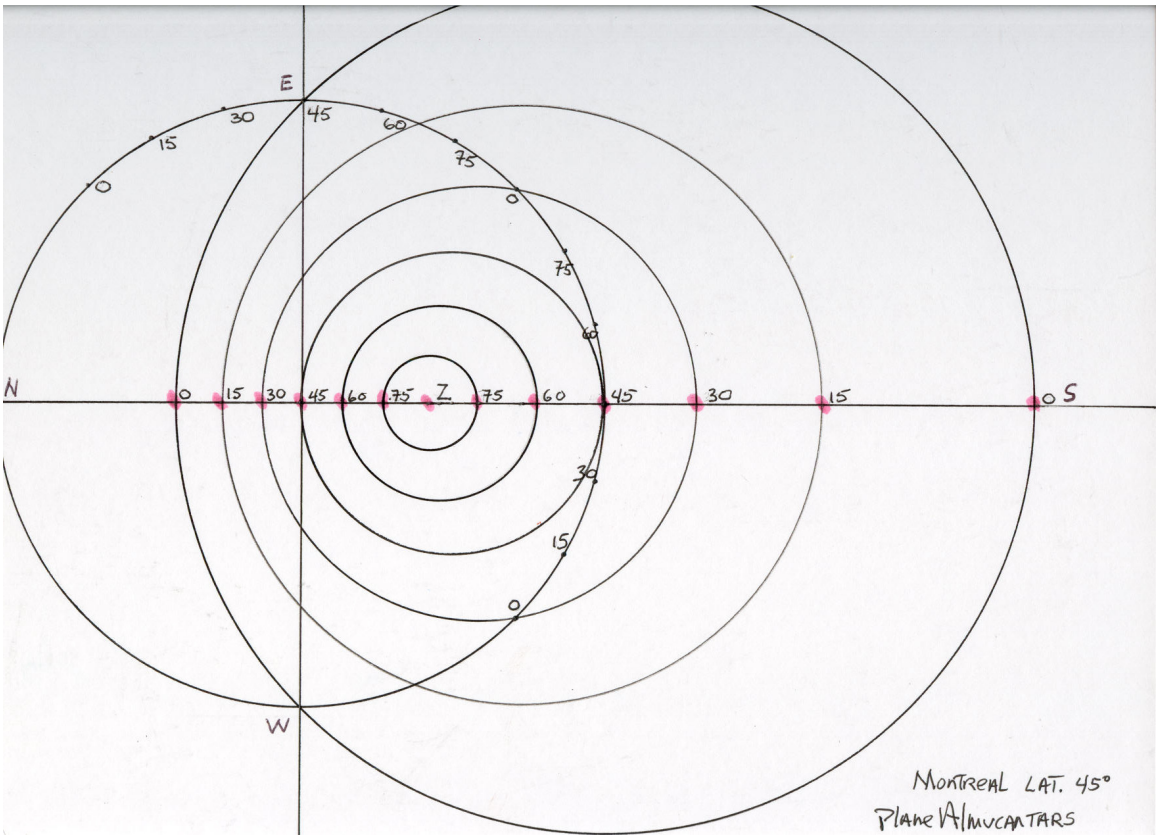


Figure 11. Montreal almucantars in the plane at the latitude of 45º degrees.

Figure 11 repeats the same angular determinations as was executed for Figure 10, with the exception of the invisible conical rays that have been omitted. You should be able to make those projections in your mind only, without drawing their linear connections . Since the shadow projection of those 13 angular positions reflect the same angular ordering as projected from the surface of the sphere (highlighted in pink), their joining together, two by two, with circular arcs, along the extended diameter of the equatorial circle, will generate the six almucantars in the plane of Figure 11.

On the other hand, the situation for the construction of an astrolabe at the equator will show a number of notable differences. Take the case of the zenith function projected from the latitude of 0º in Quito, Ecuador, for example.

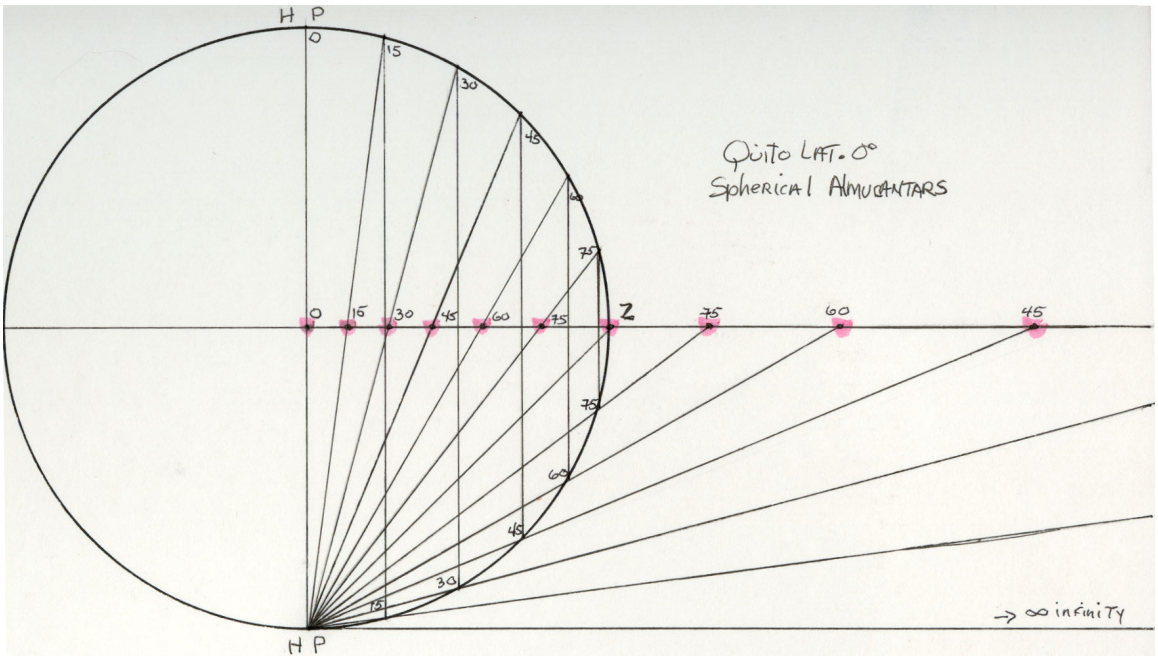


Figure 12. Quito spherical almucantars at the latitude of 0º degree.

Figure 12 describes the equatorial projection of almucantars at the equator. As I have mentioned before, this observation location is unique on the entire planet because, as Humboldt had discovered, this location is a very special location that reflects an extraordinary form of minimum-maximum. This is the only place on Earth where the vegetation of all of the latitudes of the two hemispheres is found condensed into the altitude of the smallest space on earth. All of the families of plants and all of the stars of the firmament can be observed in that small region of Quito, Ecuador. What this might implies for the study of the Biosphere remains an open question. However, as Humboldt showed in his *Cosmos*, all of the climates of the earth are stacked up one on top of the other in that location where they have left their traces on the different levels of declivity of the Cordilleras. Moreover, from this unique location, an observer can also examine the totality of the universe; for this is the only place on Earth where one can see in the same turn of head, both the Southern Cross on the horizon of the Southern Hemisphere, the Pole Star of the Northern hemisphere, and everything else in between. The problem this poses is: how do you represent the whole of the heavenly sphere on an astrolabe? Well, it seems as if you will be needing the two sides of an astrolabe; one side showing the northern hemisphere, and the other side showing the southern hemisphere.

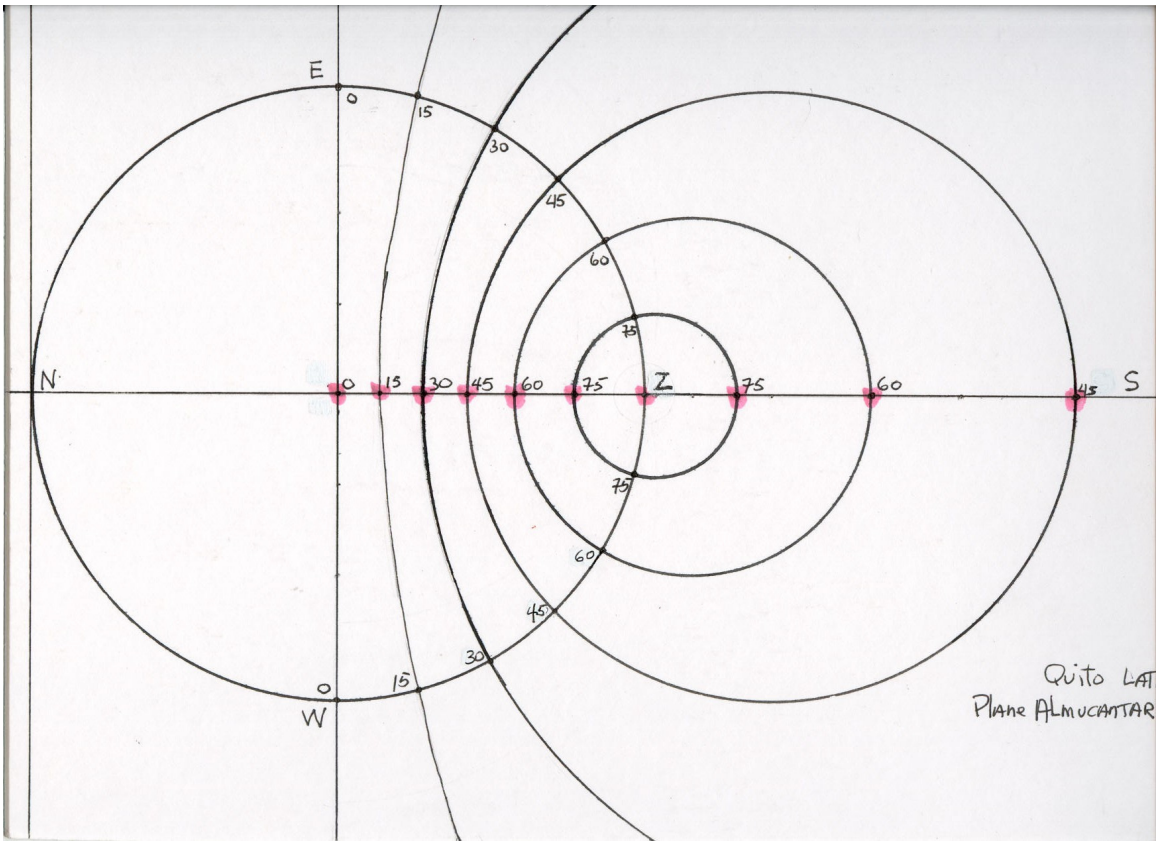


Figure 13. Quito plane almucantars at the latitude of 0º degree.

Take a piece of white cardboard and draw, in the center of it, a circle representing the projection of the equator of the celestial sphere. Do not draw the sphere; simply draw the shadow of the sphere as a circle in the plane. In other words, I want you to draw only the shadow in the plane from the imaginary intermediary instrument of the heavenly sphere that you must, from this point on, consider as a permanent *Geistesmassen* in your minds. Project all of the almucantars onto that plane.

Mark the center of your circle carefully and draw the two perpendicular diameters of the North-South pole axis, and the Zenith-Nadir axis in the plane. Note that the Horizon and the North-south axis have become one single line. Place your protractor on the center of the circle and find the position of the five almucantars of 75º, 60º, 45º, 30º, and 15º degrees in both the upper and lower right quarters of the circle. Find the points of the conic projections and mark them onto the Zenith-Nadir diameter. Find the centers of those shadow circles and draw them in the plane. Voila!

Next, compare the almucantars of Quito with those of Montreal. What important difference do you find? One is that, in the case of Quito, all of the circles cross exactly at the angular determinations marked on the surface of the sphere. This is not the case for Montreal or for anywhere else. This situation is unique to the equator. Note also that the horizon of Quito is an infinite circle, that is to say, a straight line! This is a nice Cusa paradox found at the equator. The reason that an observer is able to capture the totality of

the stars in the heaven from that location lies in the fact that the north-south polar axis is identical to the horizon of the observation. Lastly, note that, in the case of Quito, you cannot generate more than three almucantars, that is to say, those of 75º, 60º, and 45º degrees. The almucantar of 30º degrees is too large to fit the astrolabe, and the almucantar of 15º degrees is so immense that you would not be able to establish its center point. Therefore, the arc of this last circle must be drawn by hand and only by approximation.

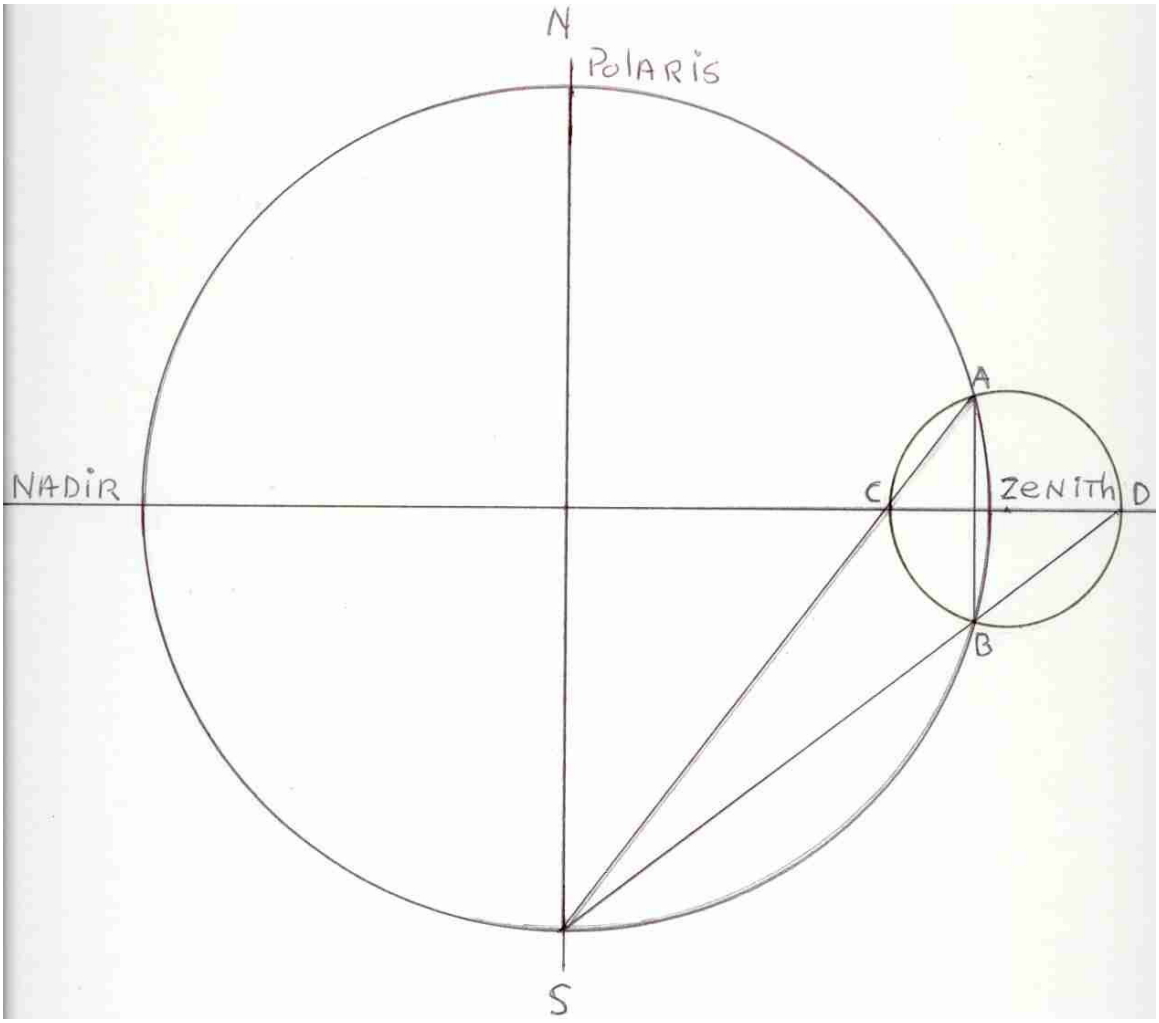


Figure 14. Almucantar of 75º degrees at the equator.

Just to show one of the singularities of the equatorial astrolabe, take for example the equatorial almucantar of 75º shown in Figure 14, and apply it simultaneously to your respective situations in the sphere and on the plane. The key to the almucantar construction is the transformation of the spherical circle into a plane circle. Note how the four points ABCD reflect those two different circles at the same time: AB is the diameter of the spherical circle and CD is the diameter of the plane circle! The circles are of different size and, yet, the CD circle is the shadow projection of the AB circle. The

fascinating irony about this particular effect is that it reflects the anomaly of change in the harmonic proportionality between the sphere, the cone, and the plane! All almucantars will reflect the same anomaly, but never as obviously as on the equator.

Such a singularity between the two domains of a Solid Loci and a Plane Loci may appear to be purely perceptual, yet the web it projects reflects the mental change precisely as any astronavigator would have required, in ancient times, for traveling across the oceans of the globe, and, thus, find his direction to and from any location. Since any Island was a permanent fixture somewhere on any ocean, their fixed zenith points could also have been easily used as markers, or direction finders. Remember that ancient astronavigators were traveling with possibly up to a dozen such astrolabes identifying their ports of call across the globe, such that they always knew where they were going to or coming from. Astrolabes were the navigational maps of ancient times.

