

## LANGUAGE, ASTRONOMY, CULTURE: FILIPINO CULTURE IN ASTRONOMICAL TERMS

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In the study of astronomy, we always begin with Western knowledge. The new developments in astronomy that we study are usually developments that pass through the West before flowing to us.

Modern astronomy in particular, and modern science in general, originated in the West. This is what is taught, so it is what becomes widespread. Because of this, it has become "natural" for our "educated" Filipinos to study science and astronomy based on the knowledge and developments created and passed through the West.

There would be no major problem with this, except that at times, it hinders us from recognizing our own culture—the traditions where our own "science" is rooted, which serves as the foundation of our astronomical knowledge.

Until the present, we have disseminated almost nothing regarding indigenous astronomical knowledge. It is not because we do not have it; we simply haven't studied or promoted it. Even Western knowledge that has integrated into indigenous beliefs is something we hardly recognize, such as the Spanish-Christian influence on Tagalog knowledge.

When we hear these things from the elderly and common folk, they are dismissed as old beliefs without basis, or superstitions that cannot be accepted by modern science and the modern world. Our own map of reality, which was formed over thousands of years and guided our ancestors to survive—and was proven effective—is immediately disregarded by us. Yet, if truth be told, this is our own "science" that developed within Filipino society.

Because of this attitude, astronomical knowledge natural to our ancestors—and still used to this day—is unrecognized and underutilized by us. Such knowledge could have been used for deeper analysis of the indigenous worldview, life philosophy, and our own development.

Our used language carries our culture. In analyzing astronomical terms alone, even without the actual astronomical knowledge itself, we can learn and ask much about our identity as a people and as a nation.

In analyzing astronomical terms, one can feel the hope and tightness of the relationship with nature of early Filipino societies. Here, we can also draw evidence of the type of lifestyle back then. For example, the agricultural-hunting life of our ancestors is visible in the heavens because they placed their names, their tools, and the things seen in their fields and hunting grounds there.

The hunter-gatherers were *Seretar* of the Tiruray, *Tohng* of the Jama Mapun, and *Magbangal* of the Bukidnon. These are composed of the stars of Orion, which according to Greek mythology is also a hunter. In other ethnic groups like the Bagobo, Bilaan, and Manobo, the stars of Orion are called *Balatik*—a type of trap used in hunting.

In the case of *Magbangal*, he is accompanied in the sky by his tools and animals like the *Ta-on* (ax), *Malala* (bolo), *Sogob-a-ton* (pole), *Ti-ok* (puppy), *Baka* (wild boar jaw), and *Molopolo* (hunting hill).

Deep knowledge can be extracted if we analyze the myths behind the stories of the mentioned constellations above. These myths about them recount not just how they ended up in the sky. They also show how they became marker stars for planting for the indigenous people, like the myths of *Lagey Lingkuwus* of the Tiruray and *Magbangal* of the Bukidnon. The myth of *Tanggung* of the Jama Mapun recounts why it is necessary to plant rice for the people and why it needs to be milled before being eaten.

Found in these myths are not only the characteristics of the lifestyle of the storytelling groups but also the values they hold dear.

In astronomical terms, the connection between various ethnic groups in the Philippines is also observable. In the worldview, one meaning of *tukod* for many ethnic groups—it is the pillar that supports the universe. The god *Tinukod* of the Ifugao supports their world; *Taliakud* is the name for this among the Tagbanua. These *tukod* terms share the same root.

This unity is not only found within the Philippines. The *tukod* as a support for the universe is a widespread concept in the Pacific. In the Society Islands, it is called *pou*; in Tuamotu, it is *turuturu*; while in Marquesas, it is *to'o* or *toko*.

If we add the terms for sun, moon, and stars, we will see the tight linguistic connection of different ethnic groups in the Philippines. It is a foundation for unity among them.

The Tagalog sky is *Lowalangi* to the Sumatrans and *Rangi* to the Maori.

In the matter of direction, the terms *ilawud* and *ilaya* are another example of language-linking between ethnic groups in the Philippines, as well as in Indonesia, for example. These terms follow the direction of the river—*ilawud* toward the sea and *ilaya* toward the mountains. It depends on the origin of the river; either of the two could be north or south. The east-west directions, meanwhile, are based on the rising and setting of the sun.

The *ilawud-ilaya* directions for the Bontoc are *lagod-aplay*; for the Ilocanos, *laud-daya*; for the Tagalogs, *laot-ilaya*; for the Ifugao, *lagod-daiya*; and for the Maguindanao, *sailud-saraya*. In Indonesia, it's *kelod-kaja*.

In the theory of linguists and anthropologists, this similarity in terms and concepts points, on one hand, to a culture rooted in the Philippines and the islands of the Pacific—the Austronesian culture.

It's not just in astronomical terms or words that various ethnic groups resemble each other; it's also in cultural aspects. But there is one thing that further strengthens the idea of such unity.

