

Thoughts on the illuminative cycle of the Sun. The Southern Hemisphere

written by

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(translated from Italian into English by Margherita Fiorello)

*Thou appearest beautifully on the horizon of heaven
Thou living Aton, the beginning of life!
When thou art risen on the eastern horizon,
Thou hast filled every land with thy beauty.
Thou art gracious, great, glistening,
and high over every land;
Thy rays encompass the lands
to the limit of all that thou hast made*

Hymn to Aten (1)

The Sun

The Sun is a spectral class G2 yellow dwarf, a little bigger and hotter than an average size star. Class G2 stars live about 10 billion years before completely exhausting all their fuel: nucleocosmocronology studies have determined for the Sun an estimated current age of little more than 5 billion years (2). It belongs to the galaxy known as Milky Way, a star system consisting of about 200 billion stars, where it occupies a peripheral position, about 27,000 years light from the center, around which it rotates at a speed of about 225 kms/s, therefore making a complete revolution in 200-250 million years (= 1 cosmic year).



Fig. 1: Image of the Sun surface taken by SOHO, the ESA-NASA spacecraft

The Sun (fig. 1) is a sphere of glowing gas of 1.4 million kilometers in diameter; it is inside its core, the inner area, where the temperature is around 15 million degrees C and the pressure is extremely high (around 500 billion atmospheres), that thermonuclear fusion reactions take place: every second 600,000 tons of hydrogen are turned for 99.25% into helium and for 0.75% in energy. This 0.75% released every second is equivalent to 405.000 billion terajoules (TJ): it is a minimum amount of energy for the Sun, but in absolute a huge, unthinkable amount which could

be matched only if all the power stations on our planet would work for six million years under full load!

After a very long journey from the core to the photosphere (the transparent gas region thick about 400 kms, separating the Sun inner opaque layer from the surrounding atmosphere), the solar energy leaves our star at a definitely much lower temperature of 5500°C ., illuminating and making everything known, first of all its source. First of all in fact it is perceived from us as light. Around the Sun orbit eight main planets, Pluto and other dwarf planets, satellites and countless other small bodies, including asteroids, a good part of meteoroids, comets, trans-Neptunian objects and dust scattered through space.

The movements of the Earth around the Sun

The Earth, third planet of the solar system, like the other planets makes a rotation around its axis and one revolution around the Sun.

Earth's rotation: the earth rotates in 24 hours around its axis (an imaginary line joining the North and the South Pole), making a movement which as its effect has the alternation of day and night. Because of Earth spherical shape the Sun's rays, arriving parallel, illuminate only the hemisphere they are facing, while the other remains in the dark. The circle delimiting the dark hemisphere from the light one is called circle of illumination. The transition from day to night is not so sharp, however, because the atmosphere partly diffuses the Sun light even when it does not directly arrive on the surface: the particular time of day when the sky is illuminated while the Sun is not visible is known as dawn in the morning and dusk in the evening.

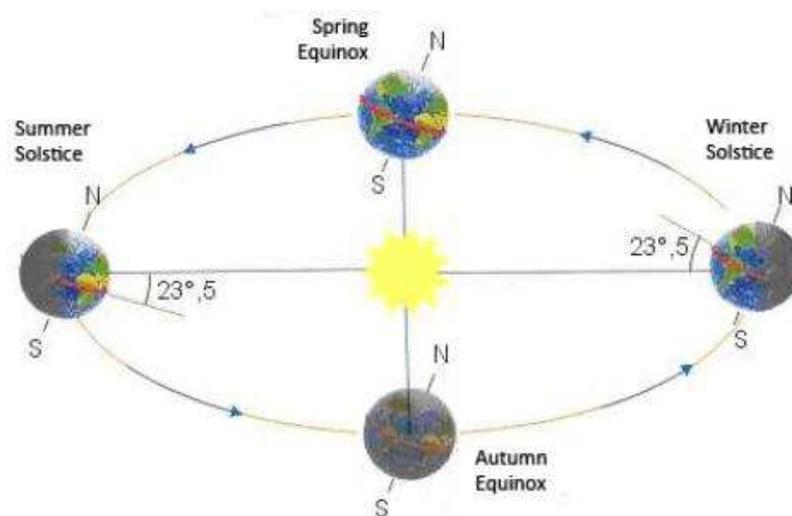


Fig. 2: The Earth in its revolution around the Sun

Earth revolution: in addition to a rotational motion, the Earth performs a revolution around the Sun. It revolves counter-clockwise along an elliptical orbit. During this motion the earth's axis, which is tilted by $66^{\circ} 30'$ to the plane of the orbit, remains constantly parallel to itself (Fig. 2).

Since the rotation axis is not perpendicular to the orbital plane continuous and periodic differences of light and heat are produced in different places of the earth's surface; on the contrary if the rotation axis were perpendicular, the *circle of illumination* would always pass through the poles, and all points of the Earth, because of the rotation, would be all the year 12 hours in the illuminated hemisphere and 12 hours in the dark one.

The revolution lasts 365 days, 6 hours, 9 minutes and 10 seconds (sidereal year).

An observer on the Earth takes part of the planet motions and therefore has no perception of them: on the other contrary he gets the feeling that it's the sky (and the Sun in particular) to move around him (3). The apparent path of the Sun around the Earth and therefore to the celestial sphere, which is its projection, is called *ecliptic*, and it crosses the celestial equator in two points: the gamma point (γ) at the time of the vernal equinox and the omega point (ω) at the autumnal equinox (fig. 3).

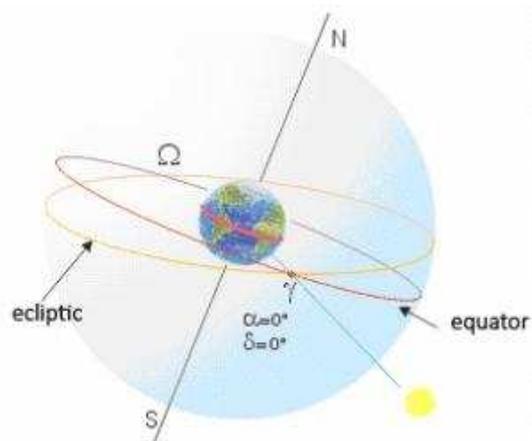


Fig. 3: The apparent path of the Sun around the Earth

The time interval between two successive passages of the Sun to the gamma point (γ) is called *tropical year* from the Greek τροπή, 'change', because the star at solstices and equinoxes generates the change of season. The tropical or solar year lasts on average 365 days, 5 hours, 48 minutes and 46 seconds (4).

The main consequences of the movement of the Earth's revolution and tilt are the different lengths of day and night throughout the year and seasons.

The different length of day and night

As mentioned above, the Earth rotates around itself from West to East clockwise, but to the observer on the Earth it is the sky to appear constantly moving clockwise from East to West. Within 24 hours the celestial vault seems to rotate on itself and the heaven bodies move, in their apparent path around the Earth, along an imaginary circle parallel to the equator (*parallel of declination*), which is smaller the more they are distant in declination. This apparent rotation is called "diurnal motion" (fig. 4).

Obviously the Sun behaves like the other heavenly bodies and when the parallel of declination along which it moves, crosses the horizon at East, it becomes visible, ie it "rises": it then starts its

path toward the upper culmination, subsequently it declines in the West, ie it “sets”, becoming again invisible: proceeding in the invisible hemisphere it reaches the lower culmination and starts to rise again at East.

The parallel of declination of the Sun can therefore be divided into two parts: one above the horizon, visible, which is called " diurnal arc", the other below, not visible, called "nocturnal arc".

The Sun diurnal arc equates with the day: being the star visible, there is the light; the nocturnal arc to the night: being the star invisible there is in fact no light.

Diurnal and nocturnal arcs are measured in degrees or hours; the longer a star is above the horizon, the greater is its diurnal arc (5).

In the case of the Sun therefore the greater is its diurnal arc the longer is the day, the greater is its nocturnal arc, the longer is the night.

The diurnal arc of a star (and thus of the Sun or of a point on the celestial sphere) at latitude 0° (on the Equator) is equal to the nocturnal arc and it is 12 hours, consequently every hour on the equator is equal to 15° .

Away from the equator conversely an hour (*temporal hour*) is greater than 15° if the star is at North (positive declination), lesser if the star is at South (negative declination).

The diurnal temporal hour of a star can be calculated as follows:

$$\text{if } \delta > 0^\circ \quad dtH = 15 + 1/6 AD$$

$$\text{if } \delta < 0^\circ \quad dtH = 15 - 1/6 AD$$

where AD is the Ascensional Difference, ie the difference in degrees, measured on the equator, between the right ascension (α) of the star (ie its distance from the equator of the γ point) and the degree of equator rising in that moment. On the terrestrial equator every point of the celestial sphere rises with its RA and therefore the AD is equal to 0° . Away from the equator toward the pole all the stars which are not on the celestial equator rise with equator degrees more and more distant from their RA and therefore the AD is greater and greater.

A star AD in fact depends on two variables: its declination and the terrestrial latitude ϕ of the place where the observer is.

The nocturnal temporal hour can be obtained by subtracting from 30 the diurnal temporal hour.

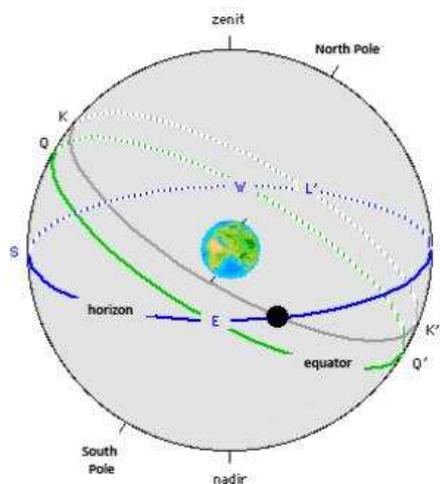


Fig. 4 : The diurnal motion or apparent path of a star around the Earth.
(The image is taken from Cielo e Terra astrology course “Lezioni di astrologia”)

It follows then that depending the Sun diurnal arc (=day time) and nocturnal arc (= night time) on its declination (due to its location along the ecliptic) and the terrestrial latitude of the different places of our planet, they change according the day of the year and/or locality.

Below we specify how the Sun declination in the Northern hemisphere varies according its position along the ecliptic (which for the astrologer signifies its presence in the different signs, which are nothing else than the division into 12 shares of 30° each of the zodiacal belt, running along the ecliptic itself):

Longitude (λ)	Sign	Declination (δ) at the beginning of the sign
from 0° to 30°	♈	0
from 31° to 60°	♉	11.48
from 61° to 90°	♊	20.16
from 91° to 120°	♋	23.45
from 121° to 150°	♌	20.16
from 151° to 180°	♍	11.48
from 181° to 210°	♎	0
from 211° to 240°	♏	- 11.48
from 241° to 270°	♐	- 20.16
from 271° to 300°	♑	- 23.45
from 301° to 330°	♒	- 20.16
from 331° to 360°	♓	- 11.48

Seasons

Seasons are produced by the combination of two factors:

- 1) the different length of light and darkness during the 24 hours, throughout the different periods of the year (according to the mechanism explained above);
- 2) the different height [*angle of incidence*] of the Sun on the horizon, namely the angle with which the Sun rays reach the Earth surface.

In the northern hemisphere our star, when it has a Northern declination (in Spring and Summer) is very high above the horizon and its rays, falling almost vertical to the South, cross a thin layer of atmosphere and are not "filtered"; when it has a Southern declination (in Autumn and Winter) remains low on the horizon and its rays, through a thicker atmosphere layer, reach the surface weak and little calorific (fig. 5).

In conclusion, the same ray falling perpendicular on the surface of the Earth warms and illuminates a portion of the soil more limited than the one it illuminates and warms falling oblique, and the result is a greater heat.

The formula of spherical trigonometry to calculate the height (h) of a star above the horizon, knowing:

- . δ (declination of the star)
- . φ (latitude of the place)
- . H (hour angle of the star, ie its distance in right ascension from MC)

is: $\sin (h) = \sin (\delta) * \sin (\varphi) + \cos (\delta) * \cos (\varphi) * \cos (H)$.

This formula, applied to the Sun, allows us to know the height and angle of incidence of rays at any place and at any time.