Both almucantar and azimuth circles exhibit different and well-proportioned transformations that maintain all of the intervals at 15º angles. Your sense perception may be fooled by the apparent discrepancies between those almucantar and azimuth circles; however, your sense-conception is not fooled by the fact that they are all rigorously the same, because they maintain the same rigorous connections inside of each separate domain.

FIN OF PART III

PART IV
MIND AS A MATTER OF POWER OVER THE UNIVERSE

June 26, 2009

> "We must abandon the foolishness of these recent times. We must look to the heavens, to our Solar system as the most immediate part of this galaxy, and, then, look down toward our selves, as we might be seen from above, in this process, from the future, until today. Look back from the future to both our present and our past, toward a new intended destiny. It is a future, coming up toward us, from a reference-point above the Solar system as a whole, our galaxy, beyond." (Lyndon H. LaRouche Jr, *ECONOMIC SCIENCE, IN SHORT*, May 29, 2009.)

7- THE POETIC POWER OF THE ZENITH FUNCTION.

Since we have established that star mapping was an exercise in epistemology, might as well take the next step that Lyn has indicated we should take. In a few words of wisdom, Lyn has described the pathway of human destiny as a whole. What he described, in fact, is what I would call the *zenith function*, of human destiny. Now is the time to project that *zenith function* on your local astrolabe. But, don't think of this as something small. This is big stuff! This should be a very exciting moment for you, because you are putting yourselves in a viewing position looking down at yourselves through both hemispheres of the heavens at once, as if you might be seen by God looking into the future of his complete self-developing and changing work, from both inside and outside of the universe as a whole, as well as inside and outside of the Ecliptic pathway that the Sun and planets follows endlessly, year after year.

Thus, standing above your own personal zenith point in the heavens, like this, you are as if standing from the future looking down at the variable points of the past from which you are able to project with the compass of your mind the totality of physical space-time of this metaphor of the moving eternity that is your astrolabe. In other words, from anywhere on this planet and any time you might wish to recall, from the origin of mankind until today, you will be able to restore the proportion of the intelligence of the heavens and the orbs of your reason, as Plato suggested. Not bad for a late Friday night exercise! Don't you think?

The point I want to make is that the most important thing that could ever happen to a human being, who is interested in the future, is to look at himself from the outside like this; that is to say, from outside of the galaxies and of the universe as a whole. The reason is that the universal mind is not made to understand itself from the inside. The inside is too clogged up, too claustrophobic, too many bad habits, too many secrets, to many lies. A universal mind needs room and cannot live long cramped in the confine of his self, of his home, or even of his home planet. A mind needs to go out of the confines of the bad habits that poor humanity has been barely surviving on, during the last 5,000 years or so of recorded history. I pity the poor souls who only live inside of their own minds all of the time. This is why Lyn, recently, expressed the hope that your generation would travel to Mars and realize the greatest mission that God had bestowed upon human destiny. I think that the present calamity of the world economic breakdown is a very good opportunity to make the necessary changes toward realizing that destiny. Don’t you think?

By looking at the night sky, in this fashion, you can understand why you are staring at the past, the present, and the future, simultaneously. When you are looking at the *stars*, you see the past; when you are looking at your *zenith function*, you are looking at the present; and when you are looking at your *mission*, you are looking at the future. This examination is itself poetical in character, because the *thought object of the stars, the zenith function, and the mission* is an ironic form of simultaneity of eternity, whereby the light of the stars, that you see presently flickering, are a reflection of their state of several million years ago, and at the same time, their beckoning, from even before the origin of man, is inviting you to lessen the space-time distance between them and future exploratory probes by mankind. So, I want you to think about that while we are doing this construction.

8- THE INDUSTRIAL USE OF FIRE, THE DISCOVERY OF ASTRONOMY, AND THE NOOSPHERE.

The construction of this astrolabe is also a good opportunity to discuss Vernadsky’s Noosphere, because the discovery of astronomy by ancient man is directly tied to the successful spreading of mankind around the planet. This occurred very early on, in a period of pre-history during which it is conceivable that the discovery of fire as an industrial power, and the discovery of the sphere of the heavens as a power for astronavigation, may have occurred about the same time. There is no physical evidence of this coincidence during the end of the Paleolithic period (500,000 to 250, 000 years

BC), but the Neolithic period that followed immediately after showed an extraordinary increase in relative population density around the planet, sufficiently to cause the creation of the Noosphere. Here is how Vernadsky put it:

> "I think that the phenomenon of the spread of any one species over the entire globe persists broadly for maritime life in the case of microscopic plankton in the seas and rivers, and with some forms of microbes, essentially also water-born, which envelop the exterior surface of the planet and propagate through the troposphere. For larger organisms, we observe this in full measure only with certain plants.
>
> "For man, this begins to manifest itself in our time. In the 20th Century all the lands, and all the seas are enveloped by him. Due to the success of these bonds, mankind is indissolubly linked to the entire universe, and never alone nor helplessly lost in the grandiosity of earthly nature. Now the earth's population has reached a previously unprecedented figure, nearly two billion people, in spite of the fact that deaths and killings in the form of wars, starvation and disease, which obliterated hundreds of millions of people, has seriously retarded the course of that process. It will require, however, only a brief time-period, seen from the standpoint of geological time, hardly more than a hundred years, for such barbarism to be overcome." […]
>
> "The propagation of organisms, that is, the manifestation of biochemical energy of the first order, without which there is no life, seems inseparable from man. But man, from the time of his own separation from the aggregate of life on the planet, already possessed the tools, however coarse, which allowed him to increase his muscle-power and appeared to be the first manifestation of a modern machine, which distinguished him from other living organisms. […]
>
> "The discovery of fire appears to be the first instance in which a living organism masters and makes himself the steward of one of the forces of nature. Undoubtedly that discovery lies, as we now see, at the basis of the subsequent future increase of mankind and the forces now in his possession. And yet, that increase comes about extremely slowly, and it is difficult for us to imagine the conditions under which it may have occurred. Fire was already known to the predecessors of Man, or by that forerunner of the species of hominid, which built the Noosphere. The latest discoveries in China reveal to us the cultural remains of Sinanthropus, which indicates the broad use by him of fire, in my view, long before the last glaciation of Europe, hundreds of thousands of years before our time. How that discovery was made, we have at present no reliable indication. Sinanthropus already possessed reason, possessed coarse tools, used speech, and conducted funeral rites. He was already Man, but distinguished from Man by certain morphological characteristics. It is not excluded that this was one of the ancestors of the present population of China." ((V. I. Vernadsky, *Scientific Thought and Scientific Work as a Geological Force in the Biosphere,* parts of Sections 105 – 107, 1938, translated by Bill Jones.)

Now, I wanted you to have this important quote, because the Vernadsky forecast is currently coming true, and now is the time to overcome the barbarism that he talked about, the British Empire barbarism that is. According to Vernadsky, the Neolithic period of mankind had witnessed a significant increase in human population around the globe, reaching tens of millions of individuals, in comparison with only a few millions during the preceding Paleolithic period. Thus, during the evolution of the earth that can be located during the Neolithic period, a new era of planetary changes occurred that Vernadsky called the "psychozoic era," the "era of Reason" of the Noosphere, during which man introduced new geological compositions through agriculture, and thus produced increasing changes in the earth's crust that modified forever the previous geochemical structure of the planet. Remember also that although such changes were slow and progressive it doesn't mean that human reason took 300,000 years to develop, as the British would have you believe. This would be as stupid as saying that the first mammal took 300,000 years to discover its mother's milk. So, *reason is immediately universal*, no matter when or where it appears in the history of mankind, and it is immediately manifest in his works of composition, as crude as they may be.

The Neolithic period was the first period when astronavigators traveled across all of the known continents with the use of crude forms of astrolabes or star maps, and transporting with them new seeds that would transform profoundly the very nature of the planet. As Vernadsky characterized the dawn of the Noosphere period: *"Man represents a new geological force on the surface of the Earth."* (V. I. Vernadsky, *La Biochimie*, Paris, Félix Alcan, 1924, p. 344.) We do not know what such instruments looked like, but one hypothesis that I am submitting to you is that, during the Neolithic period, human beings navigated to all continents by the stars and were able to return to their destinations by following daily and nightly patterns of the heavens. And, that not only produced changes that were of immense consequences for centuries to come, by acquiring the knowledge of the celestial sphere, but also caused irreversible changes in the geochemical structure of the earth that were more powerful than any other previous geological changes.

This was also the first time in the history of mankind when man was able to look at himself with a new identity from outside of the earth, discovering the fire nature of the stars, and realizing that his identity was irremediably linked to those stars, and thus, he began to construct his Noosphere! It is difficult to imagine what went on in the mind of the first man who discovered the industrial power of fire, but one thing is certain: he knew that fire was going to guarantee the future of mankind. However, it is less difficult to imagine how the idea of the heavenly sphere must have come about.

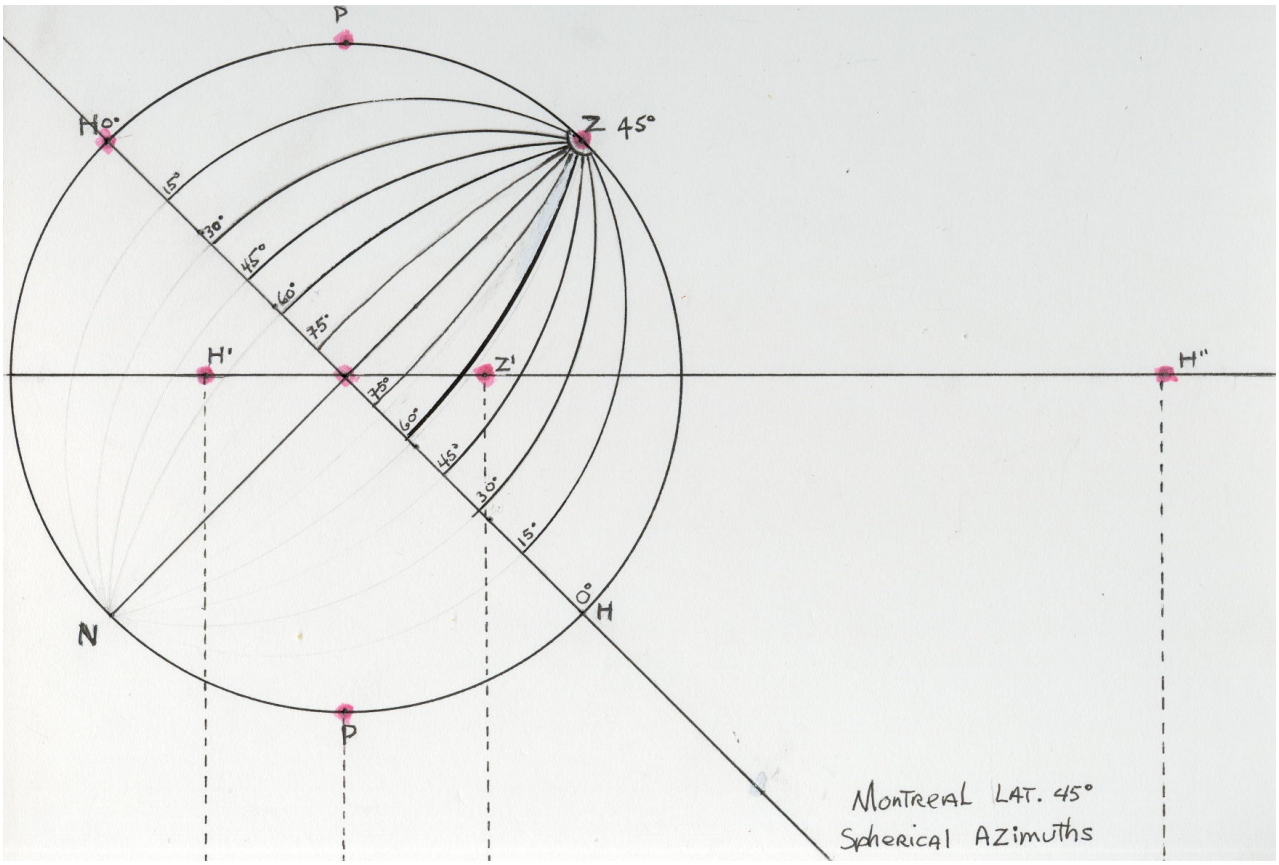


Figure 15. Azimuths in the sphere for Montreal.

Now, let's construct the azimuths of the heavenly sphere from your respective zenith points, and remember that an astrolabe is a portable observatory for any chosen position on the planet. If you are a world traveler, like the astronavigators were, you must travel with about a dozen such astrolabe tables and two star maps in your backpack; each one representing one of a dozen fixed ports of call around the planet. From that vantage point, the astrolabe is the calendar star-map of the world traveler. Also, as I said before, the zenith of your astrolabe is what determines the permanent location of your observation.

Locate your zenith point Z on the sphere of the heavens and project from it twelve spherical azimuths. All of your projections will be determined from the same six angles of 15º, 30º, 45º, 60º, 75º, and 90º degrees that were used for the almucantars, except they will not be projected from the surface of the sphere, but from the diameter of your celestial horizon circle. (Figure 12.) From that horizon, the astrolabe is also a self-portrait of the human mind looking back at himself looking at the heavens.

So, in ancient times, it was also understood that the future of humanity was in the stars; however, the idea was immediately taken over and distorted by priesthoods, and,

consequently, a deplorable disease took over the human mind. The high priests took advantage of the fact that people were impatient to see what the future was holding for them, and so they concocted the belief structure called astrology. That is the "astronomy of the ignorant," as Bailly called it. So, the first astronomers, like Atlas, for example, had to compete with astrology charlatans, but they also had to compete with the high priests that created mythologies.

The time of the original discovery of the heavenly sphere, which I want to discuss next week, is also the time when the Greeks invented legends about the fight between the gods of Olympus and the Giants. Regardless of mythologies, the story of Atlas and of his brother Prometheus is the story of very real people who were later disfigured into Greek myths and legends. You can easily discover that they were not mythological characters, simply because the discoveries they had made were very real and very necessary for mankind. So, before next week, I want you to think about how Atlas might have discovered the sphere of the heavens?

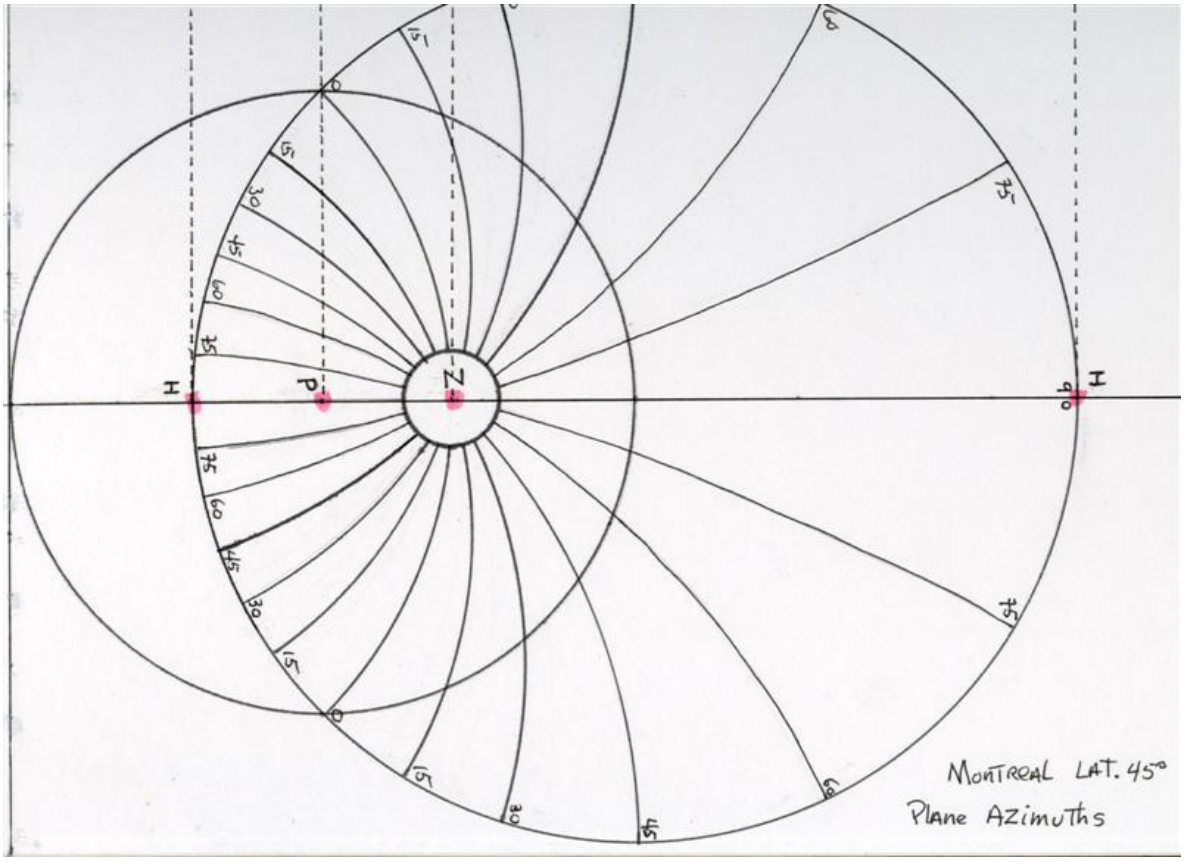


Figure 16. Azimuths in the plane for Montreal.