In terms regarding the division of a day, a level of precision achieved by Filipinos in the past related to their needs can be seen. The Tagalogs, for example, have many terms for it: *madaling araw* (dawn), *bukang-liwayway* (breaking of dawn), *umaga* (morning), *hampastikin*, *tanghali* (noon), *tanghaling tapat* (high noon), *hapon* (afternoon), *dapithapon* (twilight), *takipsilim* (dusk), *gabi* (night), and *hatinggabi* (midnight).

Note that these are just the time-of-day words of the Tagalogs. There are terms encompassing more important periods: *maghapon* (all day), *magdamag* (all night), *gabi-gabi* (every night), *araw-araw* (every day), *samakaiawa*, *kamakalawa* (the day before yesterday), to include months, rainy season, and harvest season.

What are the concepts of timing behind these terms? How were these times marked for the division of a day—thinking, movement, and activity of the Tagalogs? What environment dictated and gave rise to such terms and corresponding ways of thinking and acting?

Answering these questions will surely deepen knowledge not only on the map of reality of the Tagalogs but also on the entirety of their culture.

There are also many terms for the appearance of the moon. According to Jenks, the Bontoc Igorot recognize eight phases of the moon: *fis-ka-na*, *ma-no-wa*, *kat-no-wa-na*, *fit-fi-tay-eg* (fullness), *ka-tol-pa-ka-na*, *ki-sul-fi-ka-na*, *sig-na-a-na*, *li-meng* (disappearance). Are the eight terms for the face of the moon used by the Bontoc? According to Jenks, his informant was not aware of why there was such precision in the appearance of the moon.

The alternating of day and night, the chasing of the moon and sun, and the shifting of light and darkness have a connection to the alternating and chasing that occurs not only in the work of the Tagalogs. It affects their thinking and philosophy. These are concepts of reason and absurdity, of truth and falsehood, of right and wrong, which are usually expressed through images of light and shadow, phenomena related to day and night, the moon and the sun.

Clear indeed are the symbols of enlightenment and darkness. In a statement by Andres Bonifacio, this is what he said:

The sun of reason that rises in the East is clear in pointing out to our eyes, which have long been blinded, the path we must take, its light can be seen in our eyes... It is time now for the light of truth to shine...

If we look at the symbols often used by social and political groups, the depth of their cultural interpretation of some astronomical phenomena can be deduced. From the *Kaliwa hanggang Kanan at pati na mga grupong Katipunero* (Left to Right and even Katipunero groups), millenarians and spiritists, symbols and ornaments in their banners, seals, or markings and others include the sun and stars.

Sometimes the sun or moon has a face, but usually, they are just rays of light. Also common are the three or five stars as ornaments. These are symbols from Muslims in Mindanao and one

lunar-crescent. These are various beliefs and ideologies of the groups, but they all cling to the symbols given their respective meanings.

There were also attempts to create astronomical terms for phenomena in the heavens. This includes *buntala* (planet) and *bitumpok* (combination of *tumpok* and *bituin*) for constellations. In the 1930s, Gen. Artemio Ricarte of the 1896 Revolution attempted to make the names of constellations and some stars Filipino. Some examples follow:

- **Cassiopeia** ... GatTamblot
- **Perseus** ... GatDandan
- **Draco** ... GatPanyong
- **Cygnus** ... Poncrizpil
- **Lira** ... Bondimpla
- **Vega** ... GatRizal
- **Deneb** ... GatPlaridel
- **Polaris** ... UtakHasinto
- **Ursa Minor** ... Pingkian
- **Ursa Major** ... GatMaipagasa

For zenith and horizon, Ricarte proposed the terms *PuyongUlo* and *GuhitDagat*.

It is noticeable that they are based on the names of heroes of the propaganda movement and the 1896 Revolution and some patriotic figures where the names above were derived. This was important for Ricarte:

Those unfortunate ones of the Supremo (Bonifacio), while he was still alive, he always preached: "Fear history because no one is hidden from it," and now it is followed with: "Our Heroes look down upon us from heaven. Their lives in every sentence and action are the path and land of their tracks, and as such they are like the arrangement and movement of the stars around UtakHasinto and, thus, without confusion, we will achieve 'IMMEDIATE, WHOLE AND COMPLETE INDEPENDENCE' which is the breathing of our Motherland's desire."

Here is the attempt to include in our own culture with indigenous meaning the foreign knowledge. Whether we agree or not with what Ricarte did, whether he succeeded or failed in his attempt—only the people who use and popularize these terms will decide if they will be accepted or not in the totality of the culture they belong to.

Whatever it is, in many instances, it is necessary to invent terms if we only seek and propagate the terms existing among various ethnic groups in the archipelago. Terms and beliefs have a deep connection to indigenous culture. Even if they are borrowed from the West and integrated into indigenous culture, they can also be used and deeply analyzed to fathom the implications of inclusion into natural culture.

In Tagalog culture, for example, the influence of Spanish-Christian culture can immediately be seen in the names for groups of stars. There are those they call *Tatlong Maria* (Three Marys),

*Krus na Bituin* (Cross of Stars), *Supot ni Hudas* (Judas' Pouch), *Koronang Tinik* (Crown of Thorns), and *Dinaanang ng Barko ni Apong Noe* (The path of Grandfather Noah's Ship).