During its revolution the Earth (see Fig. 2) touches on March 21, June 21, September 23 and December 22, four key points corresponding to as many points of the apparent solar path, and marking the beginning of the four astronomical seasons (6).

March 21st - Spring Equinox - Beginning of Aries Υ

- ❖ Spring starts in the Northern hemisphere and Autumn in the Southern hemisphere.
- ❖ At the North Pole starts the polar day, at the South Pole the polar night.
- ❖ Day and night have the same length.
- ❖ The Sun rises and sets, respectively, to the East and West, and crosses the celestial equator (γ point).

June 21st - Summer Solstice - Beginning of Cancer $\♋$

- ❖ Summer starts in the Northern hemisphere and Winter in the Southern hemisphere.
- ❖ At the North Pole the Sun remains above the horizon for six months while at the South Pole it remains below for the same time.
- ❖ The day length is the greatest in the Northern hemisphere and the lowest in Southern one.
- ❖ Days begin to decrease in the Northern hemisphere and to increase in Southern one.
- ❖ The Sun rises at North-East and, passing the Meridian at the maximum distance of $+23^{\circ}27'$ from the celestial equator, sets at North-West.

September 23rd - Autumn Equinox - Beginning of Libra $\♌$

- ❖ Autumn starts in the Northern hemisphere and Spring in the Southern hemisphere.
- ❖ At the North Pole starts the polar night, at the South Pole the polar day.
- ❖ Day and night have the same length.
- ❖ The sun rises and sets, respectively, to the East and West, and passes on the celestial equator (ω point).

December 22nd - Winter Solstice - Beginning of Capricorn $\♍$

- ❖ Winter starts in the Northern Hemisphere and Summer in the Southern one.
- ❖ At the North Pole the Sun remains below the horizon for six months while at the South Pole it remains above for the same time.
- ❖ The day length is the greatest in the Southern Hemisphere and the lowest in the Northern hemisphere.
- ❖ Days begin to decrease in the former and decrease in the latter.
- ❖ The Sun rises in the Southeast, it passes the meridian at a distance of $-23^{\circ}27'$ from the celestial equator and sets in the Southwest.

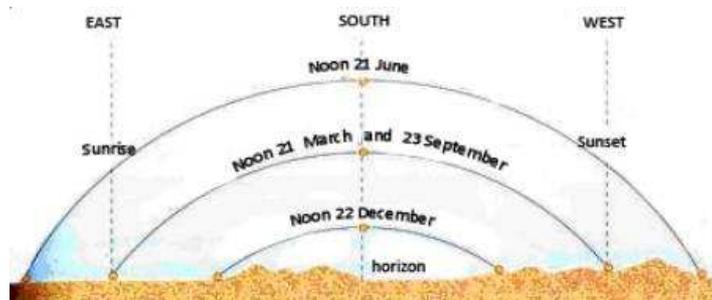


Fig. 5: The diurnal arc of the Sun in the days of the equinoxes and solstices

The equinoxes, also called Aries and Libra's points, because in the ancient times the Sun was projected on the homonymous constellations, correspond to the points of the celestial sphere where the Sun crosses the celestial equator; the intersections of ecliptic and celestial equator are also called orbital nodes and are differentiated into *ascending node* (Spring equinox), when the Sun in its apparent motion passes from South to North of the celestial sphere, and *descending node* (Autumn equinox), when six months after, on the contrary, it moves in the opposite direction. The solstices are the points of the Earth's orbit with the maximum distance from the celestial equator, namely those of the apparent path of Sun where it reverses its direction of travel; around the Summer solstice there is also the point of maximum distance of the Earth from the Sun (aphelion) and around the Winter solstice (perihelion) there is the point of minimum distance.

Astronomical areas

The main reference points on the terrestrial sphere are:

1. The *axis*, the imaginary line around which the earth rotates;
2. The *poles*, the two extreme points where the axis is intersected by the Earth's surface: North Pole (the one facing the Pole Star) and South Pole (the diametrically opposite point);
3. The *equator*, the great circle delimiting on the Earth's surface the perpendicular plane to the axis, which is at the same distance from the poles;
4. The *meridians*, i.e. the great circles delimiting planes passing through the poles and therefore perpendicular to the equator;
5. The *parallels*, the circles delimiting planes parallel to the equator and therefore also perpendicular to the axis.

We can consider the equator as the parallel with 0° latitude: its importance is crucial because it divides the terrestrial sphere into two hemispheres, the Northern hemisphere (or Boreal) and the Southern (or Austral) one, and it is not a coincidence, that on shipboard, its crossing is celebrated uncorking bottles of champagne or wine.

On the equinoxes it is possible to observe the Sun culminating at zenith at the equator: at the exact astronomical noon the Sun is in the highest point in the sky, exactly on the observer's vertical (Zenith), so the shadows of buildings or poles disappear. The rays fall perpendicularly on the ground and, among the rest, it is possible to observe the image of the solar disk at the bottom of wells, reflected by water, even to tens of meters deep.

Applying, in fact, for the terrestrial latitude 0, the formula of spherical trigonometry to calculate the height of a star mentioned earlier, when Sun's declination is 0 (and therefore only on March 21 and September 23) the result is 90° (7).

At the equator, moreover, the Sun always rises and sets at the same exact time. Considering the astronomical hour of the place of the observer, the Sun rises at 6 am and sets at 6 pm. These values can considerably change, it is obvious, if the civil time of the given nation is used for calculation, but the length of solar illumination and thus the pace day/night, both of twelve hours each, remains constant, and for all the year.

The equator is part, together with Tropic of Cancer (latitude $23^\circ 27' N$), the Tropic of Capricorn (latitude $23^\circ 27' S$), the Arctic Circle (latitude $66^\circ 33' N$) and Antarctic Circle (latitude $66^\circ 33' S$), of the five major parallels.

The tropics and polar circles divide the Earth (fig. 6) into five astronomical zones (8):

1. *Torrid Zone*: between the two tropics and divided into parts by the equator;
2. *Northern temperate zone*: between the Tropic of Cancer and the Arctic Circle;
3. *Southern temperate zone*: between the Tropic of Capricorn and the Antarctic Circle;
4. *Arctic Zone*: between the Arctic Circle and the North Pole;
5. *Antarctic Zone*: between the Antarctic Circle and the South Pole;

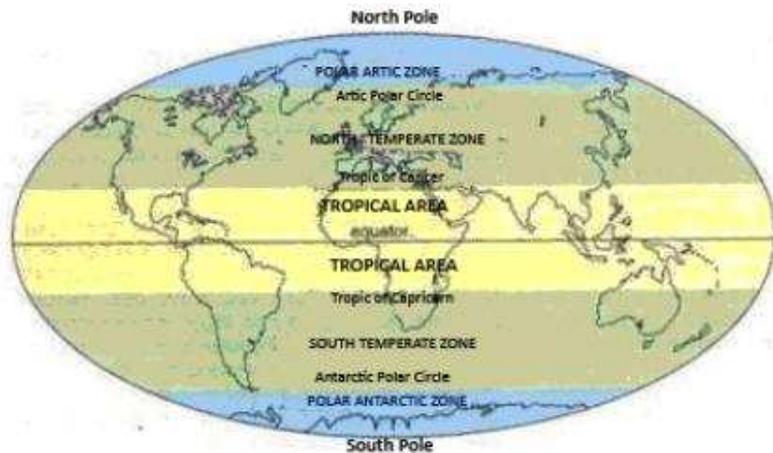


Fig. 6: The five astronomical areas

In the torrid zone too the phenomenon of the Sun at its zenith can be observed, at noon, twice a year, not on the equinoxes, but at fixed dates, which vary depending on the place. Knowing the latitude, it's very easy to calculate these two dates: with the now well-known formula of the height of a star we will search which declination is required for the Sun in order to get 90° as result. There is only one possible result, which is met twice during the year: in fact the Sun has the same declination twice, before and after reaching the solstice, in two specific points of the ecliptic that are called equivalent or of equal power (9).

Along the two tropics the Sun is at its zenith only once a year: on the Tropic of Cancer on June 21, the Summer solstice and on the Tropic of Capricorn on December 22, the Winter solstice.

For what concerns the length of days and nights in the tropical zone, the nearer we are to the equator the more they tend to be equivalent. The most pronounced difference occurs at the line of the tropics, but even in the days when the Sun is in its path at a longitude 90° or 270° and therefore its declination reaches the highest points ($23^\circ 27'$ and $-23^\circ 27'$ respectively) it does not become really sharp.

The number of hours of light and of darkness is in fact:

- in the Northern hemisphere:

- h. 13.27 (day) and h. 10.33 (night) on June 21
- h. 10.33 (day) and h. 13.27 (night) on December 22

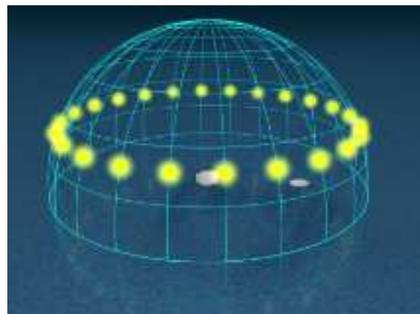
- in the Southern hemisphere:

- h. 13.27 (day) and h. 10.33 (night) on December 22
- h. 10.33 (day) and h. 13.27 (night) on June 21.

In the temperate zones (as well as in polar ones) the Sun never reaches the zenith. On the other hand, depending on the season and Earth latitude, is greatest the difference between the length of the diurnal arc and nocturnal arc.

At the polar circles we can observe another phenomenon, known as the *Midnight Sun*, when the Sun is 90° longitude (λ) at the Arctic Circle or 270° longitude (λ) at the Antarctic Circle, the diurnal arc lasts 24 h, so the Sun never sets below the horizon (fig. 7).

The opposite occurs when the Sun is 270° longitude (λ) at the Arctic Circle or 90° longitude (λ) at the Antarctic Circle: the diurnal arc is 0 h, so the Sun never rises above the horizon. This is known as *Polar night*.



**Fig. 7: At the Arctic Circle in
The day of the Summer solstice the Sun never sets**

The midnight Sun can be observed even in the areas between the polar circles and the Poles and the length of the phenomenon depends on the latitude: at 70° , the Sun never sets for 17 consecutive days, at 80° for 71 days, at the poles (90°) for half of the year (here we have six months of light followed by six months of darkness).

The Solar Zodiac

The tropical or mathematical zodiac is an intangible belt of the celestial vault, included between the parallels of celestial latitude, respectively between 10° N and 10° S of the ecliptic: this scale was obtained with reference to Venus maximum latitude and serves as background to all celestial bodies, stars, planets, the Sun and the Moon.

It was also divided into twelve sectors of 30° each, whose name was Zodia, 'animals', i.e. ζωδιακὸς κύκλος from which Zodiac.

These twelve areas of equal width, whose existence is attested in Mesopotamia as early as the Achaemenid period (first half of the fifth century BC.) and whose birth can be reasonably placed around 500 BC, are called signs.

The signs in themselves have no light, no nature, no meaning: they take everything from the Sun which constantly passes through and illuminate them. Signs retain a kind of "luminous memory" which contains the illuminative qualities of the Sun and save it until the next passage of the Sun that renews it every year (10).

In its apparent path the Sun crosses the equator in two points (equinoxes) and in other two (the solstices) reaches its maximum distance from it: these four points divide the ecliptic and therefore the zodiac into four quadrants of 90° (each equal three signs) corresponding to the four seasons.

Each quadrant consists of three of the zodiacal signs, which are respectively called Spring signs (Aries, Taurus, Gemini), Summer signs (Cancer, Leo, Virgo), Autumn signs (Libra, Scorpio, Sagittarius), and Winter signs (Capricorn, Aquarius, Pisces). The twelve signs, like the seasons, derive their qualities from the different illuminative virtue which the Sun exteriorizes when it moves through them : every year the Sun produces the Spring, and similarly it renews the qualities of Aries, Taurus and Gemini and the same for the other seasons.

So according to Claudius Ptolemy (Pelusium? Ptolemais? approx. 100 - 175 AD) in the Ch. 10 of the I Book of Tetrabiblos, called *On virtues of the times of the year and the four corners*: Four are the times of the year: spring, summer, autumn and winter. Spring is full of moisture, which is poured out when, after the cold has passed, the heat starts; summer abounds in heat for the proximity of the Sun to our vertical point, the autumn is abundant in dryness for the re-absorption of the humours following the hot season; the winter abounds in coldness because the Sun is the farthest point from our zenith."