Next, project the same azimuths circles in the plane, as in Figure 13, and leave a small circular opening for your zenith region. First project the three points Z, P, and H for your Zenith, Pole, and Horizon, respectively. Note that the letterings and numbers are

oriented in accordance with your observation of the southern sky. That is how you will read your astrolabe. As opposed to the previous spherical projection, this plane projection of the same six angles is made from the vertical tangent of circle P (Figure 13).

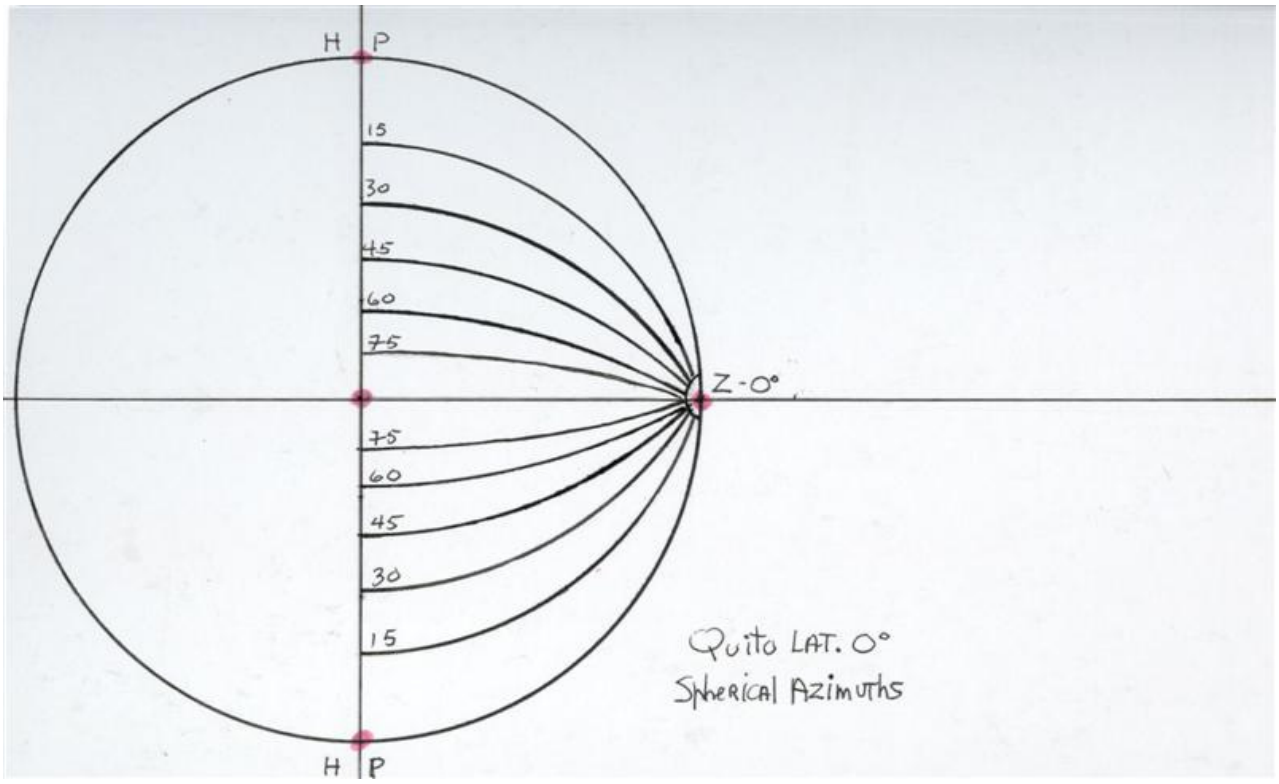


Figure 17. Azimuths in the sphere for Quito at 0º

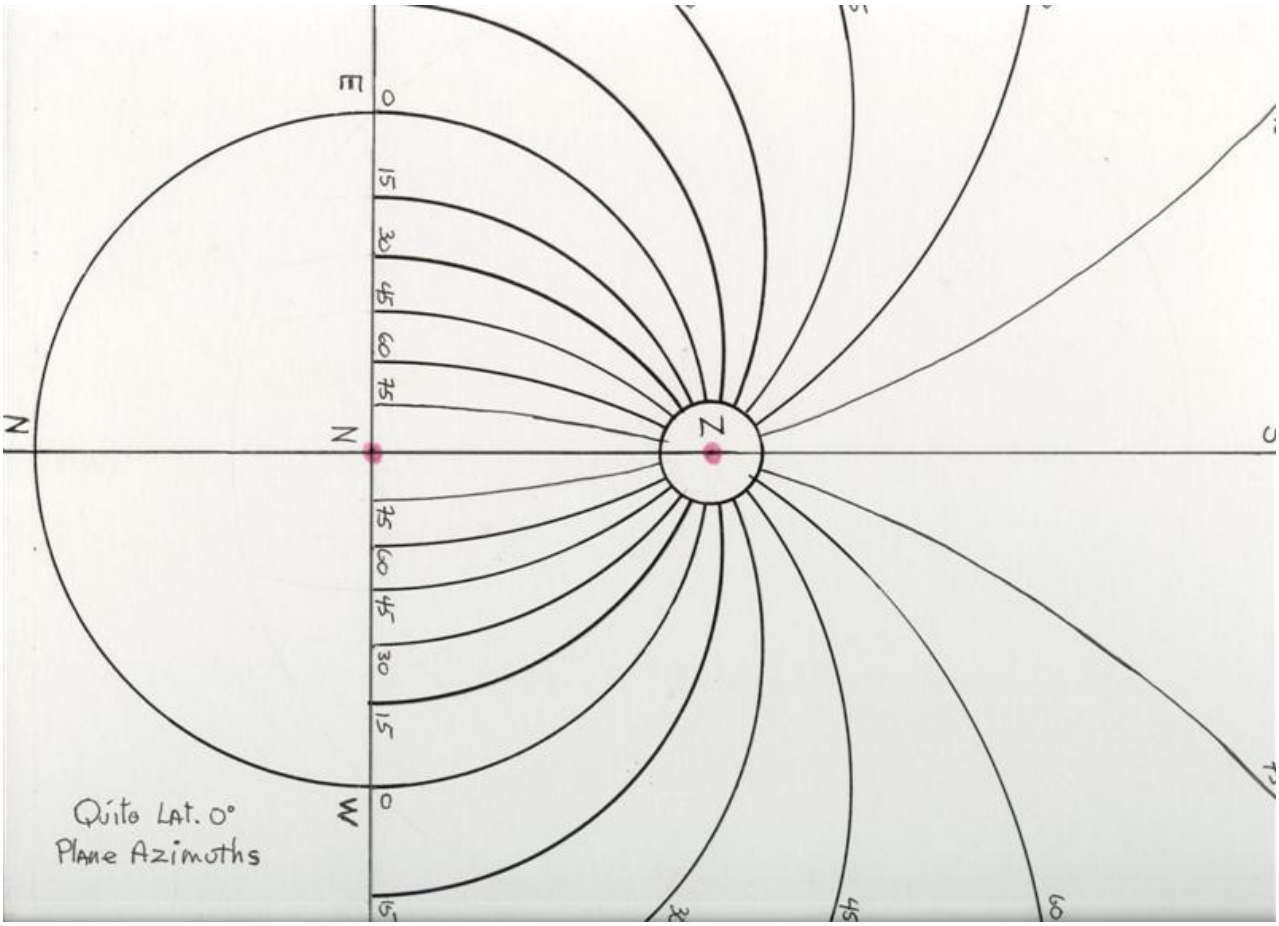


Figure 18. Azimuths in the plane for Quito at 0º

As an exercise, everybody should also construct the azimuths for the equator of the planet and note the singularities that emerge in that location. Note especially how the circular arcs are exactly the same for the sphere as for the plane.

The next step you want to take is to construct an astrolabe from the North Pole. But that should be for later. This northern hypothesis is very exciting because, as shown by Tilak in his *The arctic Home in the Vedas*, this is where Astronomy started. Tilak wrote:

> "The North Pole and the Arctic regions possess certain astronomical characteristics which are peculiar to them, and if a reference to them can be discovered in the writings of the Vedas, it follows, in light of modern researches, that the ancestors of the Vedic Rishis must have become acquainted with these characteristics, when they lived in those regions, which was possible only during the inter-glacial times. […]
>
> "These astronomical statements, it was further shown, unmistakably pointed out that the Vernal equinox was in the constellation of Mriga or Orion (about 4,500 BC.) during the period of the Vedic hymns, and that it had receded

to the constellation of the Krittikas, or the Pleiades (about 2,500 BC), in the days of the Brahmanas…" (Tilak, The Arctic Home in the Vedas, published by the Tilak Brothers, Puna, India, 1956, p. 42.)

I have also found an important text by Lyn on the question of the LaRouche-Riemann method and ancient calendars, from the vantage point of the same geological power of man as referred to by Vernadsky. Lyn wrote:

> "The LaRouche-Riemann method enables us to accomplish two things which could not be undertaken either by astronomy alone, or by application of Sanskrit philology to the astronomical-calendar evidence from the Vedic sources. First, by using the LaRouche-Riemann method, we are able to show that the astronomical-calendar evidence suffices to demonstrate conclusively certain characteristic features of the culture which produced such ancient calendars. Second, from the standpoint of the hypothesis of the higher hypothesis, situated within the LaRouche-Riemann method, the calendar evidence, added to already explored evidence of the recent 2,500 years development of European science, permits us to offer more general, more fundamental conclusions bearing on the principled features of scientific progress than have been otherwise available.
>
> "The initially stunning feature of the ancient calendars is the inclusion of some very long astronomical cycles, including such cycles for the North geologic (and magnetic) Poles. Most stunning of all, the determination of the cycle for the movement of the magnetic North Pole could be accomplished by an ancient culture only where that culture (a well-developed maritime culture) would come from. […] The development of a maritime culture, associated with urban sites, is demonstrable the precondition for the production of the "agriculture revolution" […]
>
> We have in currency two sets of general accounts of the last Ice Age. One account has the glaciation radiating into the North American and Eurasian continents from the polar ice. This account is by no means conclusively demonstrated. The second account associates the Ice Age with entry of the Gulf Stream into the polar region, melting the ice cap, and contributing to the deposit of glaciation upon the adjoining continents. Unless we associate the pre-Vedic polar culture in question with special cases of the Alaska land-bridge, the astronomical calendar evidence requires the Gulf-Stream version of the Ice Age, and points to a stunning antiquity for that culture […]
>
> It is noteworthy that only a maritime-fishing culture would have lived in a quasi-temperate Arctic region [when ocean levels were as much as hundreds of feet lower than today] during the long arctic night. Since early astronomical calendars were produced there, those calendars must have been produced under such cultural conditions." (Lyndon H. LaRouche Jr., *The Present Scientific Implications of the Vedic Calendars from the Standpoint of Kepler and Circles of Gauss*, Fusion Energy Foundation, January 29, 1984, p. 5-6.)

I might add that about 13,000 years ago, when the Pole Star was Vega, the condition of the North Pole were much different than they are today. The climate was warmer because the Earth's North Pole was tilted towards the Sun and the Summer Solstice was near perihelion, that is, about 91.5 million miles from the Sun. Today, the North Pole is oriented away from the Sun, and toward the North Star of Polaris, while the South Pole is tilted toward the Sun. The Summer Solstice is currently near the Aphelion, that is, 94.5 million miles away from the Sun. This is one of the reasons why the northern half of the Earth is currently moving into a colder phase and not a warmer one. We are not in a global warming period, and the difference of 3 million miles is enough to change significantly the climates of the Earth during an important portion of the precession cycle.

I wish to note in ending this portion of the report that most of the works of Hipparchus have been destroyed and that the only access to his discoveries is reported to be through the *Almagest* of Ptolemy. Reports by J. J. O'Connor and E. F. Robertson, indicate that the intent of Ptolemy was to bowdlerize the works of Hipparchus instead of restituting it in its original form for future generations. O'Connor and Robertson stated:

> "Where one might hope for more information about Hipparchus would be in the commentaries on Ptolemy's *Almagest.* There are two in particular by the excellent commentators Theon of Alexandria and by Pappus, but unfortunately these follow Ptolemy's text fairly closely and fail to add the expected information about Hipparchus. Since when Ptolemy refers to results of Hipparchus, he does so often in an obscure way, at least he seems to assume that the reader will have access to the original writings by Hipparchus, and it is certainly surprising that neither Theon nor Pappus fills in the details. One can only assume that neither of them had access to the information about Hipparchus on which we would have liked them to report." (J. J. O'Connor and E. F. Robertson, *Hipparchus of Rhodes*, *190 BC – 120 BC.*)

In other words, what Ptolemy is saying to all of us in future generations is: "Fuck you. I am the only one who has access to the works of Hipparchus, because they have otherwise been destroyed. So, you have no choice but to use my *Almagest* if you want to know anything about him." This is what is implied in the sophistry of O'Connor and Robertson. How convenient it is for historians to declare their impotence about Ptolemy's disgusting bowdlerizing of Hipparchus, instead of denouncing this Ptolemaic method and attempt to develop a hypothesis about the discoveries of this ancient genius. There is nothing more vicious in so-called scholarly work that what these two experts are doing. They are following the ideas of Hipparchus through Ptolemy in the same way that someone would do in making the claim of understanding the ideas of Plato by following the commentaries of Aristotle.

FIN OF PART IV

PART V
MIND AS A MATTER OF POWER OVER THE UNIVERSE

July 3, 2009

"The history of astronomy is an essential part of the history of the human mind."
Jean-Sylvain Bailly.

9- AN INVESTIGATION INTO A SPECIAL FORM OF NON-EXISTENCE.

There exist different forms of non-existing things in the universe, and I published a report on some of them a few years ago in a six part series called *The Paradox of the Poncelet Vanishing Point,* The New Federalist, September-October, 1997. In that series, I showed the nature of different non-existing things, especially when considered from the Leibniz *Principle of Continuity*. There are even different degrees of existence of non-existing things that you have to look for, but that you can't see. For example, when you cross two lines or two flat surfaces together, and you separate those two lines or surfaces, slowly and continuously by a regular extended outward motion, their intersections move upward until you reach the point when you separate the two sticks or the two surfaces from one another. Right? At that moment, the point and the straight line that formed their intersections disappear, but they still exist. You don't see them any more, but you know where they are.

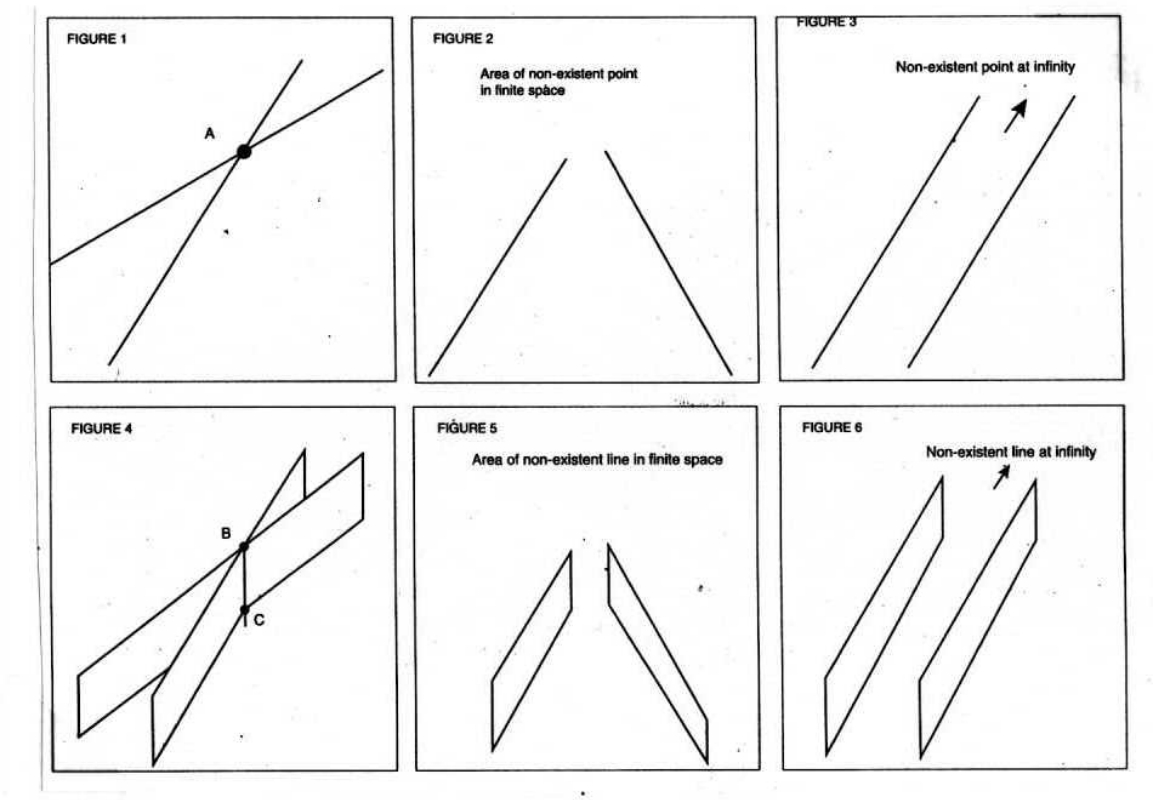


Figure 19. Examples of different non-existing things in different places.

The same thing occurs when you apply the Leibniz *Principle of Continuity* to a change in a conical projection from a circle to an ellipse, from an ellipse to a parabola, and from a parabola to a hyperbola. Those points of transformation of one conic into another are *very real non-existing points*. They are very real, because, otherwise, change could not occur. However, they reflect different forms and degrees of non-existence, because they reflect different degrees of change. The same thing is applicable to the method of historical investigation of Jean Sylvain Bailly.

The most extraordinary aspect of Bailly's method of historical investigation of ancient astronomy lies in the fact that he developed a dialogue with ancient civilizations that have left no physical evidence of their existence: no writings, no artifacts, no archeological records, as in the case of the Atlantis or what can be better identified as the Astronavigating Civilization. The question this raised was: How can you know anything about something or someone who has left no traces? Voltaire was so freaked out when he read the young Bailly say these things in a letter to him, that he wrote back: "I conceive that it is possible for the Indians to have been instructed by a more ancient people. But, is it not permitted to doubt it, since we have received no news of that ancient people?" And Bailly replied:

> "A foreign country might have educated India, without any remaining traces of that ancient event; in fact national pride has every interest in eliminating them. How many men have benefited from gifts they have received, but without mentioning the names of their benefactors? It is permitted to have doubts about this instruction, when we don't have any "news" of this ancient and lost people. Doubt is always permitted in science; it is the touchstone of the truth. However, doubt must have boundaries; all truths cannot be demonstrated like mathematical truths. The human species would have too much to lose, if it were reduced to this unique class. Balanced testimonies, weighed probabilities, comparative fables confirming each other, all project by their coming together a very strong light which may be considered as evidence. And when, with the help of philosophy, we arrived at results that are founded on the nature of things, and on the nature of human beings, we have reasons to believe and not to doubt. You do not need to know the name of a people in order to recognize its existence and its works. Asia is still filled with "news" of that people: the conformities between the known peoples establish this "news"; the institutions of knowledge, very old and situated at the very beginning of oriental nations, established this "news" of a people that created these institutions. Great monuments are not the works of a people who is beginning to rise, but of a people which has come to an end point. A palace cannot be built by children." (Jean Sylvain Bailly, *Lettres sur l' Atlantide de Platon et sur l'ancienne histoire de l' Asie*, Londres et Paris,1779, p.6)

The reason why this question appears somewhat extravagant is because we are accustomed to empirical proofs from the standpoint of British sense-certainty archeology. Instead of using hard empirical facts, Bailly resorted to the method of searching for creative historical ideas. Bailly developed a method of ***epistemological hypothesis*** projected from the light of reason upon discarded patches of history, and shedding lights on foreign fragments and shreds of ideas that no one else had considered useful and which projected distorted shadows that appeared as cognitive evidence of truth on the wall of Plato's Cave.

The irony here is that Voltaire's objection to the Northern Hypothesis for the beginning of civilization comes from the fact that no remains of physical evidence have been left by this people, and Bailly's epistemological hypothesis is entirely based on the absence of such empirical evidence. It is precisely this point that makes Plato's method a better method of discovery, because it appeals to the mind rather than the senses.

For Plato, the burden of the proof is not based on physical evidence, as such, but on a higher hypothesis which requires the internalization of the reader's mind, as a critical component, in the search for truth with respect to the existence of a non-existing people. This component is more important than physical evidence, because it carries within itself the power of discovery of the cognitive proof, which is what the intention of the exercise of these Letters was aimed at accomplishing in the first place. In other words, the purpose of Bailly was never to prove the physical existence of the Atlantians in the North of Asia, or anywhere else for that matter, nor did he intend to prove Voltaire

wrong. His purpose was to use the so-called "no-news" of this extinct people to demonstrate the truth of the Platonic Method.

For example, Bailly rejected the accepted view established by Voltaire and others that the origin of astronomy and of civilization came from India. He hypothesized that the origin of science and most emphatically astronomy came from an astronavigating civilization of the northern region of Europe and Asia, in accordance with the historical account of Plato in the *Timaeus* on the subject of the Atlantis. Since the Egyptians, the Persians, the Chaldeans, the Indians, and the Chinese had all acquired more or less the same astronomical data, Bailly found this suspicious and began to investigate the evidence on three accounts:

1- The same names of stars and of planets were adopted by all of these civilizations, as particularly demonstrated by their ancient calendars showing the same disorder in naming the seven days of the week.
2- Existing records show that these civilizations had not made any of those discoveries themselves and had not communicated this body of knowledge to each other.
3- The same astronomical calendar was adopted, at approximately the same period of history by Egypt, India, Persia, and China.

From this body of questions, Bailly concluded that the source of astronomical knowledge of all of these ancient peoples came from a single astronavigating civilization that was the unique predecessor people which came from the North Pole region of Asia. His most beautiful proof of this is found in the devastating discovery that the seven days of the week in each of those civilizations, represented the seven planets, had the same names of Atlantis ancestors translated in their respective ancient calendars, and also had the seven names of the days were ordered in the same absurd disorder! This was like discovering that you could always trust British Intelligence by realizing they always lied in the same manner.

For example, when British Intelligence later discovered the significance of Bailly's devastating proof, they summoned Oxford professors to deny the existence of that proof. The last denial came from Oxford professor E. G. Richard who is said to have written the definitive refutation of Bailly's discovery in his book entitled *Mapping Time*, in which the author makes the claim that the discovery of the seven days of the week was an invention of Chaldeans astrologers: end of story.

However, for Bailly, the only evidence of the existence of such an ancient people came from the negative side of less ancient and secondary civilizations, such as Egypt, Persia, India, and China that have used, simultaneously (between 2,700 and 3,000 BC), the discoveries of a pervious and more ancient astronavigating civilization going back into the depths of the Neolithic period, possibly hundreds of thousands of years back, and that Tilak had located also in the north during the end of the last inter-glaciation period around 4,500 BC and reaching back no further than about 10,000 BC. Tilak concluded:

> "We have shown that researches in the Vedic chronology do not allow us to carry back the date of the post-Glacial era beyond this estimate, for traditions of the Arctic home appear to have been well understood by the bards of the Rig-Veda in the Orion Period. It is, therefore, almost certain that the invasion of the Arctic Aryan home by the last Glacial epoch did not take place at a time older than 10,000 BC." (Lokamanya Bal Gangadhar Tilak, *The Arctic Home of the Vedas*, Publishers Messrs. Tilak Brothers, Poona City, 1956, p. 397.)

The question that Bailly was seeking to discover the answer to was not so much "Who were these people?" He was not looking for extra-terrestrials. He was looking for the quality of their knowledge, because he had already discovered that the pragmatic knowledge that younger civilizations had was not adequate for making the fundamental cognitive discoveries of astronomy. So, Bailly followed two crucial questions: what are the necessary conditions for cognitive discoveries, and what are the inevitable conditions demonstrating the lack of cognitive discoveries? When a civilization has recourse only to observations, which was the case for ancient Egypt, India, and China, this demonstrated that the simple recording of recurring facts and comparative empirical evidence "speaks very loudly" to a mind that is looking for what is missing. The common evidence from all of the ancient records is the same evidence based on sense-certainty. That is not only insufficient for scientific discovery, but it is an impairment to it. In other words, the "news" came from the fact that all three civilizations reported the same "no-news," and they reported it in the same manner, through fables, legends, and outright lies. As a rule of thumb, a person that resorts to fables hides the fact that it has no truth to tell. So the more a people tell fables about astronomy, the less that people could have been involved in invented it. Here is how Bailly put it:

> "There is a sort of leverage between those peoples, between the Egyptians, the Chaldeans or the Persians, the Indians, the Chinese, the Scythians or the Tartars, they do not surpass each other in antiquity, and this remarkable period of about 3,000 years is approximately the same for all of them. This represents the date at which their knowledge comes down to us. But, we must realize that this is a period of a renaissance of astronomy, and not its beginning. […]
>
> "When we look very carefully at the state of astronomy in Chaldea, in India, in China, we find more debris than elements of science; they have fairly exact methods of calculating eclipses, but they can be made use of practically blind-folded, without any idea of principles of the methods involved, nor with any knowledge of the causes of these phenomena. Certain elements are fairly well known, while others, also essential, and also simple, are either unknown or grossly established; a huge amount of observations which remain unused and without results, for centuries. How can we understand that such peoples, inventors of astronomy, had been unable to perfect it during the long period of their existence? If there are such peoples that cannot walk, anymore than they can create their own sciences, would the people, which once established their knowledge by the motion of their own self-propagation, could ever come to a standstill, and loose their momentum?"

"The art of invention and progress in the sciences are of the same nature. Such progress is only the regeneration of invention, the reliving of a series of similar discoveries, and possibly involving an equal amount of effort. Why, then, did the Indians, but mostly the Chinese and the Chaldeans, accomplished so little progress in astronomy, during such a great number of centuries? It is because these peoples have lived without the astronomical genius, and they had the same apathy for discoveries as for conquests. It is because they have not invented the science. It was the work of a preceding people which, no doubt, had made great strides in the field, but most of whose work had never reached us. That people had been destroyed by a great revolution. A few aspects of its discoveries, of its methods, of the periods that they had invented, had been stored in the memory of scattered individuals. But, they had been stored within vague and confused notions, by way of practical learning, rather than through the cognitive use of principles. The remains of a dismembered science have been brought to China, to India, and to Chaldea; these were delivered to ignorant peoples who did not profit from them. They were told to keep records of their observations of the stars, and the Chinese and the Chaldeans made observations during thousands of years! Their constancy, their assiduousness have been encouraged by astrology which was communicated to them at the same time, and which is much more suitable to the ignorant." (Bailly, *Histoire de l' Astronomie ancienne*, Edition Burillier, Vannes, 1997, p. 36.)

10- HOW ATLAS MIGHT HAVE DISCOVERED THE CELESTIAL SPHERE.

"Atlas invented the sphere, that is to say, he generated the different circles of the heavens, and made a portable model with only a few of these circles. He would demonstrate its use (everywhere he went), and he was seen holding this model of the world on his shoulders. As usual, exaggerated stories came down to us, in admiration of his accomplishments, and thanks to tradition which confuses everything, it was said that Atlas was carrying the universe on his shoulders." (Jean Sylvain Bailly, *Histoire de l' Astronomie Ancienne*, Edition Burillier, Vannes, 1997, p. 149.)

What I want you to think about is how to internalize what the ancient astronavigator, Atlas, must have been thinking when he discovered the celestial sphere, otherwise known as the armillary sphere. Yes, it was Atlas who made that discovery, and who created astronomy, when he put together three concentric circles: an Equatorial

Circle, a Meridian Circle, and an Ecliptic Circle. However, that was not the discovery of principle; that was just the result of his discovery of principle.

The discovery of principle of Atlas occurred during the destruction of his nation and civilization by a natural cataclysm as reported by Plato. This happened sometimes during 4,000 BC, in a period of terrible crisis that tried men's souls, but that was also a period of opportunity that imparted impassioned optimistic conceptions that burnt in men's minds like dynamic caustic fires. Atlas was most concerned with replicating these conceptions and especially their principles for the sake of future generations.

So the question we must ask ourselves is: how did Atlas succeed in replicating the discovery of principle that resulted in generating astronomy with the invention of the sphere? The tumultuous times he lived in seemed to be against his project. Everyone, especially the governing people of his Island of Atlantis were attempting to save themselves and what they had acquired for centuries past. They were not in the least interested in the stars except as a tool to manipulate people with. So it always is with most people; the heavens looked like the flat disk of the Atlantis tradition, and the pragmatic ruling oligarchy was more concerned in bailing out the little treasures they had amassed in the past rather than concern themselves with discoveries of principle for the future. Some things never change.

So, how did the heavens first appear to Atlas? What was he looking for and for what purpose? Bailly's hypothesis is that the celestial sphere was discovered at sea by Atlas while traveling from the region of the North Pole to some southern destination in Asia. So, what was it in the heavens that he would need to be observing, say between the North Pole and the Equator, in order discover the sphericity of the heavenly vault and establish for the first time a scientifically understood astronomy?

Let's do an experiment on how early man used conception to correct perception. For someone living in the northern region of our planet, as Atlas did, one of the very first things to observe must have been the circular motion of the Sun during a six month period of time, and a similar circular motion of the stars at night for another six month period. The overhead spectacle at night must have been conceived somewhat like Figure 16.

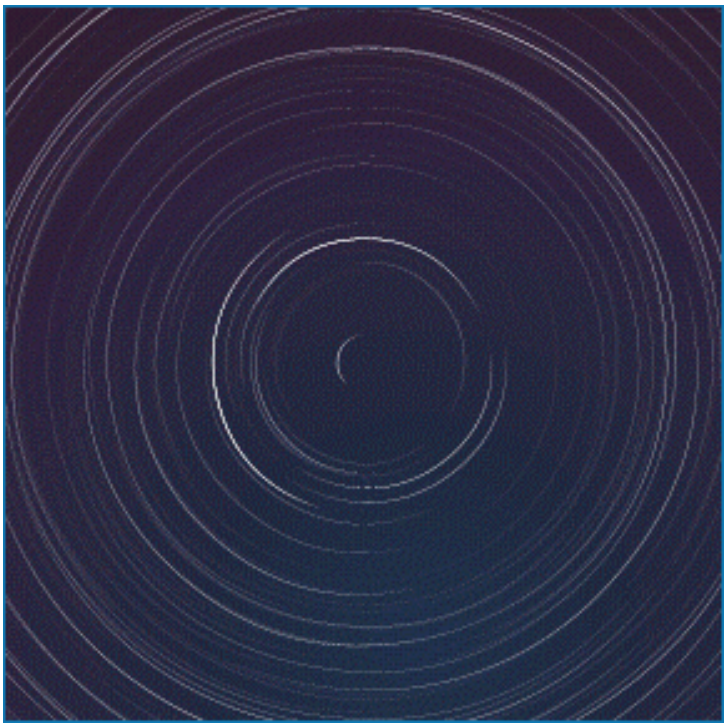


Figure 20. Time-delayed representation of circumpolar stars.

I say, “conceived” because this is not a visual representation of the stars. This is a time-delayed representation, a mental construction that cannot be perceived directly unless it is connected to a conception of time. So, what would that sense-conception of time tell you about the universe? No doubt, such a view would give a sense of the roundness of the starry motion, but would that be sufficient to suggest the image-idea of sphericity of the heavens? No. It would, however, give you a way to measure circular time. This spectacle showing the same stars turning in circles every 24 hours for six months would rather give the visual impression that you are living on a round flat disk and that you have a rotating flat disk of stars over your head marking the time of one day for each revolution.

An early thinker must have had some doubts about this vision of the sky and must have entertained the wish to change his fellow man ‘s worldview. How would he have done that? How can you change the false sense-certainty that most people have of the world they live in? This was done by demonstrating that man is not an animal; that is, by changing the local living environment and ushering in a new and higher universal conception that increased the potential relative population density of humanity. So, traveling southward away from home from the North Pole was the first step in Atlas making his discovery of principle. And since the Atlantis Island was becoming extinct, the time had come to make a crucial change.

However, how do you know what direction to take? How do you know where North and South are if you have never left the North Pole? The only form of travel at the pole is round and round. You cannot determine direction by shadows, because shadows

don't tell you what time of day it is, or even what day it is. Everything you know is tainted by roundness of circular motion. Even time is rotation. One hour is not 60 minutes of linear time; it is 15 degrees of a circular action. So, under such conditions, the idea of South must have been an impossible idea, because it was any direction away from home. In other words, anywhere you go away from the North Pole is going south. The idea of South could only mean going away, because the idea of South cannot be known until the North-South axis is known, and that cannot be known unless one traveled away and discovered dramatic changes in the stars established under nychtemeron conditions.

Furthermore, you cannot have any sense of the other cardinal points either. Where are East and West located at the North Pole? Show me on the terrain or on a map the direction West. You can't do it. Conclusion, the cardinal points do not exist at the North Pole, and therefore the idea of the sphere cannot exist. Going away from home is the only way you can discover new directions to life. In temperate regions, you can find your direction by establishing your bearing to the North Pole, but how do you establish your bearing when you live at the North Pole? You cannot know where the cardinal points are on a circular map. All directions of a circular map point to the south.

So, it must have been terribly confusing to live at the North Pole and discover that night and day are reduced to 24 hours. But, maybe not for Obama, since he keeps going round and round. But, for a normal human being, this is an axiomatic change. That is why it must have been a very difficult task for Atlas to get across this idea of directionality and break the axioms of sense-certainty of his fellow Hyperborean people in the middle of the biggest crisis they ever had. He must have repeated to them, again and again: "Travel away from home and when you come back, you will be a changed man."