Each season is nothing but the combination of two primary qualities, according the following diagram:

Spring	Light increases (<i>lucis incrementum</i>) = wet The day is longer than the night (<i>ascensus lucis</i>) = hot [Wet + hot = AIR]
Summer	The day is longer than the night (<i>ascensus lucis</i>) = hot Light decreases (<i>lucis decrementum</i>) = dry [Hot + dry = FIRE]
Autumn	Light decreases (<i>lucis decrementum</i>) = dry Night is longer than day (<i>descensus lucis</i>) = cold [Dry+ Cold = EARTH]
Winter	Night is longer than day (<i>descensus lucis</i>) = cold The light increases (<i>lucis incrementum</i>) = wet [Cold + Wet = WATER]

The four elements are, as we can see, pairs of primary qualities and they carry the fundamental gradations of light, whose presence is greatest in the Fire, decreases in the Air, further decreases in the Water, and is almost completely extinguished in the Earth. By their material nature elements are devoid of heat and light and only receive it from the heavenly spheres: the Sun, the first source of light illuminates and warms the Moon and planets, which according to their motions and their configurations, cause in the matter with its warming action, mixtures and transformations of the primary qualities.

The whole corporeal world is therefore the result of the presence in the matter of the solar light, whose action passes through the more elemental matter of the four elements and arrives to the most complex of minerals, plants and animals bodies, in an infinite variety of combinations.

In every season we find a tripartite division: a beginning, a middle and an end.

As for seasons, the same occurs to the signs of each quadrant: when the Sun makes its ingress there is the beginning of a new season (tropical signs) and thus a new *modus illuminandi*, as well as the appearance of a new quality, then follows the consolidation of the season (solid signs), closing with the end of the season and the transition to the next (bicorporeal signs).

Much more could be said, but I think at this point is evident to everyone the solar character of our zodiac: it is evident that astronomers (and not just them) and astrologers, although with different arguments, agree on the fundamental importance of Sun light for almost all forms of life on Earth.

Life on Earth

Without Sun light, in fact, the vast majority of living organisms inhabiting the surface of the planet (including humans) would not survive.

The thread linking life on Earth to the Sun is a physical-chemical phenomenon which is called 'photosynthesis', namely the process by which, through chlorophyll, the solar energy (light) is converted in a form of chemical energy used by vegetable organisms for their livelihood.

The whole vegetal world owes its existence to photosynthesis and also the animal kingdom depends entirely, even if indirectly, by it, because the herbivores eat plants while carnivores eat herbivores, originating well-known food chains.

But the Sun, besides being the giver of life, it is also its regulator: its changes in the amount of light during the year and the day induce biological and behavioural changes in a large number of living species: the rhythm of the Sun is stored in what are called *biological clocks*. Information on the presence /absence of light acts for example upon the nerve centres of the animals switching on or off and modulating the existing genetic program according to the the natural environment resources: the animal is so guided to choose the best time (day, year) to hunt, to give birth to cubs, to relax, to stockpile food, and so on.

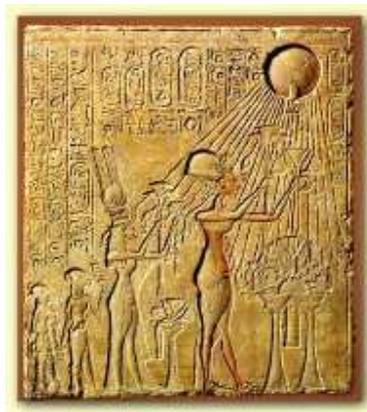


Fig. 8 : Pharaoh Akhenaten and his family while offering votive gifts to Aton in an incision in Akhet-Aton, the modern El-Amarna (Egypt)

Besides, the positive significance of the light reaches us from time immemorial (fig. 8) and echoes idioms and proverbs still in use. We say "the child came to light" or "I saw the light again after so long." Popular expressions that are solely based on experience, but showing shared values all over the world and which are confirmed in neuropsychology.

Our body receives the full range of light waves through the skin and eyes. The radiations passing through the eyes are transformed into electrical impulses and transmitted via the optic nerve to the brain. When the impulses reach the hypothalamus produce an increase in serotonin, the

neurotransmitter in charge, among other things, of mood control; at the epiphysis level they rather inhibit the production of melatonin, the regulator hormone of sleep-wake cycle, which is on the contrary secreted only shortly after the onset of darkness and gives us a good rest. So the light makes us happy, keeps us awake, but not only: it favours the reproduction too. It appears in fact that with the increasing of light the level of hormones grows and we are more willingly to mating. Conversely, a lack of exposition to Sun light during the Autumn-Winter causes in some subjects a so strong decrease of the mood and in personal efficiency, to diagnose a "mood disorder with seasonal pattern, called SAD, Seasonal Affective Disorder, a form of seasonal depression recurrence, with remission in late spring and summer resolution (11).

The solar cults

There is therefore a strong and indissoluble link between the Sun and life, which was intuitively understood by humans long before the acquisition of scientific knowledge: the shining disc was given a key position by different cultures in myths, and it was invoked with very different names.

Therefore let us dwell on some of the numerous deities of evident solar matrix.

The Sumerians (4000-2350 BC.), one of the most creative cultures in human history and prehistory (12), called their Sun god Utu, who, carried in a chariot driven by fast mules, crossed the sky bringing light; he also administered justice. The Assyrians (2000-609 BC) gave to Utu the name of Shamash (Samas) and depicted as the solar disk.

The Egyptians had in Ra their Sun god and they worshiped him in Heliopolis (Ἡλίου πόλις the 'City of the Sun') from the fifth dynasty (ca. 2400 BC) forward they assimilated to the Theban god Amon and made of him the most important deity of their pantheon with the name of Amon-Ra. He was for centuries the supreme god, except for a brief period during Akhenaten (1350 - 1334 BC) when in Egypt was set the exclusive worship of Aten, the solar disk itself (1).

Even Moses, prophet and leader of the Jews in the exodus from Egypt to the Promised Land, cultivated close ties with the Sun god. His monotheism, according Sigmund Freud in the work *Moses and Monotheism*, was equivalent to the solar cult of Akhenaten and behind Adonai would be hidden Aten (13).

Another god of evident solar matrix is Mithras: this character was already included in the *Vedas* (14) as one of the Aditya (a group of solar deities) and as a god of honesty, friendship and contracts.

He was identified too with Shamash, the god of the Sun and justice; with time he became a major deity of Zoroastrianism, and his cult firstly spread in Asia Minor with the Persian empire and then propagated in the empire of Alexander the Great and its successors, passing, in the period from the first century BC to fifth century AD, to the Hellenistic and Roman world, where Mithras was equated with Apollo-Helios, and became the central deity of a new cult, the Mithraism.

Mithras was invoked as ἀνίκητος, *aniketos*, "the Sun who cannot be won", and placed aside and superimposed to the worship of Sun god of Emesa (modern Homs in Syria), the Sol Invictus imported by the emperors of Syrian origin from Caracalla (212-217), the son of Septimius Severus and Julia Domna, of priestly line -native in fact of Emesa.

With Elagabalus (218-222) this cult reached its highest point: by hereditary right a priest of the Sun god of Emesa, El-Gabal, he began to serve as a priest at age fourteen, planning to do of Sol Invictus the chief god of the empire.

After his tragic death by the hands of the Praetorian Guard the cult was put aside, but was again restored by Aurelian: he brought his priests to Rome from Emesa and erected a temple to the Sol Invictus at the expense of the state, which was consecrated on December 25th 274 AD, with a

festival called *dies natalis Solis Invicti*. This formalization was seen by Aurelian (he himself was used to wear a crown with rays) as a strong element of cohesion since, in various forms, the Sun worship was present in all regions of the empire.

He permanently set in the Roman civil calendar, the celebration of December 25 as day of the 'undefeated Sun', triumphing over darkness.

This date, which is a celebration in countries and cultures very far from each other, certainly has an astronomical origin; December 25 is in fact located near an astronomical event that we know well: the Winter solstice.

The word solstice comes from Latin *solstitium*, which literally means "sun standing" (from *sol*, 'Sun', and *sistere* 'to stand still').

in the terrestrial Northern Hemisphere between 22 and 24 December the Sun seems to stand still in heaven; it reaches its weakest phase for light and heat and it seems to fall into darkness. Coming back to life he "wins" the darkness and just on December 25 it seems reborn.

Even Christians celebrate Jesus birth on the same date; it was the Emperor Constantine in 330 to align it with the pagan festival of Sol Invictus (15).

We know however that this choice has nothing to do with a definite knowledge of the birthday of the Lord, of whom there is no trace in the Gospels and that has always been unknown.

But even after 330 AD many Christians worshiped the Sun. In 354 or 355 in fact the Bishop Pegasus confessed to the prince Julian of praying it in secret. And yet in the fifth century there were Christians who prostrated themselves in front of the rising star, saying: "Have mercy on us!" (Leo, *Serm.* 27, 4). Pope Leo I had to warn the Roman community against an open worship of the Sun (ibid.). Soon Christ was proclaimed "the all-seeing", the "Undefeated" and the "Sun of Justice" proper title of the Sun god, becoming "the true Helios".

This concept is even echoed in the Mass: the Antiphon of December 21, the day of well-known winter solstice, states: "*Rising Sun, splendour of eternal light, sun of justice, come to enlighten us, because we are in darkness and in the shadow of death.*"

The Southern Hemisphere

At this point, for the benefit of our twenty-five readers (16), we should add some other astronomical notes: the knowledge of celestial mechanics is essential for the student who wants to understand Zodiacal logic and this time too we should employ it. Nor could it be otherwise.

If we recognize in fact as true the premise that there is an influence of the stars on the events occurring on Earth, and that this influence is manifested through their apparent motions and variations in their light cycles, it becomes imperative to know how to measure these phenomena.

It is not fortuitous in fact that astrology can be defined as the art of judging by astronomy.

So let us point our attention to what happens once crossed the equator.

In the Southern hemisphere everything is reversed in respect to the Northern hemisphere, not only the seasonal cycle: the fluids' rotatory motion is counter-clockwise in the Northern hemisphere and clockwise in the Southern one, and the ocean currents have a similar pattern, air masses moving from high to low pressure are deflected to the right in the Northern hemisphere, to the left in the Southern hemisphere, as well as more generally all the moving objects in the Northern hemisphere are deflected to their right and those in the Southern to their left (17).

Even the perspective of the observer is inverted 180°: let us look in fact at figs. 9 and 10 (from the site <http://astrodidattica.vialattea.net/astroinrete/i.2SD-latitudine41.pdf>).

Here's how the visible sky looks like for two observers in two places respectively with latitude 50° N and 50° S:

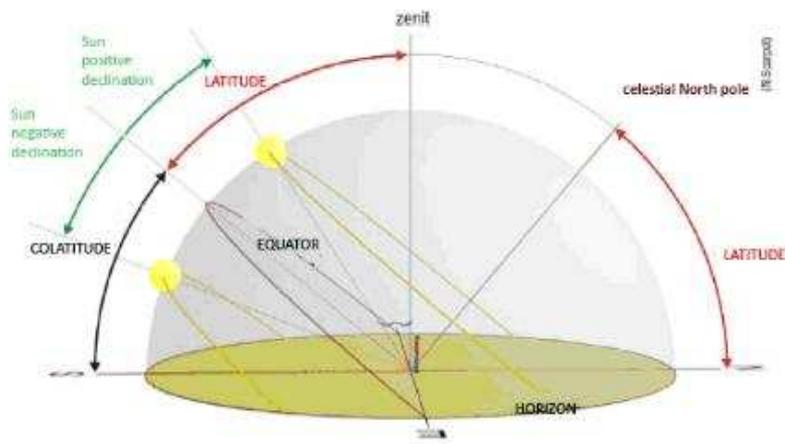


Fig. 9: The yearly path of the Sun in the sky for an observer in a place with latitude 50° N

In the Northern hemisphere the equator and the circles of declination travelled by the Sun in its diurnal motion are visible facing the South; the observer has behind the celestial North Pole, the North of the compass, and to the left the East (the point where the star rises).