So, left to sense-perception, you have no means of knowing that you are really living in a Spherical world at the North Pole, because you can only use that circular Star Map as a flat direction finder as spokes of a wheel. Interestingly, the spoke of a wheel is one of the most often used images of the Rig-Veda. On the other hand, once you are away from the North Pole at sea, the night sky changes completely. New stars appear in the east and some stars disappear in the west. This is how the Astronavigators first discovered the cardinal points, and much more besides.

During such travels, someone like Atlas would have been completely intrigued by the shifting of the circular action of the nightly sky, wherever he went, and he would have discovered that the position of the sky was changing always in the same way with respect to his movement away from home. The key singularity must have been the tilting to the heavenly motion as a whole. No matter where he went, everything in the nightly sky was tilting. That tilting changed with the progressive increase in the southern direction. The further away from the pole Atlas traveled, the more the sky tilted. In other words, going away from the North Pole made you discover that the earth had to have an axis. Think about that for a minute. What is the significance of a tilting sky?

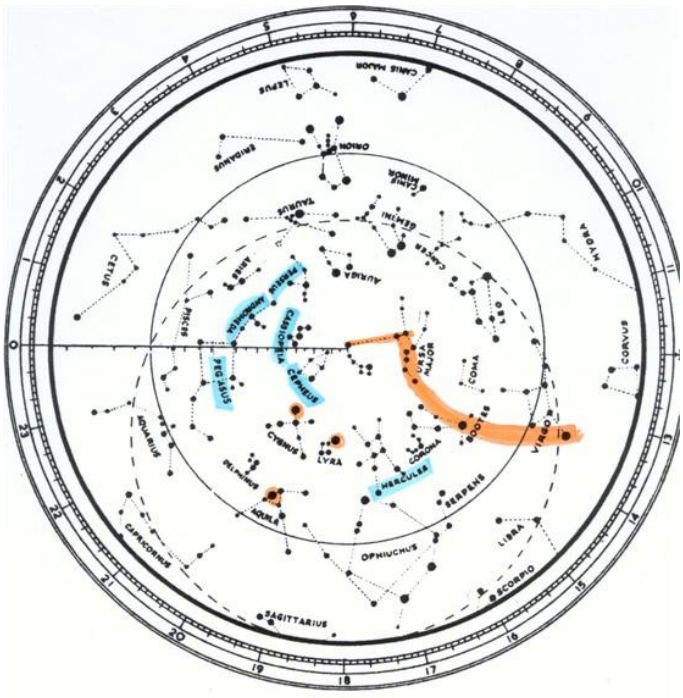


Figure 21. The circular Star Map of the North Pole Region and the names of constellations.

Atlas probably first used a crude disk map with the North Star in the middle, as in Figure 17. And the first constellations that he identified as reference points in his travels, he identified by the names of a leading family of his northern region. Those were Perseus, Cassiopeia, and Andromeda. If you look at the Star Map of Figure 17, you will find those constellations highlighted in blue. Andromeda was the daughter of Perseus and Cassiopeia his wife. According to legend, Perseus was the son of Belos who was the most ancient astronomer of Persia. Since Belos was the discoverer of Iranian Astronomy and Zoroaster the discoverer of fire, it is fair to assume that they were the Persian equivalent of the two brothers, Atlas and Prometheus in Greek mythology. Bailly identified that the inventor of astronomy was unique, but was given different names in different civilizations: "Uranus and Atlas for Atlantis; Fohi for China; Thot or Mercury for Egypt; Zoroaster and Belus for Persia and Babylon." (*Bailly, Histoire de l' Astronomie ancienne*, Edition Burillier, Vannes, 1997, p. 29.)

On can actually reconstruct some of these voyages, especially the north-south travels in Greek mythology, for example, by going through the legends of Hercules in search of the Hesperides who were the daughters of Atlas in the Hyperborean region of northern Asia. Bailly has also a very revealing comment on the origin of the name of the Hercules constellation. It showed that the Greeks had stolen the warrior hero from the northern region of the globe.

> "The name of Hercules is visibly a stranger in Greece, it is solitary and has no family. However, his roots are to be found in the northern languages. *Her*, in Swedish means an army; *heria*, devastation; *herbod*, a declaration of war; *her-bunad*, arms and military equipment; *hera-clede*, a man armed for war; and finally *hersull*, or *her-culle*, a leader of soldiers." (Bailly, *Histoire de l' Astronomie Ancienne*, p. 307)

So, it was only when astronavigators traveled the oceans sufficiently far southward, and in opposite directions from the pole, that the idea of sphericity would have been discovered. Indeed, for an intelligent sailor, the change and tilt in the circulation of the stars at night and the lowering of the Pole Star toward the horizon increasing with southward navigation implied that the earth was round. It was the roundness of the Earth that generated the discovery of the sphere, not the apparent roundness of the sky. It was only after several trips between the Pole and a number of different southern destinations, on opposite oceans, that Atlas was able to discover the roundness of the Earth. Furthermore, it would not have been strange at all to consider that the earth was round because the heavens were making it round by constantly rubbing against it. How else could an astronavigator explain the east-west motion of the Sun during the day, and the same motion of the stars and Moon during the night? The comparison with the six-month rotation of the Sun at the North Pole was striking enough to provoke a total state of perplexity and then, discovery. But, that discovery could not have happened at the North Pole, without having traveled away from home first. Away from home is the best condition for discoveries.

The astronomical reason why the sphere could not have been discovered at the North Pole was because the equinoxes could be identified there. It was the motion of the Sun and of the stars that proved that the earth was round in a zone where the equinoxes could be clearly established and the distinction between night and day divided into two equal periods of 12 hours. That is the crucial point to be made with respect to the discovery of the heavenly sphere. The birth of astronomy cannot occur without the discovery of the First Point of Aries between the equator, the ecliptic, and the meridian circles. In fact Bailly implied that the discovery of the sphericity of the heavens was impossible without the discovery of the sphericity of the earth, and the discovery of sphericity of the earth is meaningless without the discovery of the Equinoxes. Therefore, the most crucial aspect of this sphere was the discovery of the significance of the Ecliptic Circle. This is where astronomy begins. So, let's construct these circles of the Atlas sphere and see how they determine Sidereal Time.

11- THE DETERMINATION OF SIDEREAL TIME AND THE RIDDLE OF THE SACRIFICE (ASYA VAMASYA)

Then, two centuries after Bailly's polemical hypothesis on the subject of a northern people discovering astronomy, Bal Gangadhar Tilak discovered that the ancient poem of the Rig Veda had been originally written in the North Pole region during and Inter-Glacial period. I refer you, particularly, to Chapter II, on The Glacial Period; and

Chapter IX, on the Vedic Vernal Dawn moving round like a wheel. When you read the poem of the *Rig Veda*, you are struck with the lucidity of the poet who wrote that masterpiece and the playfulness with which he describes the workings of his mind through the mastery of metaphor as guides for future generations. Whoever that poet may have been, he was of the caliber of Percy Bysshe Shelley when he appealed to the West Wind: "Make me thy Lyre…" It is permitted to doubt of this northern hypothesis, but the doubt must be accompanied with Geology, Archeology, Linguistic, Paleology, Comparative Mythology, and Astronomy.

The sections that I have chosen for you, presently, have been extracted from a labyrinth of questions that the poet posed in a hymn to the gods called THE RIDDLE OF SACRIFICE. But, the answers to these questions, he has and he has not. The reader is, therefore, provoked to seek the answers to the likely answerable questions, and he soon discovers that the entire poem is an actual road map of the creative process in the universe, including both his own process of creativity and the poet's. The reader is, therefore, deliberately led to seek the knowledge of what the poet knows and to abandon the quest of what he doesn't know. In other words the *Rig Veda* is a dialogue between the poet and the reader who is encouraged to solve the riddle that can be solved and to leave out what cannot be solved. The whole process of the riddle is to discover which is which and to self-consciously make the difference between the two. Here are the sections I chose for you, from THE RIDDLE OF SACRIFICE. Some sections should become obvious to you:

> «2. Seven yoke the one-wheeled chariot drawn by one horse with seven names. All these creatures rest on the ageless and unstoppable wheel with three naves.
> 5. An ignorant fool, I asked in my mind about the hidden footprints of the gods. Over the young calf the poets stretched out seven threads to weave.
> 6. Unknowing, ignorant, I asked for knowledge about it from the poets who know: ***what is the One who in the form of the unborn propped apart these six realms of space?***
> 7. Let him who really knows proclaim here the hidden place of that beloved bird. The cows give milk from his head; wearing a cloak, they drank water with their feet.
> 11. The twelve-spoked wheel of Order rolls around and around the sky and never ages. Seven hundred and twenty sons in pairs rest on it, O Agni.
> 12. Some say that the father with his five feet and twelve shapes dwells in his fullness in the farther half of the sky. But others, here, say that the far-seeing one in the seven-wheeled, six-spoked chariot moves in the near half.
> 13. All the worlds rest on this five-spoked wheel that rolls around and around. Though heavy-laden, its axle does not get hot, nor has it ever broken in its naves.
> 14. The unageing wheel rolls out on its rim; the ten-yoked horses draw it up the outstretched path. All the worlds are kept in motion on the eye of the Sun, that moves on though shrouded in dark space.

18. Whoever here knows his father beneath what is above and above what is beneath – ***who with such mystical insight can here proclaim the source from which the mind of god was born?***
19. Those that are in the future they say are in the past; those that are in the past they say are in the future. The things that you and Indra did, Soma, still pull the axle pole of space as though yoked to it.
24. With the Gayatri foot they fashion a hymn; with the hymn, a chant; with the Tristubh foot a strophe; with the strophe of two feet or four feet they fashion a speech. With the syllable they fashion the seven tones.
25. With the Jagat he fixed the stream in the sky. In the Rathantara chant he discovered the sun. They say the Gayatri has three kindling-sticks, and so its power and magnificence excel.
39. The undying syllable of the song is the final abode where all of the gods have taken their seat. ***What can one who does not know this do with the song?*** Only those who know it sit together here.
42. The quarters of the sky live on the oceans that flow out of her in all directions. The whole universe exists through the undying syllable that flows from her.
48. Twelve fellies, one wheel, three naves – ***who has understood this?*** Three hundred and sixty are set on it like poles that do not loosen." (*The Rig Veda*, an Anthology One hundred and eight hymns, selected , translated and annotated by Wendy Doniger O'Flaherty, Penguin Books, 1981. pp. 76-81, Section 1.164. The questions are highlighted by me.)

The written tradition has tons of interpretations for the *RIDDLE OF SACRIFICE,* so, I don't intend to add any more that has already been done by men wiser than me. However, what I will say is that some questions deserve to be answered and some do not. The four questions that I have highlighted above are definitely worth answering because all, in their own way, interrogate the simultaneity of eternity.

People should not be puzzled by the meaning of the Rig Veda. The hymns mean what they say, even when we don't understand their meaning. It would be wrong to attempt to impose a spin on these verses we don't understand. This is the reason I have used the translation of Wendy Doniger O'Flaherty, because she is the most truthful translator I have found. Her lack of commentary and explanation is preferable to a mountain of speculative glosses that others indulge in.

The poet of the Rig Veda composed a lot of riddles that have no apparent solutions. Don't worry about that. These are meant to precisely puzzle and trouble the mind and not to give any answer. The riddle method is meant to induce in the reader a moment of "learned ignorance" and make him discover the inadequacy of his sense-certainty. This is good for you.

Now back to work. How must you compose your Rete in order to find a specific star at night at any time of the year, when all you have in your hand a disk divided into

360 degrees of 15 degrees each? You will discover a night star by fixing the Sidereal Time of the Sun at noon on that day in your location.

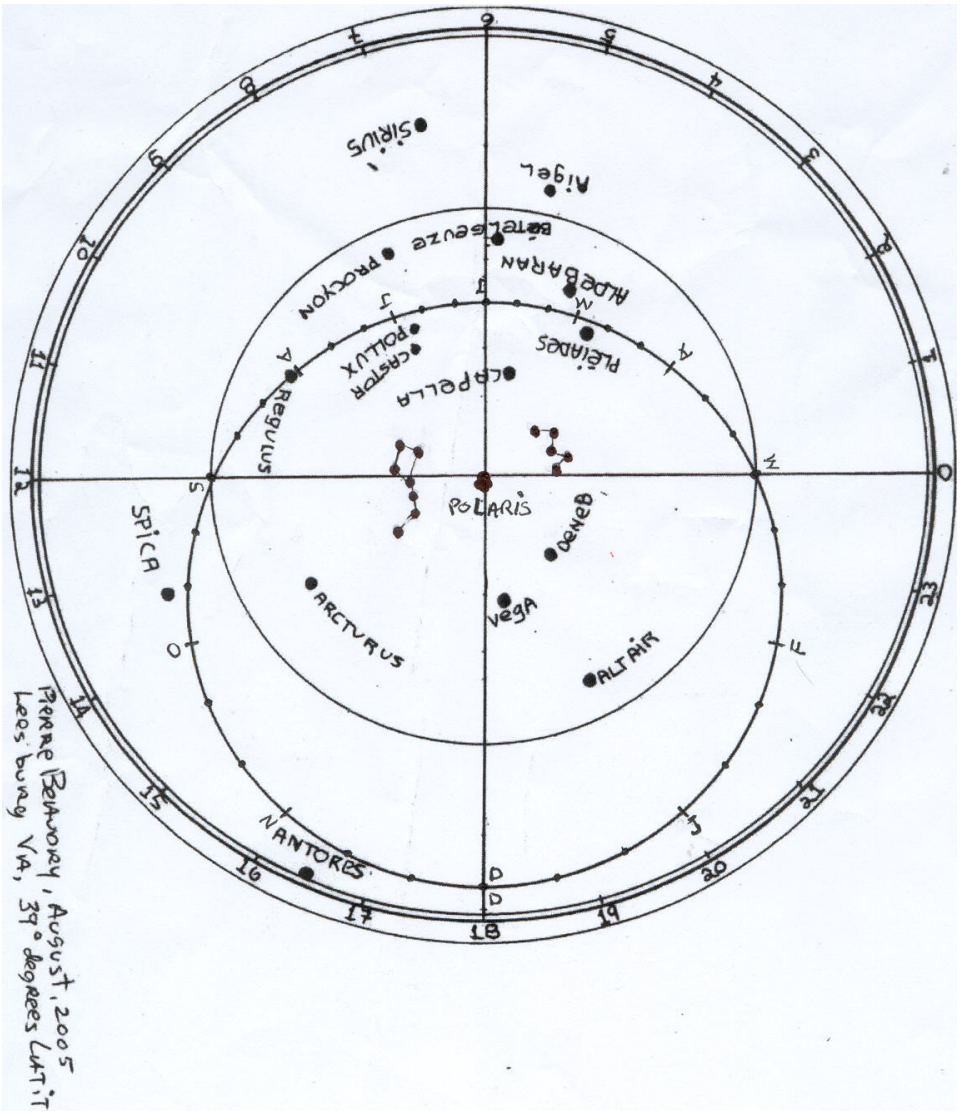


Figure 22. Rete of the astrolabe and the star map of the northern hemisphere centered at the North Pole.

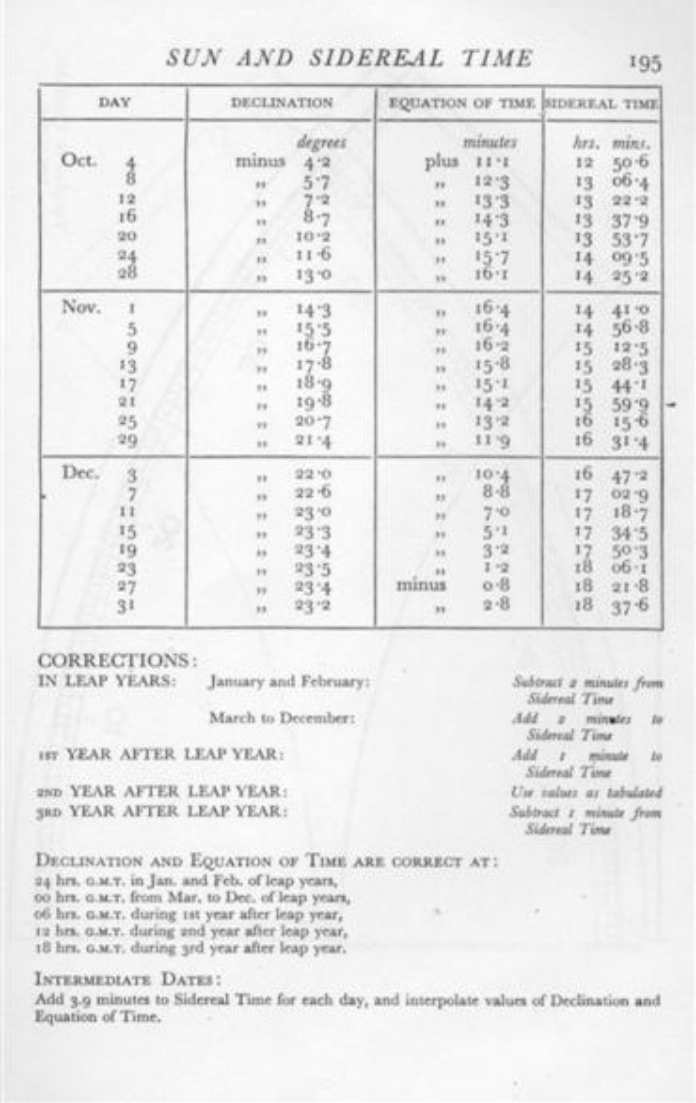
Now, what can the known position of the Sun at noon any day of the year tell us? Since the Sun has a relatively fixed position with respect of the stars, making one rotation with the stars every day, at the exception of a few minutes every year to account for precession, the easiest way to fix that relationship between the Sun and the Stars is at the time when the Sun reaches the highest point (culmination) of its daily path, that is, when it is noon by Apparent Time. Here is a Sidereal Time Table taken from the Schroeder book.

Sun and Sidereal Time at Noon for the Meridian of Greenwich

Day		Declination		Equation of Time		Sidereal Time	
			degrees		*minutes*	*hrs.*	*mins.*
Jan.	1	minus	23·1	minus	3·4	18	42·5
	5	,,	22·7	,,	5·2	18	58·2
	9	,,	22·2	,,	7·0	19	14·0
	13	,,	21·6	,,	8·6	19	29·8
	17	,,	20·8	,,	10·0	19	45·5
	21	,,	20·0	,,	11·2	20	01·3
	25	,,	19·1	,,	12·3	20	17·1
	29	,,	18·1	,,	13·1	20	32·9
Feb.	2	,,	17·0	,,	13·7	20	48·6
	6	,,	15·8	,,	14·1	21	04·4
	10	,,	14·5	,,	14·3	21	20·2
	14	,,	13·2	,,	14·3	21	35·9
	18	,,	11·8	,,	14·1	21	51·7
	22	,,	10·4	,,	13·7	22	07·5
	26	,,	8·9	,,	13·1	22	23·2
Mar.	2	,,	7·4	,,	12·2	22	39·0
	6	,,	5·9	,,	11·5	22	54·8
	10	,,	4·3	,,	10·5	23	10·6
	14	,,	2·7	,,	9·5	23	26·3
	18	,,	1·2	,,	8·3	23	42·1
	22	plus	0·4	,,	7·1	23	57·9
	26	,,	2·0	,,	5·9	0	13·6
	30	,,	3·6	,,	4·7	0	29·4
Apr.	3	,,	5·1	,,	3·5	0	45·2
	7	,,	6·6	,,	2·4	1	00·9
	11	,,	8·1	,,	1·2	1	16·7
	15	,,	9·6	,,	0·2	1	32·5
	19	,,	11·0	plus	0·7	1	48·3
	23	,,	12·4	,,	1·6	2	04·0
	27	,,	13·7	,,	2·3	2	19·8

This timetable determines the declination and position of the Sun as established from the North Pole. It was originally created on such a disk as shown in Figure 17 for travelers like Atlas in very ancient times from the North Pole to any destination in the south. This was the astrolabe of the northern astronavigators. However, for us in temperate zones, we seem to require a Table of Sidereal Times established from the Meridian at Greenwich, and from the First Point of Aries, that is, starting at the spring Equinox, on March 21. This is, therefore, the starting point of our celestial calendar. This First Point of Aries is the point of connection between the Meridian Circle, the Equatorial Circle and the Ecliptic Circle. Now, how do you establish that cognitive connection on the Rete for the purpose of measuring any position of the Sun during the year, without having to go to a Table of Sidereal Times? The answer is simple. All you need is to establish on your Rete, the angular position of the Sun and the Sidereal Time at that angle.

DAY		DECLINATION		EQUATION OF TIME		SIDEREAL TIME	
			degrees		*minutes*	*hrs.*	*mins.*
May.	1	plus	14·9	plus	2·9	2	35·6
	5	,,	16·1	,,	3·3	2	51·3
	9	,,	17·2	,,	3·6	3	07·1
	13	,,	18·3	,,	3·7	3	22·9
	17	,,	19·2	,,	3·7	3	38·7
	21	,,	20·1	,,	3·6	3	54·4
	25	,,	20·9	,,	3·2	4	10·2
	29	,,	21·5	,,	2·8	4	26·0
June	2	,,	22·1	,,	2·2	4	41·7
	6	,,	22·6	,,	1·6	4	57·5
	10	,,	23·0	,,	0·8	5	13·3
	14	,,	23·2	,,	0·0	5	29·0
	18	,,	23·4	minus	0·8	5	44·8
	22	,,	23·5	,,	1·7	6	00·6
	26	,,	23·4	,,	2·6	6	16·4
	30	,,	23·2	,,	3·4	6	32·1
July.	4	,,	22·9	,,	4·2	6	47·9
	8	,,	22·5	,,	4·8	7	03·7
	12	,,	22·1	,,	5·4	7	19·4
	16	,,	21·5	,,	5·9	7	35·2
	20	,,	20·8	,,	6·2	7	51·0
	24	,,	20·0	,,	6·4	8	06·7
	28	,,	19·1	,,	6·4	8	22·5
Aug.	1	,,	18·2	,,	6·3	8	38·3
	5	,,	17·1	,,	6·0	8	54·1
	9	,,	16·0	,,	5·5	9	09·8
	13	,,	14·8	,,	4·9	9	25·6
	17	,,	13·6	,,	4·1	9	41·4
	21	,,	12·3	,,	3·2	9	57·1
	25	,,	10·9	,,	2·2	10	12·9
	29	,,	9·6	,,	1·1	10	28·7
Sep.	2	plus	8·1	plus	0·1	10	44·5
	6	,,	6·6	,,	1·5	11	00·2
	10	,,	5·1	,,	2·8	11	16·0
	14	,,	3·6	,,	4·2	11	31·8
	18	,,	2·1	,,	5·6	11	47·5
	22	,,	0·5	,,	7·0	12	03·3
	26	minus	1·1	,,	8·4	12	19·1
	30	,,	2·6	,,	9·8	12	34·8



SUN AND SIDEREAL TIME 195

DAY	DECLINATION	EQUATION OF TIME	SIDEREAL TIME
	degrees	*minutes*	*hrs. mins.*
Oct. 4	minus 4·2	plus 11·1	12 50·6
8	,, 5·7	,, 12·3	13 06·4
12	,, 7·2	,, 13·3	13 22·2
16	,, 8·7	,, 14·3	13 37·9
20	,, 10·2	,, 15·1	13 53·7
24	,, 11·6	,, 15·7	14 09·5
28	,, 13·0	,, 16·1	14 25·2
Nov. 1	,, 14·3	,, 16·4	14 41·0
5	,, 15·5	,, 16·4	14 56·8
9	,, 16·7	,, 16·2	15 12·5
13	,, 17·8	,, 15·8	15 28·3
17	,, 18·9	,, 15·1	15 44·1
21	,, 19·8	,, 14·2	15 59·9
25	,, 20·7	,, 13·2	16 15·6
29	,, 21·4	,, 11·9	16 31·4
Dec. 3	,, 22·0	,, 10·4	16 47·2
7	,, 22·6	,, 8·8	17 02·9
11	,, 23·0	,, 7·0	17 18·7
15	,, 23·3	,, 5·1	17 34·5
19	,, 23·4	,, 3·2	17 50·3
23	,, 23·5	,, 1·2	18 06·1
27	,, 23·4	minus 0·8	18 21·8
31	,, 23·2	,, 2·8	18 37·6

CORRECTIONS:

IN LEAP YEARS: January and February: *Subtract 2 minutes from Sidereal Time*

March to December: *Add 2 minutes to Sidereal Time*

1ST YEAR AFTER LEAP YEAR: *Add 1 minute to Sidereal Time*

2ND YEAR AFTER LEAP YEAR: *Use values as tabulated*

3RD YEAR AFTER LEAP YEAR: *Subtract 1 minute from Sidereal Time*

DECLINATION AND EQUATION OF TIME ARE CORRECT AT:
24 hrs. G.M.T. in Jan. and Feb. of leap years,
00 hrs. G.M.T. from Mar. to Dec. of leap years,
06 hrs. G.M.T. during 1st year after leap year,
12 hrs. G.M.T. during 2nd year after leap year,
18 hrs. G.M.T. during 3rd year after leap year.

INTERMEDIATE DATES:
Add 3.9 minutes to Sidereal Time for each day, and interpolate values of Declination and Equation of Time.

Figure 23. Table of the Sun's angular declination and Sidereal Time.

How do you find the Sidereal Time at your location? I have two answers: a short one and a longer one. The short one is when all of your local chimneys bow their shadows to the graceful North Star. The second is calculated by way of the SPHAERICS method of angular measurement.

In Leesburg, for example, if I were at the center of my time zone, the Sun would be directly south on my meridian at noon. Right? Since the Longitude of Leesburg is 77.5575 degrees west, it has a discrepancy of 2.5575 degrees west of the center of our Eastern Standard Time Zone of 75 degrees, or 5 hours west of Greenwich at 0 degrees. Having learned during my military training in map reading that "West is Best while East is Least", and being in the western part of my time zone, I would have to add to my clock 2.5575th of an hour of Sun Time past Eastern Standard Time, that is 10.23 minutes after Eastern Standard Time noon, or 12:10.23 pm.

However, there is an added complication. Since we are on Eastern Daylight Time, which is 60 degrees west of Greenwich, that means the Sun is going to be late an hour getting here. Therefore, since the speed of the Earth rotation is 15 degrees an hour moving in the easterly direction, the Sun would be delayed one full hour before passing over my Leesburg meridian in its westerly direction. So, this week in Leesburg, noon Solar Time should be clocked at 1:10.23 pm.

Lo and behold, as I walked outside the door at that time, yesterday, the Sun, peeking between two clouds, was crossing the meridian of Leesburg, at the same time. At the very same instant, all of the Leesburg chimneys, as if ordered by an unheard command and in one concerted motion without exception, pulled their shadows at attention and saluted the North Star. It was a wonder to see, almost as impressive as a changing of the guards.

Finally, you establish Sidereal Time for the stars by locating the position of the Sun at noon on the First Point of Aries on the day of the Vernal Equinox. The difference now is that you are going to use a universal table that is valid for all astrolabes around the world, because you are fixing the position of the Sun with respect to the Stars and not with respect to your local position. The Sidereal Time Table of Figure 19 is a universally valid projection based on the 24-hour division of the heavens, with 0 hours established on the day of Spring Equinox, 21 March in the First Point of Aries.

Aries has been the chosen constellation to lend its name to the Equinox, on March 21 in 70 BC. From that time on, the intersection of the three Atlas Circles have been called the First Point of Aries, thus establishing the beginning of the astronomical year. The precession has moved this point across the constellations of Aries and Pisces for the last 2,000 years to where it is today. (See Figure 6) The precession of the Equinoxes will be entering the constellation of Aquarius around year 2,600 AD. The Vernal Equinox will return to Aries in about 23,000 years from now.

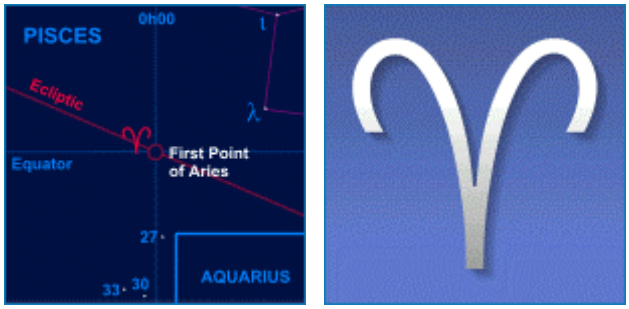


Figure 24. The First Point of Aries.

12- A FEW PROBLEMS TO SOLVE.

Here are a few problems that you can try and solve once you have put your Rete and your Table together with an Alidade in accordance with the First point of Aries.

- What do you see at your Zenith Point on January 21, at 9:15 pm.?

- What time does the sun rise on November 1?

- On August 10, we observe the Summer Triangle on the eastern side of your Zenith. Vega is at 75º/15º Deneb at 58º/20º, and Altair at 43 º/37º degrees. What time is it in Montreal?

The reason why these connections all come together so beautifully, that is to say, the connections between the Rete, the Table, and the Alidade, is because the Zenith Function you have just constructed brings together any position you may choose, in the simultaneity of eternity, from any location on Earth with any motion at any time in the Universe. The unity of effect is everywhere established by a truthful integration between sense-perception and sense-conception. Good work!

FIN OF PART V

PART VI
MIND AS A MATTER OF POWER OVER THE UNIVERSE

July 18 and 25, 2009

13- BAILLY AND THE EQUATION OF TIME.

> "Time is also relative, in the same sense that space is relative. There are no existing rules of the universe, which stand outside of the universe, except one: creativity. The only universal that stands outside of the universe is the principle that governs the universe: Creativity. And, if we want to understand ourselves, and understand the world, politically and otherwise, we have to understand the concept of creativity. And have to think as, you know, ancient theologians thought, in terms of simultaneity of eternity: that time is relative. It's relative to reactions. It's relative to those reactions which govern the rate of *change in the laws of the universe as a whole*. That's what time measures. And whenever you have a physical change, as in the physical system, macrophysics for example, you can have changes in time. The principle of time still is there, but from the standpoint of clock-time, it doesn't mean anything any more! What means something is the conflict in sense of time, the difference in sense of time, time of reaction." (Lyndon H. LaRouche Jr, *NEC Meeting*, Saturday, July Fourth 2009.)

When you step outside of the universe, as Hipparchus did for the purpose of constructing the astrolabe, the idea is to change the local situation that you are in at the

same time that you identify yourself with a governing principle of the universe outside of the universe and in the future, that is the process of creativity. This, in itself, changes the reality of time, because you are governing the universe and you are being governed by it at the same time: your freedom becomes necessity. It is as if you were pulling yourself up by your shoestrings. It is in that sense that Lyn says that the universe is not organized on the basis of mutual reactions of independent parts acting on each other from the past, but on the basis of the universe as a whole, acting on itself from the future. This is another way to say that in astronomy, it is not enough to simply make observations of celestial phenomena; it is essential to connect them to a universal physical principle that gives direction to humanity, as if by inversion of tangents. This is what the equation of time truly means in astronomy. It does not mean that you must adjust your watch to Sidereal Time. It means that you adjust your mind to a process of change oriented toward the future. That, again, is the function of the Leibnizian differential.

Moreover, this inside and outside self-developing governance of time also pertains to creativity, and so are the instruments we create to master it, like the ironies of the Polar projection and your Zenith Function, for example. These are the Pegasus winged horses that pull the carriage of your imagination around the universe. The same thing applies when you attempt to determine the time factor of the other Pole Star, Vega, as if the action of a universal physical principle were always acting from the outside of our local position on earth. Think of the case that Lyn is making about the effect that the Crab Nebula has on changing the condition of solar radiation on earth. It's the same kind of thing. So, I also take this opportunity to relate to what Lyn keeps raising in a different way by showing the importance of the effect on earth of the great cycle of the precession of the equinoxes.

According to historical records, it was Hipparchus who discovered the precession of the equinoxes, but that is not really true. The ancient Egyptians had very early on determined the beginning of the year with the Heliacal rising of Sirius (Sothis) which was timed with the Spring Equinox and the beginning of the flooding of the Nile. Hipparchus merely continued the same tradition of keeping a regular record of precession, also from Sirius, the brightest star in the sky. However, as I have shown elsewhere, the phenomenon was known in much more ancient times than the Egyptians, and we find echoes of it in the writings of several ancient civilizations, notably, in the Rig Veda. The main question that I want to raise is: *how do you relive such an original discovery of a human being that has died thousands of years ago?* For example, how can you relive the discovery of the original idea of the stereographic sphere of the heavens by its original astronavigator? How do you relive the original invention of this spherical calendar, as Bailly attributed it, historically, to the leading astronomer of the Hyperborean people, Atlas? As Jean Sylvain Bailly put it:

> "Atlas invented the sphere, that is to say, he generated the different circles of the heavens, and made a portable model with only a few of these circles. He would demonstrate its use (everywhere he went), and he was seen holding this model of the world on his shoulders. As usual, exaggerated stories came down to us, in admiration of his accomplishments, and thanks to tradition which confuses

everything, it was said that Atlas was carrying the universe on his shoulders." (Jean Sylvain Bailly, *Histoire de l'Astronomie Ancienne*, Edition Burillier, Vannes, 1997, p. 149.)

So, Atlas was the chief astronavigator of the Hyperborean people, along with his brother, Prometheus, who had stolen "fire seeds from the wheel of the Sun" and had given them to humanity for its security and improvement. These two so-called mythical brothers were not mythical creatures at all. They were very real human beings, living prior to the Egyptian civilization, that is, just prior to 3,500 BC. Their ancient civilization of astronavigators did exist probably for several thousands of years before the construction of the Great Pyramid of Egypt, and they were the likely ones who gave birth to Egyptian civilization as well as to the Indian civilization.

This said, I want you to concentrate on the thinking processes of those ancient astronavigators with respect to the heavenly sphere and their idea of time of the equinoxes. If you are an ancient astronavigator and you wish to discover what this universe is all about, the first thing you are going to do is to look at the sky. The very first universal question is primarily addressed at the sky. The question of universal time, for example, has always been an attempt to understand the heavens? What are you going to look for? Time will be determined by how you are you going to discover some ordering principle among the stars? But, what is the ordering of so many cycles? For example, how are the cycles of the planets related to the cycle of precession? So, to discover that, you need three essential things:

1-First, you have to make an effort to reconstruct in your own mind the specific moment of history that you are investigating. A discovery is always *historically specific*, as to when and where it happened, and it always relates to a specific universal phenomenon.