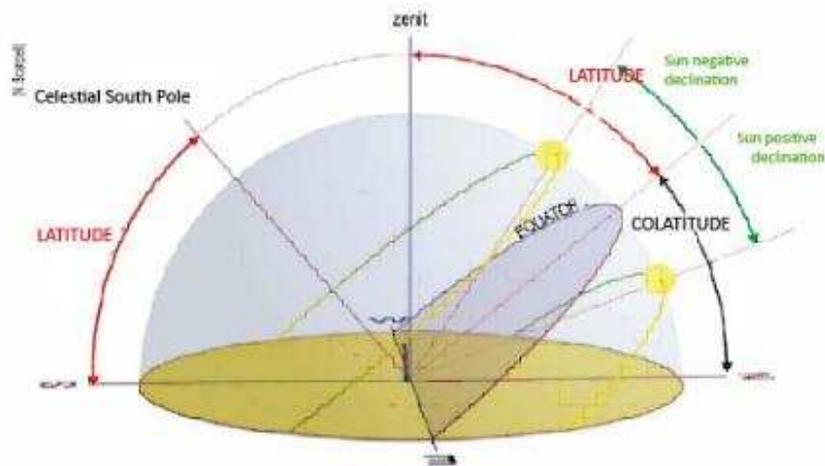


Fig. 10: the yearly path of the Sun in the sky for an observer in a place with latitude 50° S

in the Southern hemisphere the equator and the circles of declination travelled by the Sun in its diurnal motion are visible, facing the North, the observer has behind the celestial South Pole, the South of the compass, and East on the right. The star will rise then to his right and its height above

the horizon will be inverse to the one occurring in the same moment to the Northern Hemisphere observer. But this should not be a surprise if we understood what was said in the paragraph about the seasons.
 And returning again to the celestial coordinates, let us observe fig. 11.

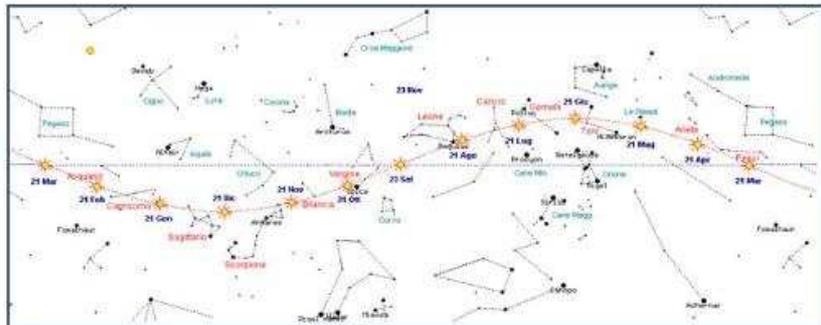


Fig. 11: The ecliptic with constellations as background (As seen from the Northern hemisphere)

In it, the Sun is represented in its apparent path with constellations in the background, which we know, of course, slightly changes because of precession (18).
 It is the *sidereal* zodiac, reflecting the real "path" of the Sun, which is obviously different from the *Tropic* one, used in Western astrology and mentioned earlier: it should be observed, for example, the different extent of constellations and how the Sun on March 21, in our age, crosses the celestial equator at the end of the constellation of Pisces (the latter more visible in Fig. 12).



Fig. 12: The precession of the equinoxes At present the North is indicated by Polaris

The discrepancy is of course well known to the apotelesmaticus, namely the scholar committed to ἀποτέλεσμα, the "influx of the stars", but he does not care, because he knows very well they are two different measurement systems, one purely astronomical, and astrological with roots in astronomy the other (19).

Two complementary measurement systems in their diversity, which can therefore coexist peacefully, in spite of the most fundamentalist of the astronomers (20).

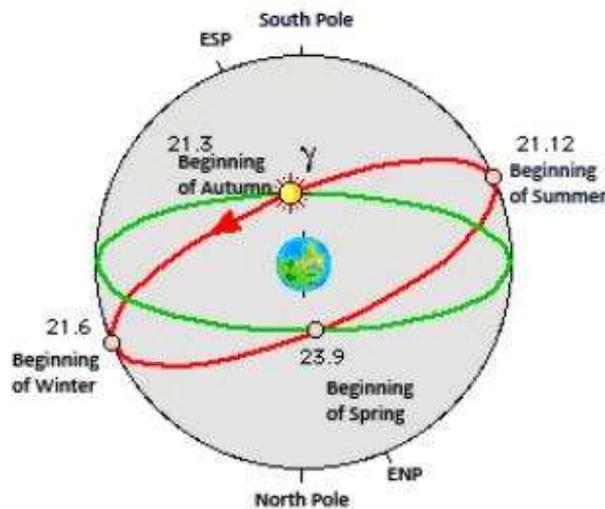
Figure. 11 and Fig. 12 however, represent the sidereal zodiac as seen by an observer in the Northern hemisphere: so let us ask ourselves how it is seen from an observer placed in the other hemisphere. It is obvious that the constellations remain the same and that the Sun travels the same apparent path: the difference is at least the sign of declination (δ) of each star, which for the Southern hemisphere observer from positive turns to negative and vice versa.

The declination of a point on the celestial sphere (or a star) is, in fact, its spherical distance from the equator and it is measured in degrees (0 to 90) from the celestial pole of reference, which obviously is not the same for the two hemispheres.

So what do we think it should happen to the tropical zodiac?

We have seen that in the Southern hemisphere the seasons are reversed in respect to the Northern hemisphere, as result of Sun declinations with opposite sign, and therefore of diurnal arcs of opposite length. We also said that the passage of the δ from 0° to $11^\circ 48'$ generates the first sign of Spring, which we now conventionally (21) call Aries, but in the Southern hemisphere this occurs on September 23. Therefore this is the beginning of the Aries there: and March 21 cannot be anything else than the beginning of Libra.

In short the Sun in a given date is always in the same area of the sky, but it will be named in an opposite way according the hemisphere in which we are operating. It could not be different, since the names of the twelve signs and their nature depend on seasonal qualities which the Sun produces travelling through.



**Fig. 13: The Ecliptic and the tropical Zodiac as seen from the South hemisphere
(The image is taken from CieloeTerra astrology course)**

Please observe in fig. 13 as in the 180° reversal of the planet, that starting from the point γ the Sun begins to descend rather than to ascend in declination. We cannot therefore consider true for the entire planet just only zodiac and we should cast different birth charts for those born below the Equator.

The opinion of the ancients

Girolamo Cardano (Pavia 1501 - Rome 1576) in *Commentariorum in Ptolomaeum de astrorum iudiciis* Libri IV, Chap 16, Textus L (22), commenting the Chap. 17 of Claudius Ptolemy's Book of *Tetrabiblos*, where the scholar of Alexandria describes the domiciles of each star, already concludes that dignities should be reversed in *medietas Australis*. The Textus L ends in this way: "therefore from what above mentioned follows that in Southern *medietas*, Capricorn is the domicile of the Moon, the Sun of Aquarius, Pisces and Sagittarius Mercury's ones, Aries and Scorpio Venus' ones, Taurus and Libra Mars' ones, Gemini and Virgo Jupiter' ones, Cancer and Leo Saturn' ones " (23).

Tommaso Campanella (Stignano 1568 - Paris 1639) too in the *Liber Primus* Chap. 7, Art III of *Astrologorum Libri IV* (24), speaking in turn of the planetary domiciles, sets forth a similar statement. The mentioned article fact begins with the following statement: "For those then inhabiting beyond the equator, facing the South pole and being to our same distance from the equator, the domiciles of the planets are in the opposite place " (25).

The Dominican friar goes on listing the new planets' domiciles, which are essentially, as for Cardano, the ones which are attributed to the opposite sign in the Northern hemisphere: the Sun is going to be placed in Aquarius, Moon in Capricorn, and so on. Then he goes even further in this redefinition, arguing that in particular *sub aequatore degentibus*, i.e. for those living at the equator, to the Sun should be assigned the domiciles of Aries and Libra because the star *ibi est validissimus illis*, which translated in astronomical terms means that at its ingress in these two signs it is at its greatest meridian altitude (the zenith is 90 °). Without investigating about the validity of this last statement, which aroused the wrath of Jean-Baptiste Morin (Villefranche 1583 - Paris 1656), who in Ch. XV of his *Astrologia Gallica* (26) defines him as *magnus scientiarum depravator* as well as the one who *errorem Cardani ampliavit*, let us ponder on the fact that the two astrologers propose a reversal of domiciles, which does not mean anything else than to each sign of the Southern Hemisphere are attributed the illuminative qualities of the opposite sign of the Northern hemisphere.

And this on the grounds that the timing of the four seasons disagree in the two hemispheres and the times of the signs, from which these seasons draw their own peculiarities, disagree too.

In that chapter XV Morin de Villefranche not only rebukes Campanella, but obviously Cardano too, guilty of ignoring, as his teacher Ptolemy, *divisionis Zodiaci causas*.

Placido Titi (Perugia 1601? - Pavia 1668) on the other hand expressed in Book II, Chapter 12 of *Coelestis Philosophia* (27) similar considerations than Cardano: the chapter as usually about *De dignitatibus planetarum in signis* ends with the statement: "We should agree that in the Southern regions planetary dignities should be arranged differently" (28), and in *Tocco di Paragone* he confirms: "Leo[...] in our climate operates heat neither just for its image, nor only for its stars, but because it is the fixed sign of the quadrant which is summer for us; and it is true that in Australia it will be frigid, and from here no disadvantage depends [...]"(29).

About the solar nature of the signs we have already spoken and explained how it has its basis in the *Quadripartite* of the mentioned Claudius Ptolemy: we should notice however that he does not speak of the need to reverse signs or houses.

Yet the Alexandrian astronomer was aware of the existence of lands to the South of the equator, as he was also a geographer. He is the author in fact of *Γεωγραφική Υφήγησις* (Gheografiké uféghesis, ' Introduction to Geography '), a work in eight books, which is undoubtedly the highest expression of geographical knowledge of Greek-Roman era (30). There Ptolemy set forth the principles of geography, understood as scientific knowledge of *οικουμένη γή* (the inhabited world), and a modern method of maps drawing. He listed in detail over eight thousand known places with

the related coordinates and proposed a tripartite division (Europe, Asia or Africa and Libya) of the world (Fig. 14), to which he gave a total width of about 80°, the North border at 63° (Thule or Iceland parallel) and South one at 16° 25' (at anti-Meroe or Agisymba parallel, a Trans-Sahara town difficult to identify).

The maximum length had a width of 180° and the most Western place, in which he fixed the Prime meridian, were the Fortunae Isles (today Canary Islands), while the most eastern one was the modern Indochinese peninsula. Besides he put the centre of the world in Siene (Aswan), where on the day of the Summer solstice the Sun illuminates the bottom of the wells.



Fig. 14: The οἰκουμένη γῆ in Claudius Ptolemy's cosmography

Furthermore, in the same *Quadripartite* (Book II, ch. 2) talking about the characteristics of population of different climates, he mentions those living between the equinoctial circle (the equator) and the (Capricorn) Tropic, saying that "since they have the sun over their heads and are burned by it, they have black skins and thick, woolly hair, are contracted in form and shrunken in stature, are sanguine of nature, and in habits are for the most part savage because their homes are continually oppressed by the heat; we call them by the general name Ethiopians. (Robbins translation). They have been perhaps those same troglodyte ("cave dwellers") Ethiopians, who lived in the region of Agisymba, populated by rhinos, which he places in *Geographia* at the limits of the inhabited world.

What should we think therefore of the fact the *Quadripartite* did not mention the diversity of the Sun illuminative cycle in the Southern hemisphere? This could possibly depend on two factors: either the author omitted because he considered it as an implicit consequence of the description he gave of the Northern hemisphere (for which temperate zone it is indisputable that signs have been set because it is the band where seasons in all their variations and shades could be better perceived), or because in his time the areas below the equator remained after all a quite limited area very little known (*cognita*) and perhaps for this negligible.

In fact, the great modern geographical explorations began only in the fifteenth century, by sailors of various nationalities (especially Spanish and Portuguese) bound to everywhere in search of new lands and new preys, such as Bartholomew Diaz, who doubled the Cape of Good Hope in 1487 or Amerigo Vespucci, who explored the South American coasts between 1497 and 1504 or Ferdinand Magellan who, with Antonio Lombardo (called Pigafetta), circumnavigated the globe, passing in 1520 through the Strait which is now called after him. In short, it was from the end of the fifteenth

century onwards that the problem, skipped by Claudius Ptolemy, was blindingly obvious for his commentators.