2- Secondly, you have to get rid of the Stupid British oligarchical way of thinking about the slow development of early man. Human reason did not take 300,000 years to develop, as the British would have you believe. This would be as stupid as saying that the first mammal took 300,000 years to discover its mother's milk. So, *reason is immediately universal*, no matter when or where it appears in history.

3- Thirdly, when you look at the heavens, you are looking at *a paradox of time*. You are looking at the future of humanity, but you are also looking at the past and the present of the universe. Any universal discovery with respect to time and celestial observation involves the simultaneity of eternity.

In their stubborn opposition to man being a man different from the animal, the British Oligarchy created irrational myths in order to avoid the intellectual effort of having to explain reality from the standpoint of reason. For example, in his famous book *Paradise Found*, William F. Warren made a good case against this nineteenth century British falsification of science, and showed how British anthropologists and archeologists systematically distorted truth with the use of ancient myths. (See, William F. Warren,

Paradise Found, Boston, Houghton, Mifflin and Company, 1885.) But, before looking at *Paradise Found*, let's take a special case of simultaneity of eternity.

14- THE TILAK OPEN-ENDED ELLIPSOID CRADLE OF PRECESSION.

It is important to walk through how Tilak explained the astronomical condition under which the Inter-Glacial period of the Rig Veda had occurred. I am leaving out, for the time being the other geological factors that have also played a crucial role in such a dramatic change as a glacial period. Aside from looking at the inclination of the precession of the equinox, there is also the activity of the sunspots cycles that have a direct impact on cooling or warming cycles. Consider, for example the reports of Greg Murphy about the Russian scientist Khabibullo Abdusamatov of the Space Research Lab at the Pulkovo Observatory who predicted a Little Ice Age to begin around 2055-60 and which would last until the end of the 21st century. Although, when one is looking for the cause of a complex phenomenon such as time and climate change, it is impossible to bring closure with any precision, because of the dynamic nature of the process of constant change. Here again, poetry must supercede mathematics in physics. Hence, Tilak has provided us with the following geometrical illustration, a beautiful elliptical metaphor to help us discover the magnitude of our shortcoming on this question.

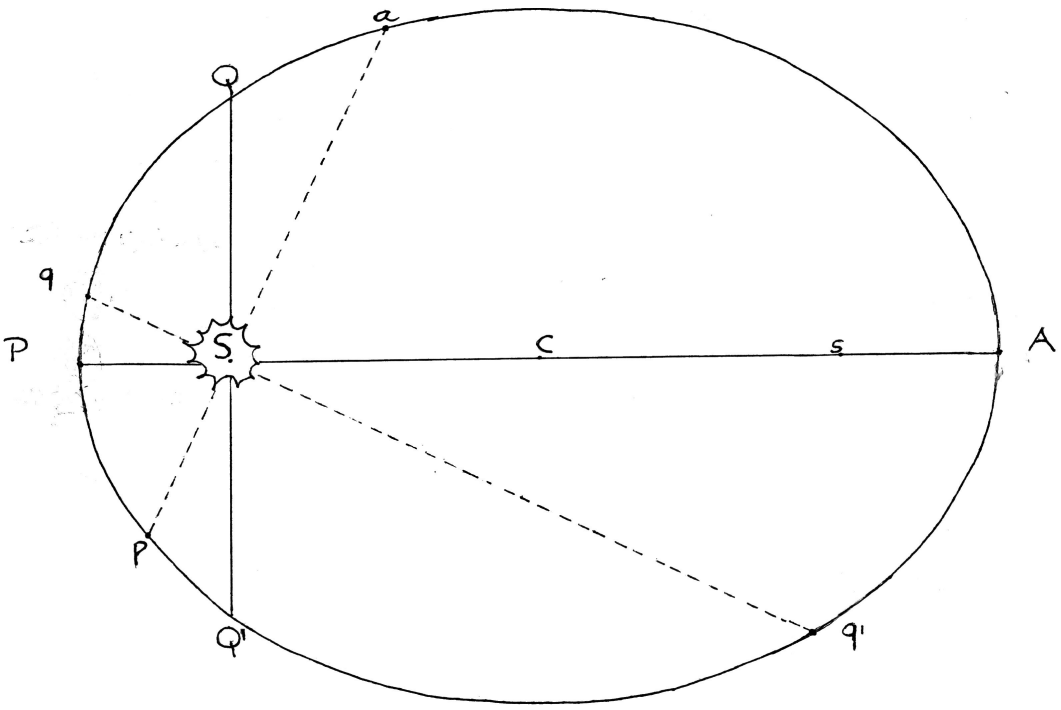


Figure 25. The mental scheme of the precession of the equinoxes according to Tilak.

Tilak established precession in the manner illustrated in Figure 1. He wrote:

"Let PQ'AQ represents the orbit of the earth round the sun. This orbit is an ellipse, and the sun, instead of being in the center C is one of the foci S or s. Let the sun be at S. Then the distance of the sun from the earth when the latter is at P would be the shortest, while, when the earth is at A, it will be the longest. These points P and A are respectively called perihelion and aphelion. The seasons are caused, as stated above, by the axis of the earth being inclined to the plane of its orbit. Thus, when the earth is at P and the axis turned away from the sun, it will produce a winter in the northern hemisphere; while when the earth is at A, the axis, retaining its direction, will be now turned towards the sun, and there will be summer in the northern hemisphere. If the axis of the earth had no motion of its own, the seasons would always occur at the same points in the orbit of the earth, as, for instance, the winter in the northern hemisphere at P and the summer at A. But, the axis describes a small circle around the pole of the ecliptic in a cycle of 25,868 years, giving rise to what is called the precession of the equinoxes, and consequently the indications of the earth's axis to the plane of its orbit is not always the same at any given point in its orbit during this period. This causes the seasons to occur at different points in the earth's orbit during this great cycle. Thus, if the winter in the northern hemisphere occurred when the earth was at P at one time, some time after it will occur at p and the succeeding points in the orbit until the end of the cycle, when it will again occur at P. The same will be the case in regard to summer at the point A and the equinoxes at Q and Q'. In the diagram the dotted line qq' and pa represent the new positions which the line QQ' and PA will assume if they revolve in the way stated above. It must also be noted that though the winter in the northern hemisphere may occur when the earth is at p instead of at P, owing to the aforesaid motion of its axis, yet the orbit of the earth and the points of perihelion and aphelion are relatively fixed and unchangeable. Therefore, if the winter in the northern hemisphere occurs at p, the earth's distance from the point at the point will be greater than when the earth was at P. Similarly, in the course of the cycle above mentioned, the winter in the northern hemisphere will once occur at A, and the distance of the earth from the sun will then be the longest. Now there is a vast difference between a winter occurring when the earth is at P and a winter occurring when it is at A. In the first case, the point P being nearest to the sun, the severity of the winter will be greatly modified by the nearness of the sun. But at A the sun is farthest removed from the earth, and the winter, when the earth is at A, will be naturally very severe; and during the cycle the winter must once occur at A.

"The length of the cycle is 25,868 years, and ordinarily speaking, half of this period must elapsed before the occurrence of winter is transferred from the earth's position at P to its position at A. But, it is found that the points P and A have a small motion of their own in the direction opposite to that in which the line of equinoxes QQ' or the winter point p moves along the orbit. The above cycle of 25,868 is, therefore, reduced to 20,984, or, in round number 21,000 years. Thus, if the winter in one hemisphere occurs when the earth is at P, the point nearest to the

sun in the orbit, it will occur in the same hemisphere at A after a lapse of 10,500 years. It may be here mentioned that in about 1,250 A. D., the winter in the northern hemisphere occurred when the earth in its orbit was at P, and that in about 11,750 A.D. the earth will be again at A, that is, at its longest distance from the sun at the winter time, giving rise to a severe winter. Calculating backward, it may be seen that the last severe winter at A must have occurred in the year 9,250 B. C. (See Herschel's *Outlines of Astronomy*, Ed. 1883, Arts, 368-69) It need not be mentioned that the winter in one hemisphere corresponds with the summer in the other, and that what is said about winter in the northern hemisphere applies *mutatis mutandis* to seasonal changes in the southern hemisphere." (Lokamanya Bal Gangadhar Tilak, *THE ARCTIC HOME IN THE VEDAS*, Poona City, 1956, p.25-27.)

So, although you don't need to do your shopping early for the next cycle, we can expect to be in a full-blown glacial period in about 9,740 years from now. Bear in mind that the duration of winters and summers are also constantly varying during these long cycles, as time varies within the space envelope of a space-time ellipsoid that accounts for the day, the year, and the precession of the equinoxes. According to that triple-time hypothesis you could trace the nested envelope of the three astronomical times in the simultaneity of eternity. For example, since the points Q and Q' represent the equinoxes and the points P and A represent the extremes of perihelion and aphelion, the lengths of winters and summers during a period of 21,000 years would also vary considerably and would affect those three times simultaneously, every day of the year. As a result of such changes, the duration of summer and winter would vary depending on the rotation of the equinoxial line QQ' along the orbit during the long cycle, but also following the sun-spot cycles of solar activity, as well as the daily rotation of the earth. The difference between summer and winter in geological time is about 33 days at the maximum and 7 ½ days at the minimum, but depending on whether summer and winter occur at aphelion A or at perihelion P, and depending on the 11 year cycles of sun-spot activity, the distribution of sun-heat units will vary considerably because of the tilt of the earth's axis as shown by Tilak. In other words, in accordance with Kepler's law of equal areas in equal times, Tilak estimated that the amount of heat received from the sun by the earth would vary in accordance with the obliquity of the earth, or the inclination of its axis to the ecliptic. Tilak noted that if we calculated the total number of sun-heat units to be 365, or an average of one unit per day, given the inclination of 23.5 degrees of the ecliptic and considering that the tilt of the earth might be toward the sun or away from it, each hemisphere would invariably receive respectively 229 units during the summer and 136 units in the winter. Under that complex circumstance, Tilak formulated the following hypothesis:

"Supposing, therefore, that we have the longest winter in the northern hemisphere, we shall have to distribute 229 heat-units over 166 days of a short summer, and 136 heat-units over 199 days of a long winter of the same period. In other words, the difference between the daily average heat in summer and winter will, in such a case, be the greatest, producing shorter but warmer summers and longer and colder winters, and ice and snow accumulated in the long winter will

not be melted or removed by the heat of the sun in the short summer, giving rise, thereby, to what is known as the Glacial period in the northern hemisphere. From what has been stated above, it may be seen that the southern hemisphere during this period will have long and cool summers and short and warm winters, a condition precisely reverse to that of the northern hemisphere. In short, the Glacial and Inter-Glacial periods in the two hemispheres will alternate with each other every 10,500 years, if the eccentricity of the earth be sufficiently great to make a perceptibly large difference between the winters and the summers in each hemisphere." (Tilak, Op. Cit., p. 29-30.)

Thus, you can kiss goodbye to the fraud of global warming forever, and you may want to rent a permanent seat in the sun at the North Pole, or at the South Pole, when the next event of Inter-Glacial time should come in those respective places every 10,500 years.

As Tilak demonstrated, the most amazing moment of the year, in those arctic regions, is the 60-day rise of Dawn bringing the Sun slowly above the horizon, initiating a six-month day starting at the vernal equinox. Plinus was conveying the same idea when he wrote: "*The people of this climate, the Hyperboreans, sowed in the morning, harvested at noon, gathered the fruits in the evening, and stored them during the night in their caves*." (Plinus, Book. IV, C. 12.) The only place on this planet where such metaphors of the year/day cycle could apply is at the North Pole where the night and day of temperate regions is the same as the year of 12 months. Here is the translation of a relevant section of the Rig Veda by American professor Maurice Bloomfield. This is on the subject of the Dawn personified by the goddess Ushas:

This light hath come, of all the lights the fairest,
The brilliant brightness hath been born, far-shining,
Urged on to prompt the sun-god's shining power.
Night now hath yielded up her place to morning.

The sisters' pathway is the same unending,
Taught by the gods, alternately they tread it.
Fair-shaped, of different forms, and yet one-minded,
Night and Morning clash not, nor yet do linger.

Bright bringer of delights, Dawn shines effulgent,
Wide open she hath thrown for us her portals.
Arousing all the world, she shows us riches,
Dawn had awakened every living creature.

'T is Heaven's Daughter hath appeared before us,
The maiden dazzling in her brilliant garments.
Thou sovereign mistress of all earthly treasures,
Auspicious Dawn, flash thou today upon us!

On heaven's frame she hath shone forth in splendor;
The goddess hath cast off the robe of darkness.
Awakening the world, with ruddy horses,
Upon her well-yoked chariot Dawn approacheth.

Showering upon it many bounteous blessings,
She spreads her brilliant luster – all may see her.
Last of the chain of mornings that have passed by,
First of bright morns to come Dawn hath arisen.

Arise! The breath of life again hath reached us!
Dread darkness slinks away and light is coming!
She hath blazed a pathway for the sun to travel,
We have found the place where men prolong existence.

(Translation A. A. Macdonnell, *History of Sanskrit Literature*. From Maurice Bloomfield, *The Religion of the Veda*, G. P. Putnam's Sons, The Knickerbocher Press, New York, 1908, p. 30-31.)

Here, the passionate sky of Dawn from the Rig Veda induced in the poet's mind not merely earthly treasures such as the awakening of life in every creature, but also the awakening of a divine yearning for immortality (the place where men prolong existence). This singularity at the end of the hymn is not surprising because Dawn had already prepared your mind to anticipate the idea of immortality by evoking the participation in eternity with respect to the pathway of the seven Polar Stars of Precession ("The sisters' pathway is the same unending, Taught by the gods, alternately they tread it.") The North Pole is where immortality becomes a natural feature of daily life.

Moreover, one can have an extraordinary insight into the simultaneity of eternity by internalizing the process of time as being a mixture of precession, year, and unending daytime. Only at the north pole can such an mix occur, where time cannot be divided between daytime and nighttime, between light and darkness, because time is stretched and extended into six months of sunshine and six months of starlight separated at both ends by 60 days of the sacred Dawn or Dusk.

This means that 24-hour days are not real time-markers and must be determined by something else than nychtemeron sunlight and darkness. What can that be? At the North Pole, time can only be identified by circular motion against the horizon. So, this is a most propitious place on earth where rotational action marks the time. This is probably where the first rotation of the universe was originally observed and measured, and determined to be a twenty-four hour celestial rotation? How else would you know what daytime is at the North Pole, when there is no nighttime? How would you mark the celestial clock? There is no apparent reason to use a 12-hour clock! Time can only be measured by the angular radial difference taken from the North Star and by angular

rotation taken from the horizon. The earthly day, therefore, becomes the heavenly year of 360º degrees. In other words, one hour is not 60 minutes. One hour is 15 degrees.

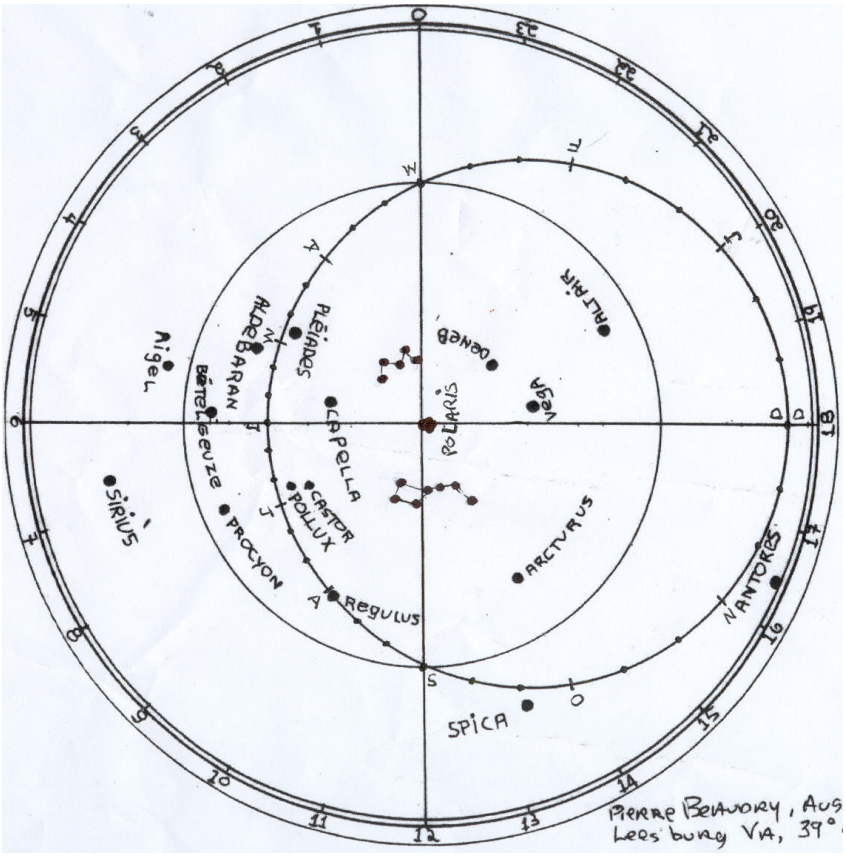


Figure26. The Rete of the astrolabe reflecting observation centered from the North Pole.

This is the paradox of the Rete: the 24 hours of the day mark the division of the year into 24 hours of 15º degrees each. So, in a sort of strange way, at the north pole, time is inseparable from the rotation of space, and thus, space-time marks the day by first determining the year by angular measurement; that is, by the motion of the sun along the horizon, during a long period of six months. That is an expression of the simultaneity between the gods and human beings that Tilak had discovered as a crucial shadow from the *Arctic Home of the Veda*. That being the case, you also need a winter calendar to monitor the circular motion of the eternal stars for another period of six months. Such a Rete would have done just fine as a complete astrolabe for the North Pole.

15- DID ASTRONOMY BEGIN AT THE NORTH POLE?

"*That which is a year is but a single day of 15- the gods*." (Taittiriya Brahmana, III, 9,22,I)

Only a very ancient Asiatic people living near the North Pole, above the 50th parallel, could have reported such a statement as in the Taittiriya Brahmana. Bailly confirmed this by demonstrating that astronomy was born in the north-eastern regions of the planet, as this was also later confirmed by Tilak in *The Arctic Home of the Vedas*. As the following series of accounts of every significant eastern nation will show, Bailly was right in identifying that every one of those nations had found ways of claiming to be the originator of astronomy through some form of mythical origin at the North Pole. Here are some of the key accounts of peoples relating their divine origins at the North Pole. (From William F. Warren, *Paradise Found*, Houghton, Mifflin and Company, Boston, 1885.)

1.2- IRANIAN ACCOUNT

According to the second *Farguard of the Avesta*, there is this most ancient and extraordinary Iranian account in this singular form of dialogue:

"*O Maker of the material world, thou Holy One! What lights are there in the Vara which Yima made?*"

"*Ahura Mazda answered: There are uncreated lights and created lights. There the stars, the moon, and the sun are only once a year seen to rise and set, and a year seems only a day.*"

The ancient Iranians also relate to a Chinvat bridge between the earth and the heavens, which is located "in the middle of the world" at the North Pole, and which is the Eden of the Iranian tradition, the Kvantras: "the central of the seven divisions of the earth, and the one in which men and the good religion were first created." (William F. Warren, Op. Cit., p. 156)

This demonstrates without any doubt that this most ancient text is derived from the account of an observer located in the North Polar Region.

2.2- AKKADIAN-SUMERIAN ACCOUNT

It has been established by the 18th century French astronomer Jean Sylvain Bailly, *HISTOIRE DE L'ASTRONOMIE ANCIENNE*, 4 Volumes, 1775-82, (1789-1791), and *TRAITE DE L'ASTRONOMIE INDIENNE ET ORIENTALE*, that the Akkadian-Sumerians, the Egyptians, and the Indians had established a common calendar which identified that their ancestors were initially located at the North Pole, sometimes between 6,000 and 12,000 B.C. Also, according to a collaborator of Bailly, Gabriel Francois Dupuis, astronomers of these ancient peoples had the same division of the sky, and had established their calendars according to the same stars. Similarly, French historian Joachim Menard reported that " according to the most ancient traditions, the country of Akkad is considered to be the center of the earth; that is to say the location for the summit of a mountain on whose apex is pivoted the heaven of the fixed stars." (Joachim Menard, *Babylone et la Chaldee*, Paris, 1875, p.46) In other words, the original Akkad is the circumpolar mother country after which the Akkadia of the Tigro-Euphrates valley was named.

3.2- INDIAN ACCOUNT

First and foremost, the ancient Rig-Veda report that the motion of the heaven is like that of a wheel, and that the connection between the celestial vault and the earth is in the alignment of a common axis. Rig. Veda X, 89, 4. Indra is said "*to separately uphold up by his power heaven and earth as the two wheels of a chariot are held by the axle*." (Tilak, *Op. Cit.,* p.60.) And Rig Veda X, 89, 2, Indra "*is turning the widest expanse of stars (varamsi) like the wheels of a chariot.*" It is clear that if the writer of this text were to be observing the sky in some temperate or tropical latitude, the stars and the earth could not be described as wheels perpendicular to a common axle, for the simple reason that the stars would appear to be tilted and moving laterally, in half circles, rising in the east and setting in the west.

For the Rig-Veda description to be true to observation, the north star, around which all the other stars rotate, would have to be the center of one wheel, which is at the zenith, and the horizon circle of the earth would have to represent the other wheel, whose center is located at the position of the observer, and at a right angle to the axle. Thus, the motion of the celestial hemisphere as witnesses by the writer of the Rig-Veda, could only have taken place in the immediate Circumpolar Region. Furthermore, Rig-Veda 1, 24, 10. Reports that the constellation of Ursa Major (RIKSHAH) is also referred to as being placed in a "high" (UCHAH) altitude, which is only possible, near the North Pole. In this connection, Tilak made the thoughtful remark that the original text never speaks of the stars rising and setting, but of their "appearing" during the night, and of their "disappearing" during the day. (Tilak, Op. Cit., p.61)

Elsewhere, in the Surya Siddhanta, XII, 67, it is written: "*At Meru, gods behold the sun but after a single rising during the half of his revolution beginning with Aeries." The gods behold the sun after it is once arisen, for half a year.*" And similarly, the Institutes of Vishnu reported: "*The northern progress of the sun is a day with the gods. The southern progress of the sun is (with them) a night. A year is (with them) a day and a night*." Also in Manu, I, 67: *A year (Human) is a day and night of the Gods; thus are the two divided, the northern passage of the sun (Uttardyana) is the day and the southern the night."* Lastly, according to Vanaparvan: "*The day and the night are together equal to a year to the residents of the place."* (Vana-parvan, Chapter 164, VV, 11-13. Quoted by Tilak, Op. Cit., p.63) In fact, every time the sun is said to have its "passage" in the north or in the south, the passage has to occur in the North Pole at the spring and fall equinoxes.

4.2- JAPANESE ACCOUNT OF PRECESSION

According to a very ancient Japanese tradition, reported in their most ancient book Ko-Ji-Ki, the creators and the first inhabitant of our world were a god and a goddess whose names were Izagagi and Izagani. "*In the beginning, standing on the bridge of heaven, they pushed down a spear into the green plain of the sea, and stirred it round and round. When they drew it up, the drops that fell from its end consolidated and became an island. The sun-born pair descended onto the island, and planting a spear, in the ground, point downwards, built a palace around it, taking that for the central roof pillar. The spear became the axis of the earth, which had been caused to revolve by the stirring round*." (From Sir Edward J. Reed, JAPAN, Vol. I, p.31.) This extraordinary account of the creation of the earth and of its precession (stirring round) is further confirmed by Emile Burnouf who reported that the ancient Shu King of Japan had "*seen a pearl-adorned turning sphere with its traverse tube of jade, and he determined the whole to a harmonious system around the movements of the Seven Directors.*" (E. Burnouf, *LA PIQUE CELESTE DE JADE ROUGE, in LA MYTHOLOGIE DES JAPONAIS D'APRES LE KOKU-SI-KYAKU,* Paris, 1875, p.6.) This traverse tube was none other than the representation of the axis of the heavens which rotates around the Seven North Stars of the Celestial Pole during the whole period of precession. In the *Revue des Deux Mondes*, Paris, 1834, Letronne reports that according to Japanese Cosmogony, "*The predecessor, or "father", of our present sun and moon, is represented as beginning his activities in the new-created world by repeatedly performing in a horizontal plane, a circum-ambulation of the "Island of the Congealed Drop*" (i.e. the Island of the North Pole).

5.2- CHINESE ACCOUNT

As Warren stressed in his *PARADISE FOUND*, "the Chinese terrestrial Paradise is described not only as being "*at the Center of the Earth* ", but also as being directly

under Shang-te's heavenly palace which is declared to be at the North Pole, and which is sometimes styled "*Palace of the Center*." Very probably, the historic designation of "*the Middle Kingdom,*" was originally a sacred name, commemorative of that primeval middle country..." (Warren, Op. cit. p.244) This is also consistent with the ancient Chinese tradition of burying their dead in alignment with the North Pole; that is, toward the original land from where their ancestors were born, and to which all generations must return, as was also practiced by the Ainos Japanese tradition. (Jean Sylvain Bailly, *LETTRES SUR L'ORIGINE DES SCIENCES ET SUR CELLE DES PEUPLES DE L'ASIE*, Paris, 1777, p. 236.]

6.2- MEXICAN ACCOUNT

The ancient Mexican tradition established that their ancestors came from the north and that the cradle of their race was located at the North Pole. There are accounts of the Aztecs which relate to a primeval time when the sun "*laid on the horizon and moved not*." A misapprehension which is nonetheless very close to a deformation of the statement of Anaxagoras, who described the Sun as being barely above the horizon for a period of 6 months and similar to the forgetful deformation of a "yearly day" of the Hopi Indians. (Dorman, *PRIMITIVE SUPERSTITIONS*, Philadelphia, 1881, p.330.) According to Warren, the North Pole was also the residence of the Mexican god Tlaloc.

> "Thence come the rains and all streams, for Tlaloc is the god of waters. The first man Quetzalcoalt, after having ruled as the king of the golden age in Mexico, returned by divine direction to the primeval Paradise in the North (Tlapallan), and partook of the draught of immortality. The stupendous terraced pyramid-temple in Cholula was a copy and symbol of the sacred Paradise-Mountain of Aztec tradition, which was described as standing " In the center of the Middle-Country."(Warren, Op. Cit., p. 247)

The idea of a common axis between the center of the earth and the center of the heavenly sphere is one of the most common recurrence for describing the original home of numerous ancient peoples. [(IM CENTRUM DES MITTELLANDS) from Luken, TRADITIONEN, P. 75: citing Clavigero, STORIA DEL MESSICO, Tome II, p.13-14.] Even among the Incas of Peru, there exists, in a Central Temple, a pillar located in the center of a circle, and divided by a diameter that is perfectly oriented east to west. (F. Debry de Thiersant, *DE L'ORIGINE DES INDIENS DU NOUVEAUX MONDE ET DE LEUR CIVILISATION,* Paris, 1883, p. 125.) There are also many examples, throughout Ibero-America, where the temples and pyramids of the Mayas and the Aztecs are oriented toward the North Star.

7.2- EGYPTIAN ACCOUNT

It has been widely recognized that the Egyptian Ta-Nuter, the "*land of the gods*" was located at the North Pole; that is, where the most elevated point in the north joins the sky. This relationship to the north is further confirmed by the fact that all of the Egyptian pyramids, without exception, have all of their opening passages on their northern face, and the angular position of their passage ways, especially the grand Gallery of the Great Pyramid, are perfectly oriented toward the North Star Alpha Draconis. This is extensively confirmed by the Pyramid Texts, which is an exemplary demonstration of the fact that the pyramids were not tombs but, in point of fact, astronomical observatories.

8.2- JUDAIC ACCOUNT

Although there is, for the ancient Hebrews, no strict localization of the supreme God living in the circumpolar regions of the heavens, nor are there any direct reference, in the Bible, that Earthly Paradise was located at the North Pole, and that Jehovah is omnipresent in the universe ("*Do I not fill heaven and earth*"), they have nonetheless shared, in some measure, with the cosmological ideas of most of the Asiatic peoples, and the metaphors of these ancient times that the primeval Eden was the center of the earth, "the umbilicus" of the northern region of the globe.

According to Schenkel's Bibel Lexicon, Leipzig, 1879, Vol. 2, p.49, Dillmann wrote: "Like the Hindus, Persians, Greeks, and the Teutons,...the Shemitic tribes spoke of a mountain of their gods in the far North (Is. xiv. 13; Ezc. xxviii. 14); and even with the Jews, notwithstanding the counteracting influence of the Mosaic creed, traces of such popular belief continued to be visible [Ps. xviii], for example, when the North was being regarded as the sacred quarter."

9.2- GREEK ACCOUNT

According to Diogenes Laertius, the ancient Greek astronomer Anaxagoras made this remarkable statement: "*In the beginning, the stars revolved in a Tholiform manner*." (meaning to revolve in a circular vault.) Another remarkable statement by Anaxagoras pointed to the existence of a report from an observer who could only have been a navigator coming from the North Pole region, and who witnessed a change in the latitude of the Pole Star. Anaxagoras stated that, "*At first, the Pole Star, which is continually visible, always appeared at the zenith, but later, it acquired a certain declination.*" Warren, here, remarked, quite accurately, that "we have as a doctrine of the ancient

astronomers the singular notion that, in the beginning of the world, the celestial Pole was in the zenith, and that the revolutions of the stars were around a perpendicular axis...When and under what circumstances was this alleged "declination" of the Pole imagined to have taken place? Was it gradual, or sudden? Did the ancients suppose it to have resulted from a movement in the regular order of nature, or from one in violation thereof? Was it to them a normal and ever on-going change, or was it the record of a natural catastrophe?" (Quoted by William F. Warren, in *Paradise Found*, P.190-194.) Warren concluded that the only explanation had to come from the relocation of mankind during the catastrophe of a deluge during a glacial period.

> "Our hypothesis would lead us to expect the latter of the suppositions. The only rational and credible explanation of the declination is to be found in the transfer of the theater of human history from the circumpolar home to some land of lower latitude. Now, if during the prevalence of the Deluge, or later, in consequence of the on-coming of the Ice age, the survivors of the Flood were translocated from their antediluvian home at the Pole to the north slope of the "Plateau of Pamir", the probable starting-point of historic postdiluvian humanity, the new aspect presented by the heavens in this new latitude would have been precisely as if in the grand world-convulsion the sky itself had become displaced, its polar dome tilted over about one third of the distance from the zenith to the horizon. The astronomical knowledge of those survivors very likely enabled them to understand the true reason of the changed appearance, but their rude descendents, unfavored with the treasures of antediluvian science, and born only to the savage or nomadic life of their new and inhospitable home, might easily have forgotten the explanation. In time, such children's children might easily have come to embody the strange story handed down from their fathers in strange myths, in which nothing of the original facts remained beyond an obscure account of the mysterious displacement of the sky, supposed to have occurred in a far-off age, in connection with some appalling natural cataclysm or world-disaster." (Warren, Op. Cit., p.194)

There is also an account, in Plato's Timaeus, that a comet may have deviated [parallaxis] from its least action pathway, and hit the earth, causing general fire and flooding that engulfed the Atlantis, at about 9,600 B.C. But that would not be enough to cause a sudden shift in the axis of the planet. As the Egyptian priest identifies the case in the education of Solon, the story of Phaeton is not a myth, but a true story. As Plato reported:

> "And a very old priest said to him. 'O Solon, you Greeks are always children, and there is not one Greek who is an old man.' When he heard this, Solon said, 'What do you mean by that?' - 'You all have young souls,' said the priest, because you possess in them not one old belief rooted in ancient tradition, nor any knowledge acquired by age. And the reason is this: there have been and will be many and various destructions of humanity, the greatest ones are caused by fire and water, and other lesser ones by many other causes. Even the story you tell about how Phaeton, the child of the Sun, having harnessed his father's chariot

> was unable to drive it along his father's pathway, and burned up everything on earth, and himself got killed by a thunderbolt, is but a mythical version of a true event. The truth is that a small deviation [parallaxis] in the pathway of the heavenly bodies around the earth sometimes results, after long intervals of time, in great destruction by fire."[Timaeus, 22,d.]

The notion of "parallaxis" which Plato also uses in *The Statesman*, 269, e. signifies a small deviation by which the circular motion of a heavenly body is wrenched away from its least action course, and has caused its catastrophic course to be oriented toward the earth. There is another ancient "myth" which established that it was the son of Prometheus, Deukalion, whose universal flood extinguished this fire conflagration.

Notwithstanding the theories whereby the change in the declination of the Pole star may have been caused by a sudden and cataclysmic change in the axis of the earth, the fact remains that the phenomenon is made more sensible and intelligible when one considers the change in position of a human observer on the surface of the earth, rather than to move the entire surface of the planet itself. It is more real to transfer the human horizon from the North Pole to a southern declination, than to transfer the mass of the Himalayas into the mid-western part of the United States in order to cause the shift in the axis of the earth. Even the theory of continental drifts could not have affected such a change in the axis of the planet.

The most extraordinary phenomenon, in all of this, however, is that the *Havrita* of the Hindu, the Akkad of the Akkadians, the Ta-Nuter of the Egyptians, the Tsze-wei of the Chinese, the Onogorojima of the Japanese, the Kvaniras of the Iranians, the Tlapalan of the Mexicans, etc., are all located under the Pole Star which is situated at their Zenith, thus identifying the congruence between the axis of the Earth and the axis of the universe, which the Egyptians termed, "the spine of the earth," and Plato identified as "the Spindle of Necessity."

From that standpoint, all of the early cultures of the world have a common cognitive congruence with respect to the Circumpolar Region of the Earth, thus, reflecting a common heritage of mankind, a common distance between the intellectual and moral capabilities of all human beings, equally created in the Image of God. Such accounts therefore demonstrate that the distance between the cognitive discoveries of those ancient peoples, with respect to the orbs of the heavenly bodies, are proportionately, in the same simultaneity of eternity, as the distance between all of the peoples of the earth today, a proportion which can only be measured by the common universality of the cognitive revolutions of human reason.

FIN