Earlier we reviewed Morin de Villefranche's opinion about the subject, which it is not a surprise for those who have in mind the *principles* and *rationes* on which his astrological beliefs are based. A quick look to *Astrologia Gallica* (31), ponderous book written in a not easy to read seventeenth century Latin or the synopsis included in Ch. XVI of the tome VII of Prof. Lynn Thorndike's *A History of Magic and Experimental Science* (32), is enough to realize that Morin is a dissenter of Ptolemy (and in truth of many other astrologers).

Since the beginning at page III of *Praefatio Apologetica* included in his work, when talking about how many and which opponents astrology had says verbatim: " We grant that it [the astrology] was not invented by the human beings, at least for what concerns the division of the *Primum Coelum*, by nature elemental and homogeneous, into 12 dodecatemoria of different nature, which correspond to the planets' nature. Nor the division of the mundane space in twelve houses, both them of different virtues. These things seem to me being superior to the sharpness of the human mind, as we say in books 14 and 15; but it was really infused by God [33] in Adam, from which it came down to posterity through the Kabala, whose main and most renowned scholars, after the flood were the Chaldeans and Egyptians, from whom Thales Milesius firstly taught it among the Greeks and carried in Greece as deduced from Book I of Diogenes Laertius' *De Vita Philosophorum*, and by Ptolemy, Book I Chap.18 [ed. 20] of the *Quadripartite*: from which it is clear that Ptolemy astrology itself was borrowed from the Chaldeans and Egyptians " (34).

The *primum Coelum* is defined by Morin in Chap. I Book XIV (*De prima causa physica*) as the first and homogeneous physical cause of all things (35); to it, which we otherwise might call the celestial sphere, is indissolubly joined the Zodiac, which 12 signs possess intrinsic qualities not determined by the movement of the Sun, but by their very primary nature .

The arguments by which it is possible to assign to the signs a certain nature rather than another are explained by our Author in the Book XIV, Section I, Chapter V and can be summarized as:

- The equinoctial points, being the intersection with the celestial equator are not only the more powerful points of the ecliptic, but all of the sky; because they are middle in the world, they should be associated with middle qualities and natures which favour life in the sub-lunar world: these qualities are the heat and the moisture: cold and dryness are in fact deadly for living beings;
- The solstitial points are not middle, but are directed toward the poles or extremes of the world; they should be associated with corrupting qualities as cold and dryness;
- A counterproof of these associations is given by Nature on the Earth: in the equatorial area moisture and heat are vigorous, it's very hot and it rains a lot. On the other hand in the areas towards the extremity of the world the intensity of cold and dryness is greater.
- From this follows that Aries is given to heat, to Libra moistness, cold to Cancer and to Capricorn dryness; more specifically Aries is hot and dry, and so it has a Fiery nature, Libra is moist and hot so it is of Airy nature, Cancer is cold and wet and so of Watery nature, and Capricorn is dry and cold and therefore of Earthy nature.
- Thus Aries, Cancer, Libra and Capricorn, are as the primary and celestial sources of birth, vigour, decline and death of things subject to generation and corruption, and in both *medietas* departing from the two equinoctial points are present all four elements, as it is suitable for a division of nature without imperfections.

The four mentioned signs, are also the cornerstone of each element triplicity, topic which Morin discusses in the same fourteenth book, but in section II, Chap. I, setting for signs belonging to the same element a kind of gradation of intensity: Aries is warmer than Leo, which is warmer than Sagittarius; Aquarius is moister than Libra, which is moister than Gemini, and so on.

So by God's will each of twelve signs are provided of one primary virtue, which could not help but correspond with the planets one, which in them find their domiciles, in order to express better the strength of both. This combination is inalterable throughout the globe.

From Book XV, Chapter III, dedicated to the planetary domiciles, in which Morin explains that the planet assignment to a certain part of the Zodiac should follow a principle of basic congruence, I am extrapolating by way of example the following quote: "Since the Sun has fiery nature, it will be placed in a Fire sign. But because the Sun is not a planet in which the energy of the fiery nature has its highest expression, Aries is not a suitable domicile, because in it that nature is the highest degree; and neither Sagittarius, which minimally participates of this nature, because the Sun is not the planet where the fiery nature has the least effect of all; therefore, the Sun, as bright as it is, the fiery nature has however moderate force for the abundance of moisture, water and air, of which is nurtured that beautiful Light of the world, and has moderate force also in Leo, and so the Leo will be its true domicile. Mars suits, as involved more than all the planets in the energy of fire, Aries; and Sagittarius Jupiter, previously said a fiery planet, but among all in minor way "(36).

In paragraph of this article on the Solar Zodiac, we saw a very different assignment of elements to the Zodiacal quadrants by Claudius Ptolemy; let us add for completeness what he says of the planets in Chap.17 of The Book of *Tetrabiblos*, entitled "Of the Houses of the Several planets": "*The system of houses is of the following nature: Since of the twelve signs the most northern, which are closer than the others to our zenith and therefore most productive of heat and of warmth are Cancer and Leo, they assigned these to the greatest and most powerful heavenly bodies, that is, to the luminaries. Leo, which is masculine, to the Sun and Cancer, feminine, to the Moon. In keeping with this they assumed the semicircle from Leo to Capricorn to be solar and that from Aquarius to Cancer to be lunar, so that in each of the semicircles one sign might be assigned to each of the five planets as its own, one bearing aspect to the Sun and the other to the Moon, consistently with the spheres of their motion and the peculiarities of their natures. (Robbins translation) "*

Not desiring to unworthily enter between the ranks of commentators of the Alexandrian scholar and having in our hands the *Comment to the first book of the Tetrabiblos* (37) of the excellent Giuseppe Bezza, we will let him to guide us in understanding the excerpt of the cap. 17 just mentioned.

Domiciles of luminaries are assigned to Leo and Cancer as *closer to the zenith*, although this is partially true: the sign of Gemini is indeed nobler than Leo in respect of the ascending motion, it is higher than the other on the equinoctial line and is masculine too. So why we choose Cancer and Leo? Because in these two signs we have the highest expression of the two main qualities of light emanation: the intensity and expansion, the first produces warm and it is in the Sun, the second produces moisture and it is in the Moon. Without intensity and expansion of light nothing would arise and become sensible. It is in Cancer that moisture has its climax, together with the diurnal arc increasing by expansion of the light and therefore it was assigned to the Moon; it is in Leo which is the maximum heat and therefore it was assigned to the Sun. The light of luminaries spreads everywhere and pervades all things, its virtue is general and absolute and each of the five planets, which would have no power in themselves without, complies with it. To the planets is therefore given a first sign which agrees both with their nature and with the Sun's one (solar semicircle or *medietas maxima*), a second one which agrees both with their nature and with the Moon's one (lunar semicircle or *medietas minima*). So far the Alexandrian scholar.

Can anyone escape at the end of this brief examination of Claudius Ptolemy's theories about Zodiac, of his commentator Cardano on one hand, and Morin de Villefranche on the other, how their arguments were in disagreement? Moreover, the same French astrologer was well aware of this and did not fail in *Astrology Gallica* to attack or refute the two (cf. for example Book XIII Section I Chap. I: *Quod Ptolemaeus, Cardanus coeterique Astrologi Veteres, multum erraverint in tradenda Planetarum Elementalium natura* or Book XIV Sectio I Cap. VII entitled *Qualis a Ptolomaeo*

& Cardano fuerit error introductus circa naturas elementales signorum). It is therefore impossible expecting nothing from him than a fierce critic of the inversion of the zodiacal signs in the Southern hemisphere

The opinion of modern astrologers

Everyone knows that today the astrologers, including those who work, to put in Campanella's words *ultra aequatorem*, continue to use only a Zodiac for all the world: so the fact that the happy event took place in Belfast rather than Pernambuco becomes completely indifferent to the detection of the Sun sign.

As for the house system, the method used is to perform calculations as follows: to add up the ephemeris sidereal time of day, the birth time for Greenwich and the longitude of the place, adding twelve hours and reversing the house cusps listed in the tables for the Northern Hemisphere.

We record in truth some dissidents which following the rules of the ancient authors mentioned above, on the contrary advocate the reversal of signs and a different calculation of the ascendant; in the first place Giuseppe Bezza, as can be read on page 314 et seq. of the previously mentioned *Commento al primo libro del Tetrabiblos*.

In the same context of his teaching and of his school can be placed the passionate lecture "*Maradona e l'emisfero australe*" (Maradona and the Southern hemisphere), which Joe Fallisi presented in Venice in 1997 at the Second International Astrological Congress organised by the Italian Astrological Association (CIDA) (and then again in 2002 in Vico Equense for the annual Conference of "Ricerca '90"), where it raised Michele Aquilano's harsh criticism, and here we speak at second hand, because we were not able to read it.

Marco Gambassi is more cautious in his article *Ritorno dal Brasile* (Back from Brasil) (in "Linguaggio Astrale", No. 138 - Spring 2005), where he confessed he could not yet make his mind on this issue, which, on the other hand, he already faced in his book *Le basi astronomiche dell'oroscopo* (The astronomical basis of the birth chart), on invitation of the publisher Federico Capone (38).

On page 119 et seq. of his book he explains his opinion about birth charts in the North and South of the Earth wondering "if our astrology, flourished in the Middle East and temperate Europe climates" can be adapted to all climates and all latitudes, and reports that a possible answer to the question is the one which favours the reversing of the signs and "does justice to the peculiarities of the Southern lands, already conquered by Europeans, and plundered of wealth and culture." The reference to Fallisi's article is obvious, but even if the latter in *Maradona e l'emisfero Sud* speaks, referring to the modern geographical explorations of the "civilizing claw of the West and of North of the world (which) was laid relentless and insatiable - and unstoppable - on the New World and which would never leave the grip", behind the proposal to reverse the signs there is far more than the desire to do justice to pre-Columbian peoples of South America culture. There are astronomical reasons which partly we have already examined and will resume again later.

The merit of Gambassi, astrologer attentive to technical and mathematical aspects of the art, is having raised the question and proposed his own solution for those born in the temperate zone of Southern Hemisphere: he performs the calculations as shown in the beginning of this paragraph, but putting the Ascendant in the right, reversing clockwise the succession of houses (see Nelson Mandela birth chart on page. 129).

Rather different, in his opinion, the situation for those born in latitude between 23 ° 27' North and 23 ° 27' South: in this band the Sun reaches the zenith twice a year and between these two dates

there are two time intervals, where the Sun is respectively, at North or South of the Prime Vertical (the great circle joining the East and the West point through the zenith).

If the Sun on the birth day is in the Southern zenith time interval (period - following the succession of months - between the first and second date when it touches the zenith) it will be necessary to draw the Ascendant in the left in the birth chart; if, on the other hand, it is in the Northern zenith time interval (period - following the succession of months - between the second and first date when it touches the zenith) it will be necessary to draw it to the right, reversing counter-clockwise the succession of houses, as mentioned above.

Gambassi in *Le basi astrologiche dell'oroscopo* seems especially concerned about the orientation of the birth chart (which for the Southern temperate zone in particular, implies and serves the purpose to draw attention to the radical difference of seasonal situation), without modifying the "modern" method of calculation the Ascendant and houses and without reversing the signs names.

In *Ritorno al Brasile* he is more open; moreover I think (because of personal mails) that lately he is more and more tempted to try to reverse the signs, albeit by way of experiment.

In support of the opportunity for a radically different method therefore only Bezza and his students remain compact: everything follows from the fact that it is the Sun to produce, through the Zodiac, the seasonal qualities of the signs and therefore their names; in the Southern Hemisphere Spring begins on September 23 and therefore it is logical that Aries begins from that moment.

The motions of the signs are opposite in the two hemispheres: e.g. in Summer signs slowly ascend in the Northern hemisphere, while on the contrary in the Southern one, they ascend faster and faster behaving like the corresponding Winter signs.

The process of annual Solar illumination on Earth has different times in the different hemispheres and the signs, existing by the virtue of this light, cannot help to be affected and remain immutable. At pages 315-316 of *Commento al primo libro della Tetrábiblos* there is an example to ponder: let's suppose to be a Feb. 5 in Morocco, Fez (4W57, 34N05). We'll see the Sun (14° 51' Aquarius) rising at h. 7.20 and culminating (15° 9' Aquarius) at h. 12.34: therefore it will take 5 hours and 14 minutes for the star to reach the upper culmination with a meridian altitude of 39° 40'. On the other hand on August 7, the Sun (15° 5' Leo) will rise at h. 5.40 and culminate (15° 21' Leo) at h.12.26, taking 6 hours and 46 minutes to reach the upper culmination, with a meridian altitude of 72° 20'.

If we instead went in South Africa, Cape Town (18E22, 33S55) therefore at Fez same latitude but with an opposite sign, to observe the same phenomena, we should make our observation on inverse days.

Now let us try to go to the heart of the matter applying it to a native from the other hemisphere.

An example: Pablo Neruda

The poet Ricardo Neftali Reyes Basoalto, universally known by his pen name Pablo Neruda (Fig. 15) and considered one of the leading names of contemporary Latin-American literature, was born in Parral (Chile) on 12th July 1904 by a railways employee and a teacher who died of tuberculosis in the same month she delivered. In 1906 his father moved to Temuco, and married a good and sweet woman, who he never considered a stepmother. His first official job as a writer was the article *Entusiasmo y perseverancia*, published when he was just thirteen, for the local newspaper "La Mañana".

In 1923 he published his first volume of verse, *Crepusculario*, followed, after an year, from *Veinte poemas de amor y una canción desesperada*, a collection of love poems, which is still one of his most popular works, written in modernist style and of erotic subject. In 1927 he accepted a position as honorary consul in Southeast Asia, in Burma, followed by countless other tasks. In Java, on December 6, 1930 he married an bank employee of Dutch nationality, Maryke Antonieta Hageenaar Vogelzang.

Before returning to Chile, he got further diplomatic destinations, first in Buenos Aires , and then in Spain, in Barcelona and Madrid. During this period he met other writers such as Rafael Alberti, Federico García Lorca and the Peruvian poet Cesar Vallejo. In Madrid, on October 4, 1934 was born the daughter Malva Marina Trinidad, suffering hydrocephalus (from which she will die in 1942). Because of irremediable disagreements he separated from Hageenaar in 1936: in the meanwhile he had already met Delia del Carril, from Argentina, twenty years his senior, whom he married a few years later, after divorcing his first wife. A keen supporter of communism, it was her to initiate Neruda to Marxist ideals .

In 1946 the official candidate of the Chilean Radical Party for the presidential election, Gabriel González Videla, asked him to organize his campaign, task to which Neruda fervently devoted himself, contributing to Videla appointment as President. Videla, however, turned his back to the Communist Party soon after the elections. Relations between the two worsened and then completely broke off after the violent repression with which Videla in October 1947 struck the miners on strike in the region of Bío Bío in Lota. Neruda's disapproval culminated in a dramatic speech on January 6, 1948 in front to the Chilean Senate, later called "Yo acuso", where he read to the Assembly the list of the miners kept prisoners. Videla ordered his arrest and the poet was forced to hide in friends and comrades' houses for thirteen months. The Chilean Communist Party was outlawed and in March 1949 Neruda fled to Argentina after having adventurously crossed the Andes, travel which he described in the speech for Nobel ceremony. The years of exile were also the years of several travels: in Europe, India, China, USSR and Mexico. In this country, Neruda was hit by a serious attack of phlebitis and during the treatment he met Matilde Urrutia, a Chilean singer, with whom he began a relationship and married in 1956. Neruda returned to Chile in August 1952 when the government of dictator Videla was near the end and he went on with undiminished determination in his commitment to the Chilean Communist Party and politics.



Fig. 15: Pablo Neruda in an image taken in 1966

On October 21, 1971 he got, third writer from Latin America, the Nobel Prize for Literature as fulfilment of a long career in which he had produced more than forty books of poetry, translations

What is sidereal time? It is the distance of the point γ from the upper meridian of a given place at a given time: it is measured by calculating the hour angle ($H \gamma$), which is nothing but the right ascension (taken on the equator) expressed in hours, minutes and seconds, of the hour circle passing through the South of the observation place.

The Ephemeris list, day by day, the value of this angle for Greenwich meridian (λ 0h 0m) at midnight, or ST.

In order to get the LST (local sidereal time) just add / subtract the longitude of the place and time expressed in UT; multiplying this value by 15 ($15^\circ = 1 \text{ h}$) we get the RA MC, namely the right ascension of the culminating ecliptic point (MC).

Let us come back to Pablo Neruda and go over again on calculations.

1) Sidereal time at midnight on December 7, 2004 in Greenwich	19h 17m 50s +
2) UT 18h 42m 40s (= Greenwich mean time) after midnight converted into sidereal time dividing by the conversion factor 0.9972696	18h 45m 44s -
3) W Distance in hours of Parral from Greenwich (to subtract)	<u>04h 47m 20s</u>
 Total	 09h 16m 14s

Let us multiply the result by 15, in order to calculate the right ascension of the MC: we get 139.06, the degree culminating therefore is $16^\circ 36'$ Leo. Let us wonder why at this point we should add 12 hours. $16^\circ 36'$ Leo would culminate if Parral (at the same longitude) was located at any latitude of the Northern Hemisphere, but once crossed the equator the elevated pole is reversed and our gaze turns 180° (40). Let us look at Fig 17:

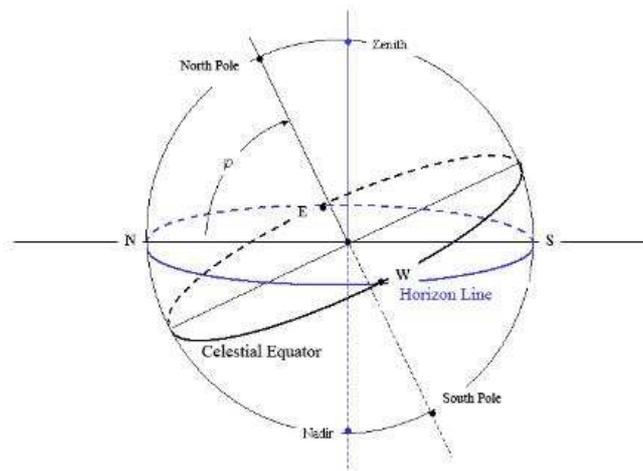


Fig. 17: The local coordinates

where are represented the four cardinal points, the zenith, the nadir, the celestial equator and the two celestial elevated poles (North and South). ϕ is the height of the celestial pole above the horizon (which is always equal in absolute value to the latitude of the observer).

The local meridian, or improperly the meridian, is the great circle of the celestial vault passing through the celestial poles, for zenith and the nadir and can also be thought as the projection of

the geographical meridian of the observer on the celestial sphere. It is divided by the celestial poles in two semicircles, called upper meridian the one containing the zenith, and lower meridian containing the nadir; its intersections with the celestial equator identify two diametrically opposite points called upper Midheaven (MC) and lower Midheaven (IC).

It is evident that the intersection points of the celestial equator with the local meridian in the two hemispheres are 180° apart: the upper meridian by definition passes for the elevated celestial pole and the latter is turned 180° degrees; in each hemisphere in fact the zenith of one is equivalent to the nadir of the other.

This is the reason we add 12 hours (= 180 °) in the calculation for births at negative geographical latitudes. 09h 16m 14s then becomes 21h 16m 14s, which multiplied by 15 gives 319.06, which is the right ascension of 16° 36' Aquarius. There arises 7° 40' Gemini.

So far the method agrees with the one adopted by the *modern* astrologers, which at this point reverse again the houses cusps: 16° 36' Leo would culminate and 7° 40' Sagittarius would arise. But this is not in agreement with the motions of heaven: when 16° 36' Leo culminates, its MC RA, as we have said, is 139.06; between the culminating and the ascending point there is a precise relationship of spherical trigonometry, namely: the OA HOR (oblique ascension HOR) at each latitude corresponds to the RA MC + 90°. But 139.06 + 90 is 229.06, which at latitude 36.09 corresponds to 10° 17' Scorpio, and this is the rising degree.

However, let us take a step back and ask ourselves what we are representing dividing the sky into houses: nothing but the portion of visible / invisible sky in a given place at a given time. It is what is under our eyes, i.e. our horizon. The horizon is in fact the *finitor visus*, i.e. the boundary beyond which the eye cannot arrive: *horizein* in ancient Greek is linked to the word *horos*, limit and means to border. What is under the observer's gaze at 2:00 pm of July 12, 1904 in Parral? What under the gaze of an observer in a place of the Northern hemisphere, which is its perfect mirror, called for convenience Anti-parral?

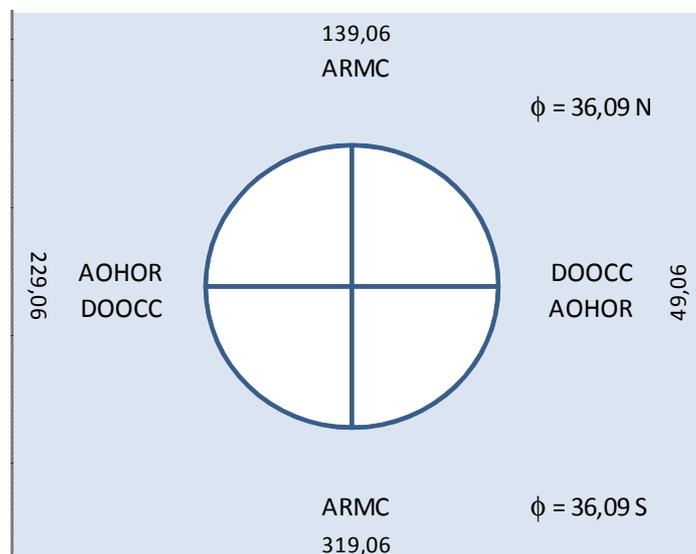


Fig. 18: The two different viewpoints

Figure 18 shows a superposition of the two visible hemispheres to our two observers: observe how the oblique ascension of one becomes the oblique descension of the other and vice versa and how calculations perfectly correspond :

HOR OA 229.06: 10° 17' Scorpio rises in the Northern hemisphere
 7° 40' Sagittarius sets in the Southern hemisphere

OD DESC 49.06 10° 17' Taurus sets in the Northern hemisphere
 7° 40' Gemini rises in the Southern hemisphere

And now everyone has understood that saying 16° 36' Aquarius rather than 16° 36' Leo for Midheaven means to give different names to the same point in the sky observed from two different perspectives. The point to be accepted is that the signs in the two hemispheres, even if we are talking about the same immaterial part of the sky, have different and opposing motions, which are those of the Sun when it passes through them, and it is therefore correct that they have different and opposite names. So we will avoid in the house division for the Southern hemisphere the final reversing of the cusps, which would give rise to described errors of calculation and also we will turn of 180° the planetary positions listed in the ephemeris.

A few words of comment yet

So here in Fig. 19 a more accurate representation of the birth chart of our "guinea pig"; actually, to be entirely faithful in representing his sky, we should place the Ascendant in the right and show signs succeeding clockwise:

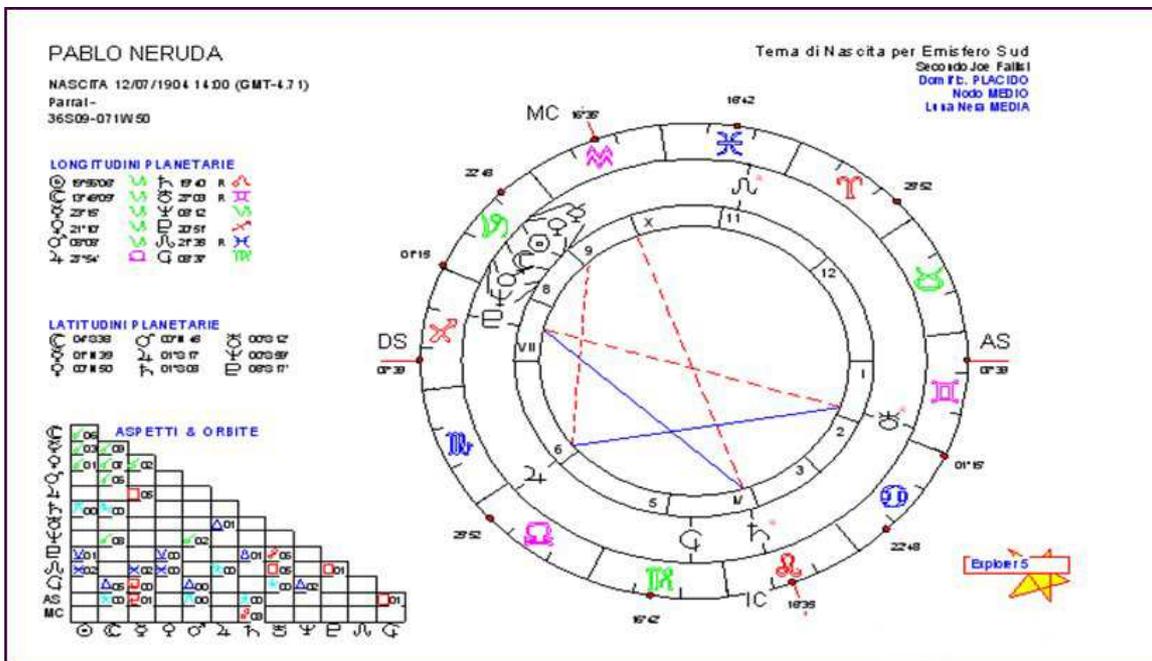


Fig. 19: Pablo Neruda birth chart

And here is the table of astronomical data, which so helps the *apotelesmaticus* in the assessment of the judgment:

Pablo Neruda											
	λ	β	House:	Quadrant	δ	α	AD	d TH	n TH	HD	θ
Sun	289,93	0	8	2	-21,97	291,57	-17,13	12,15	17,85	2,26	289,93
Moon	283,82	4,66	8	2	-18,10	284,51	-13,80	12,70	17,30	2,72	284,96
Mercury	293,25	-1,66	9	2	-23,08	295,40	-18,13	11,98	18,02	1,97	293,10
Venus	291,16	-0,85	8	2	-22,62	293,02	-17,71	12,05	17,95	2,16	291,05
Mars	278,14	-0,73	8	2	-23,93	278,91	-18,90	11,85	18,15	3,39	277,85
Jupiter	207,89	1,29	6	3	-9,52	206,37	-7,03	13,83	16,17	4,16	209,33
Saturn	139,67	1,11	4	3	15,98	142,45	12,07	17,01	12,99	0,26	140,08
Uranus	87,05	0,21	1	4	23,63	86,78	18,62	18,10	11,90	4,39	86,92
Neptune	276,20	0,99	8	2	-22,32	276,70	-17,44	12,09	17,91	3,50	276,61
Pluto	260,89	8,28	7	2	-14,88	260,67	-11,18	13,14	16,86	4,44	266,29
MC	316,60										
IC	136,60										
ϕ	36,13	S									

Height of the sun above or below the Eastern horizon in degrees (H) 31,46

(1) = needed in order to determine if it is a day or night chart

Fig. 21: Table of astronomical data *à la manière* of ancient astrology (Stars position according to the diurnal motion)

in the 12th house there co-rise Shaula, λ Scorpionis (the bright star at the sting of Scorpio, nature Mercury / Mars) at an hour distance of 5.97, Arcturus, α Bootae (the brilliant of the constellation of Bootes, the nature of Jupiter / Mars) at a HD of 5.91 and Antares, α Scorpionis (the brilliant of Scorpio, nature Mars / Jupiter) at HD 5.77. Both Arcturus and Antares are included by the anonymous Egyptian astrologer, author of a text (41) on the fixed stars compiled in Rome in 379 AD, among the lucidae or bright stars, of which he said that "[...] if one of the bright stars is at the horoscope or it is rising at birth or even if it is perpendicular being to the culmination or is in another corner, produces the glorious, powerful, those who are in command, who have many activities, with many possessions, which are well known and feared in cities and regions [...] ". In particular then Arcturus and Antares, rising at birth, make "those who have such a disposition illustrious generals, who submit regions and cities and peoples, those who govern, who are inclined to action, the indocile, those speaking frankly, taking pleasure in fighting, leading to completion their intentions, effective, virile, victorious, which damage their enemies, opulent and rich, perhaps, great souled and ambitious and generally do not die a good death. "

Pablo Neruda certainly was not the person to be subdued or to renounce to his ideas, which moreover supported with the typical perseverance of the Capricorn. Impressive his five planets in the sign: Mars, the Moon, Venus, the Sun and Mercury. Mars (HD 3.39) is (albeit only by longitude, in zodiaco) with the Moon (DH 2.72) - which is invisible, waning under the Sun beams and of minimum virtue- foresees nuisances for the mother's health and a bad death . Mercury (HD 1.97), the ascendant ruler, Venus (HD 2.16) and the Sun (HD 2.26) are conjunct within a few degrees and this union is made more significant by the fact that three celestial bodies are in the same house, the ninth: Mercury because its hour distance from MC is less than 2 hours, while Venus and the Sun are separated from its cusp less than 0.33. The white and fiery Sirius, α Canis Majoris, a *lucida* of nature Jupiter / Mars, the brightest star in our sky (magnitude -1.46), which makes those who are generous and ambitious ones (HD 2.27) to these. Which better introduction than this compact nucleus for a scholar versed in literature, journalism and poetry? An idealist, lover of the beautiful, alluring, adorned with qualities, educated, attracted to women (especially foreign ones:

two out of three of his wives were not Chilean), but the Sun conjunct Venus, especially if Venus is combust, foresees afflictions about wife. And about children too: his restless married life was marred by the illness and death of small Malva Marina (also because of Saturn at IC, already liable for the loss of his mother at a very early age). A tireless traveller for whom was almost impossible to have a fixed abode. And of his portrait we would like to take leave with these verses from his Ode to the Southern Cross:

[...] Cruz
del Sur, olvidado
navìo
de mi patria,
prendedor
sobre el pecho
de la noche turgente,
constelaciòn marina,
luz
de las casas pobres,
lâmpara errante, rombo
de lluvia y terciopelo,
tijera de la altura,
mariposa,
posa tus cuatro labios
en mi frente
y llevame
en tu nocturno
sueño
y traversìa
a las islas del cielo, [...].

which testify as he too, like us, even if pushed by different reason, thoughtful rose his eyes, touched by its unequalled beauty.

Genoa, 20th February 2008
lucia.bellizia@tin.it

Notes

- (1) James B. Pritchard., (ed.), *The Ancient Near East - Volume 1: An Anthology of Texts and Pictures*, Princeton, New Jersey: Princeton University Press, 1958, pp. 227-230
The Hymn to Aten (Hymn to the Sun) is attributed to the Pharaoh Amenophis IV, who reigned between 1359 and 1342 BC and it was found engraved on a rock wall of the (never used) tomb of the pharaoh Ay at Akhet-Aton, the modern El-Amarna (Egypt).
Amenophis changed his name to Akhenaten and together with the royal wife Nefertiti gave birth to a new way of worshiping the Sun, only god and king, with the name of Aten, replacing the solar Theban theology, which worshiped Amon. The Sun was not depicted anymore as a falcon headed man, but as a disc giver of light and life, which cult was practiced in wide open areas and not in the secret of dark chapels inside temples.
To the religious reform joined the social one, with a nationalization of property and therefore of the slaves and servants in possession, which led to the liberation of the oppressed and exploited strata of the Egyptian population and of the "guest" Semitic peoples. Already at Amenophis' death, however, ancient cults and ancient order was restored.
- (2) When the hydrogen supply in its core is over, the Sun will become a red giant: its outer layers will expand by swallowing the closer planets, including Earth, then it will end its life as a white dwarf; it will change into a very hot and dense star, but not very bright, and slowly it will go out.
Stars can be divided into different spectral types according their emitting spectral lines; from it, it is possible to obtain information on temperature and pressure of the surface of the star as well as its chemical composition. Each spectral type corresponds to a defined range of surface temperature of the star. By spectroscopic classification it is possible to trace back to the actual temperature of the radiation source surface: the yellow stars as our Sun are placed in the G band and a temperature ranging from 5000 ° to 6000 ° Kelvin.
- (3) Geocentric theory dominated unchallenged until the publication in 1543 by the Polish astronomer Copernicus, of the *De revolutionibus Orbium Coelestium*. In favor of the heliocentric theory, which was however long opposed, also sided Galileo Galilei (1564-1630), then forced to abjure his theories in 1633 by the Court of the Inquisition. For the record, Copernicus had knowledge and practice of astrology, considering he cast horoscopes on commission and the same Galileo cast birth charts (at 60 Venetian pounds each). Good times, when astronomy and astrology were one!
- (4) The tropical year is not perfectly constant because the Earth's motion around the Sun is disturbed by the presence of other planets, so a passage in the same point of its orbit does not occur always in the same time. Furthermore, the precession of the equinoxes slowly moves the zero point and because of the different speed of the Earth along its orbit, the tropical year is different depending on its reference starting point.
For these reasons, astronomers defined the *mean tropical year*, that is exactly 365 days, 5 hours, 48 minutes and 46 seconds (365.2422 days SI).
- (5) For further technical or trigonometric details you can refer to my article *Attenti alla latitudine!* (Beware....the latitude!), published in "Ricerca'90", no. 63, July 2005.
- (6) In the Northern hemisphere spring / summer semester is longer than fall / winter one. This time difference is due to the fact that the Earth in describing its orbit around the Sun does not move with constant speed. but our planet rotate slower, taking more time in summer when it is near aphelion (which falls in early July) and faster, thus taking less time, in winter, when it is close perihelion (which falls in early January).
In the southern hemisphere on the other hand autumn / winter semester is longer than spring / summer one, because there seasons are reversed.
It is therefore evident that the seasonal thermic differences do not depend at all on the distance of Earth from the Sun, but as mentioned, on the angle of incidence or height of the Sun, on the horizon. In fact in our hemisphere the Earth is closer to the Sun in winter than in summer.
The angle of incidence with which solar radiation strikes the surface amounts to about 70 ° in summer and about 23 ° and winter. The highest temperatures are not recorded in June, when the

solar radiation strikes the Earth most directly, but rather in July and August, because of the hydrosphere, the liquid mass of our planet, which is practically a giant heat accumulator.

In meteorology the seasons have a different distribution which does not take account of neither equinoxes or solstices; we talk about meteorological seasons:

Meteorological Winter: From December 1 to 28 (29) February

Meteorological Spring: from March 1 to May 31

Meteorological Summer: from June 1 to September 30

Meteorological Autumn: from October 1 to November 30

- (7) The hour angle H is of course always 0 when the height of a star is calculated at the astronomical noon, because at that time the right ascension of the star and the MC are the same (and their difference can not be other than 0).
- (8) The astronomical areas should not be confused with the *climatic zones*, which are classified into the tropical-humid, dry, warm temperate, boreal and polar zone depending on temperature and precipitations and especially on the associated vegetation. The limits of astronomical areas almost never coincide with those of climate zones. This depends on the different distribution in the two hemispheres of the lands and seas and the consequent different absorption and radiation of heat from the Earth: rocks and water have indeed a different thermic absorption. We must also consider other characteristics such as altitude of the places, their distance from the sea, sea currents, etc. ...
- (9) These two points describe the same diurnal and nocturnal arc and rise and set in the same points of the horizon. As they have the same declination, the aspect they make each other is called *parallel of declination*.
- (10) See Chapter 6 et seq. of the first lesson of Giuseppe Bezza and Marco Fumagalli's *Classical Astrology Course* (for information <http://www.cieloterra.it/scuola.html>).
- (11) In the United States since 1992 and in England from 1995 the seasonal affective disorder in its depressive phase is treated (with a therapeutic success reported in the literature of 75-85%) using the *light therapy*, or phototherapy, or the administration of intensive levels of white shining light through a sophisticated system of advanced technology fluorescent tubes. In Summer it is the good old Sun to provide for it.
- (12) They have been credited as the probable inventors of the wheel and their writing, called *cuneiform*, is the first of which we know. They invented the carriage and military organization and were the first to introduce a division between infantry, cavalry and archers. In addition they created the first law code and a complete administrative system of courts, prisons and government archives. But to the Sumerians is mainly due the systematic introduction of agriculture (wheat, barley) in ancient Mesopotamia. They also introduced the first large-scale sheep breeding (starting as mouflon) and cattle (starting as aurochs).
- (13) The word *Adonai* has the same root (Adon) of Aten (being the letters *d* and *t* completely interchangeable as etymological roots). See also what Freud states: "The Jewish creed, as is well known, says: " *Schema Jisroel Adonai Elohenu Adonai Echod*. If the similarity of the name of the Egyptian Aton (or Atum) to the Hebrew word Adonai and the Syrian divine name Adonis is not a mere accident, but is the result of a primaeval unity in language and meaning, then one could translate the Jewish formula: 'Hear, oh Israel, our god Aton (Adonai) is the only God.' "[Sigmund Freud, *Moses and Monotheism*, English version translated by Katherine Jones, Italian version: *Mosè e il Monoteismo*, Pepe Diaz Editore, Milan, 1952].

The exiled lead by Moses were for a part Egyptian dissidents, heirs of the religious and political reform of Akhenaten and faithful to the monotheistic theology, and for the other a mix of tribes, mainly Semitic, but different for language and religion, which had spent decades in Egypt in a state of subordination and marginalization.

Likely the Egyptian component of this group of people is what Jewish tradition calls "Levites" and Moses was their leader; after his death, the leaders of the new people born from exodus decided to merge the worship of Aten with the worship of the god Yahweh and other lesser divinities of the Semitic tribes. To the impartial Sun releasing its rays throughout the universe they substitute a new national God, which was intended to cement so different people together. Levites accepted the

agreement, but kept alive the sacred texts of the cult of Aten: this hypothesis has an accurate feedback in Psalm 103 (104) of the Bible, dating back to the eleventh century BC, which contains the Hymn to God the Creator, which is nothing but a reformulation of the Hymn to Aten. Of the Yahwist cult was especially accepted in the new religion the idea of an anthropomorphic God who rewards and punishes and the idea of the existence of an afterlife.

- (14) Collection of ritual songs and recitations of the utmost importance for the followers of Hinduism. It is believed they are the oldest sacred text survived in the modern age.
- (15) Pope Julius I made official for Catholic church the date of Christmas in 390 AD, as reported by John Chrysostom, patriarch of Constantinople: "On this day, December 25, even the birth of Christ was eventually fixed at Rome."
- (16) Would Alessandro Manzoni forgive us (The Betrothed, chap I: *don Abbondio's encounter with the braves*) for having copied him the number of readers?
- (17) This is an effect of Coriolis force, which is a particular manifestation of the inertia described by the French physicist Gaspard-Gustave Coriolis in 1835. This is a fictitious force introduced in the description or apparent motion of a body, observed in respect to a reference system in rotation. A moving object on the Earth with a North-South direction and with a constant speed undergoes a deviation due to the rotational motion of the planet, which it is described as effect of the Coriolis force: if the body is located in the Northern hemisphere, turns rightwards with respect to the initial direction, but leftwards if it is in the Southern hemisphere. This force changes therefore sign in the two hemispheres, it is greatest at the poles and nonexistent to the equator.
- (18) This movement, glimpsed for the first time by Hipparchus around 130 BC is due to the disturbing action that the close stars (Sun and Moon) have on the direction of Earth axis. The Earth's axis (and hence the celestial axis) is slowly deflected from its direction and forced to describe in its motion two cones with a common apex at the center of the Earth. Due to the effect of this conical motion, the point γ , where the ecliptic and celestial equator intersect, retrogrades every year about 50". The precession is completed in about 25,765 years, during which the position of the stars on the celestial sphere slowly changes .
- (19) I will say more: the student of astrology, especially of ancient astrology, knows the existence of the fixed stars, knows how to calculate the position in a chart by the hour distance from the reference meridian or by the degree of passage and he also knows how to interpret their meaning.
- (20) It is sad to see in websites as the Italian Astrophile Association <http://www.uai.it/>, there is even a "committee" called "Astrology? No thanks!", which has the noble task to fight the "excessive diffusion of astrology". This committee of astronomers took charge of promoting the (re)submission to the House of Representatives on May 4, 2006 of a bill (at the request of the Deputy Gentili) entitled "Measures for a proper public information about the ascientificity of probabilistic forecasts made through the use of horoscopes, maps, numbers, or similar practices", forecasts seeming to be the origin of real tragedies!
 Apart from the fact we are in front of a jumble which puts together different methods of forecasting, very far from each other, it seems to be back in the days of the explicit condemnation of astrology by Pope Sixtus V, born Felice Peretti, with the Bull *Coeli et Terrae Creator* of January 5, 1586. Illuminating is the background of this Pope: in 1557 he was appointed Apostolic Inquisitor for Venice and its dominion and in 1560 and was appointed a theologian and consultor of the Inquisition in Rome. His bull condemned "judicial" astrology, namely that part of astrology which claimed to judge about future events. In 1631 Pope Urban VIII, born Maffeo Barberini, confirmed severely that condemnation with the Bull *Inscrutabilis*.
 Astrophilles would better to read some astrology books by written by scholars of the value of past and present, and not only the general forecast by the the fortune tellers so much per pound and to remember that the same Court of the Inquisition, which they aspire to replace, forced Galileo Galilei to abjure his theories in 1633 and condemned, ninety years after their publication (which took place in 1543) the theories expounded by Copernicus in *De revolutionibus Orbium Coelestium*.
- (21) Conventionally, as it does not coincide anymore with the eponymous constellation.
- (22) Lugduni 1663. This is in fact of a comment to the whole Tetrabiblos.

- (23) “Ex hoc tandem sequitur quod in Australi medietate Capricornus erit domus Lunae & Aquarius Solis, Piscis & Sagittarius Mercurij, Aries & Scorpio Veneris, Taurus & Libra Martis, Gemini & Virgo Iouis, Cancer et Leo Saturni”.
- (24) Campanellae Ordin. praedic. Astrologicorum Libri VI. *In quibus astrologia, omni superstitione Arabum, & Iudaeorum eliminata, physiologicè tractatur, secundum S. scripturas, & doctrinam S. Thomae, & Alberti, & summorum theologorum; ita vt absque suspicione mala in ecclesia Dei multa cum utilitate legi possint.* Lugduni, Sumptibus Iacobi, Andreae, & Matthaei Prost, 1629.
- (25) “His autem, qui habitant ultra aequatorem ad polum spectantes austrinum nobiscum aequidistantes ab aequatore, domus Planetarum contrario se habent situ” (*Astrologicorum Libri IV*, Lugduni 1629).
- (26) Jean-Baptiste Morin, also known under the Latin pseudonym of Morinus, was a French mathematician, astronomer and astrologer, author of an astrological treatise of more than 800 pages, entitled *Astrologia Gallica*. The work, written in Latin, begins with a *Epistola Dedicatoria ad Regem Regum* (ie Jesus Christ), goes on with a *Praefatio Apologetica* of 36 pages and it is articulated into 26 chapters. He finished it in the last years of his life and he could not see it printed, because the work was published in 1661 by Aadrían Vlacq in The Hague, with two thousand thalers paid to this purpose by Marie Louise Gonzaga de Nevers, Queen of Poland.
The *Astrologia Gallica* deals with natal, judicial, elective and weather astrology; the predictive techniques used by Morin are directions and solar and lunar revolutions: the author looked at transits as a subsidiary technique even if important. He challenged the theories of classical astrologers, including Ptolemy, in an attempt to provide a solid set of arguments against and in favor of techniques considered crucial before and during his time. He was an enthusiastic supporter of the *in mundo*, directions based largely on the work of Regiomontanus.
- (27) Mediolani, 1675
- (28) “[...] concedendum est, quod in Regionibus Australibus alio modo disponantur Planetarum dignitates”.
- (29) Placido Titi, Tocco di Paragone, Nuovi Orizzonti, Milan 1992, p. 94. The work was published in Pavia in 1665; the edition of 1992 is introduced by Giuseppe Bezza.
- (30) The work, almost forgotten in the Western world throughout the Middle Ages, but always appreciated by the Arabs, came back into vogue in the Renaissance, when the Byzantine humanist Manuel Chrysoloras, by the end of '300, brought it in Italy and his pupil Jacopo Angelo da Scarperia translated it from Greek to Latin in the Roman Curia between 1406 and 1409 with the name of *Cosmographia*, and dedicated it to Pope Alexander V. The scientific importance of *Cosmographia* consists of the fact it is the first attempt of cartographic representation based on flat projections of the spherical surface of the Earth. Ptolemy establishes so the scientific cartography. Echoing the ingenious system of representation of the sky, he outlines the terrestrial maps with similar criteria to the heavenly ones tracing a grid of reference lines which he equates the position of various places; remarkable too it is the correct orientation of the map with the North at the top .
The first printed version appeared in 1475 with the Latin translation mentioned above and consisted only of the text but not of the maps. The date of the first edition containing the maps is still uncertain, but it could be the one printed in Rome in 1478, which contained 27 maps (a map of the world, ten maps for Europe, four for Africa, twelve for Asia) .
- (31) The entire work can be read at <http://www.svkol.cz/~petros/astrology/morin.htm>. It is the scan of the pages of the 26 books in the original version. The link can also be reached through FISA - Ebooks, the astological electronic library (fisa.altervista.org/ebooks.html). I am not aware of Italian translations. A partial English version can be found at :
<http://penelope.uchicago.edu/Thayer/E/Gazetteer/Periods/Roman/Texts/Ptolemy/home.html>
- (32) *A History of Magic and Experimental Science* by Lynn Thorndike , Macmillan, New York 1923-58.
- (33) The word God is written uppercase in the original text.
- (34) “Sed permittamus ipsam ab hominibus inventam non fuisse, saltem quoad ad fundamentalia ejus principia; quippe divisionem primi Coeli, natura simplicissimi et homogenei in 12 Dodecatemoria diversarum naturarum, quae Planetarum naturis correspondent. Nec non divisionem mundani spatii in 12 domos, diversarum quoque virtutum. Haec enim humanae mentis aciem superare mihi

videntur, ut dicimus Libris 14 & 15: sed a DEO fuit Adamo peculiariter infusa, a quo per Cabalam devenit ad posteros; cujus cultores praecipui celebriores post diluvium fuere Chaldaei, & Aegyptii, à quibus Thales Milesius primus inter Graecos illam didicit, & in Graeciam transportavit; ut deducitur ex Diogenis Laertii Libro I De vita philosophorum, nec non Ptolomaeo lib. I Quadrip. Chapter 18: ex quo patet ipsius Ptolomaei Astrologiam fuisse ab Aegyptiis & Chaldaeis desumptam, sed mos fuit Graecis, qui discendi gratia in regionem extraneas peregrinati sunt, quae ab exteris didicerant, ut sua tradere in Graecia; [following]”.

- (35) “Illa efficiens causa omnium prima & universalissima dici debet in Natura, cui caeterae omnes subordinantur, ipsa vero nulli”
- (36) “Ac propterea cum ☉ naturae sit igneae, et pro domo signum erit igneum. At quia ☉ non est Planeta in quo omnium minime viget igneae naturae acritudo, non ei pro domo conveniet ♃, in quo talis natura maxime viget: sed neque ♁, qui eandem naturam omnium minime participat; quia Sol non est Planeta in quo omnium minime vigeat ignea natura: ergo cum in ☉ utcunque flammante, natura ignea vigeat duntaxat mediocriter, ob copiam humidi, aerei, aetherei, qua nutritur stupenda illa totius Mundi lampas; ac vigeat etiam mediocriter in ♌: erit Leo domus Solis genuina. Marti autem Planetarum omnium ignis acrimoniam maxime participantem, conveniet ♃; & ♃ Jovi Planetae ex antea dictis igneo, sed omnium minime”.
- (37) Edizione Nuovi Orizzonti, 1990.
- (38) Marco Gambassi, *Le basi astronomiche dell'oroscopo*, Edizioni F. Capone, Torino, 2000.
- (39) *Raphael's Tables of Houses for Northern Latitudes*, W. Foulsham & Co. Ltd, Slough (England) or *Table des maisons*, Aureas Editions Paris.
- (40) Cf. Marco Fumagalli, *I moti del cielo*, Cielo e Terra, pp. 70-73.
- (41) This text was published by F. Cumont in the first tome of the fifth volume of the *Catalogus codicum Astrologorum Graecorum* (CCAG), pp. 194-211. It is included in Rhetorius, VI century, and is taken over by Theophilus of Edessa.