One might ask, what happened to the constellations that were purely Tagalog and had roots in the indigenous tradition before the Spanish arrived? Are those what remained for them? Does this imply that Tagalog culture was successfully submerged by the Spanish-Christian tradition?

Relatedly, if you ask any student about constellations, usually they won't name indigenous ones; they will refer to Western constellations instead of the indigenous constellations. One reason for this is their "education" in the Western tradition instead of the Filipino tradition. Can one see here a reason why the gap between the "educated" Filipino and the common Filipino grows?

The Tagalogs call the totality of the environment the *sansinukob* and *santinakpan*. Included here is the idea that everything is contained or covered in something like a bowl in the heavens covering them. This universe is composed of many regions—sky, earth, under the earth. Connected to these are rivers, parts or bags of rock. Each region has creatures—gods, people, spirits, animals, plants.

This layered universe is a view common not only to the Tagalogs but also to other ethnic groups in the archipelago. Some do not only have three layers but even more regions composing their universe. This picture of the universe is the explanation for phenomena of earthquake, lightning, thunder, rain, chasing of the sun and moon, eclipse, and others.

This layered universe is the basis of the map of reality created by ethnic groups to understand their world. Do we still carry the basic ideas of that universe today? How tight is the grip of those ideas on our current thinking? We cannot know if we do not inquire into and study indigenous knowledge of culture.

We have seen above some of what we can learn and ask of ourselves in analyzing astronomical terms, how much more if we analyze the knowledge itself?

This knowledge lives on until the present. We only need to seek it, bless it, and enrich it. It serves as the root of our knowledge, astronomical and otherwise: an indigenous one full of knowledge watered by knowledge drawn from other cultures, including the Western culture.

For a more initial knowing and understanding of the astronomical terms we mention, look at the *Talakahulugan* (Glossary) below the text. This is indeed a journey to "our" *sansinukob* and *santinakpan*—and astronomical environment.

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## Glossary

1. **The Tagalog constellations are composed of the following:** *Tatlong Maria*, *Krus na Bituin*, *Supot ni Hudas*, *Koronang Tinik* at *Mapolon*. A white band that they call *Dinaanang ng Barko ni Apong Noe*.

- The **Tatlong Maria** is composed of three stars lined up in the middle of Orion—this is the belt of the giant hunter in Greek mythology. It is composed of Maria Magdalena, Maria Cleofas, and Maria Salome.
  - The **Krus na Bituin** is found in the southern part. Used as a marker for the time of farming and fishing. This is the *Southern Cross* of Western astronomy prominent on the flags of Australia and New Zealand.
  - The **Supot ni Hudas** are the *Pleiades* that rise ahead of Orion at night starting in November. It seems this is also what they call *Mapolon*.
  - The **Koronang Tinik** is *Corona Borealis* found in a band north of the sky.
  - The **Dinaanang Barko ni Apong Noe** is the *Milky Way* which in the eyes of fishermen looks like foam in a river where a boat or ship passed. It is composed of millions of stars in our galaxy which include our sun.
2. **Constellations** are groups of stars. There is no physical connection between the stars. It is only people who grouped them—a way of categorization that served as a map of the heavens. Zodiac signs are constellations or groups of stars in the path of the sun through the seasons.
  3. **Lagey Lingkuwus** is the great hero of the myth of the Tiruray. He was tasked by the gods to bring the people to the land of *Tulus*, and to do so, he joined them. Before they were brought, the cousins *Kufukufu*, *Baka* and *Seretar*, the uncle *Keluguy* and the couple *Singkad* and *Kenogon*, he requested them to remain in the sky to serve as markers for the Tiruray in planting. That is what happened.
    - In other stories, the **Kufukufu** (*Pleiades*) are flies swarming over a dead wild pig called **Seretar** (*Orion*). **Baka** (*Hyades*) is the name for the jaw of the pig. While **Fegerefarad** or **Keluguy** is a tall man and the head or leader of the star *Procyon* of the constellation *Canis Minor*. His right hand is composed of the stars *Castor* and *Pollux* of the constellation *Gemini* while his left hand is composed of the stars *Sirius* and *Murzim* of the constellation *Canis Major*. **Singkad** is part of the constellation *Aquila* while **Kenogon** is part of *Delphinus*.
  4. In the myth of the **Jama Mapun**, there were only three people in the world—**Tohng** and his wives **Masikla** and **Mayuyu**. When Mayuyu disobeyed Tohng's instruction at Masikla's house, the two climbed to the sky. Mayuyu followed them to serve as marker stars in the planting of the Jama Mapun. They are the three stars in the belt of Orion or the equivalent of *Tatlong Maria* of the Tagalogs. Since Mayuyu did not obey Tohng and Masikla, she was not allowed to work and plant with the people.
  5. **Magbangal** is a powerful man in the myth of the Bukidnon. He went to the sky to become a signal for planting for the Bukidnon after his wife disobeyed his instruction for her to leave. His wife followed and discovered the power possessed by Magbangal. In the sky, Magbangal became a marker for planting along with his tools: **Balokau** (his right hand), **Ta-on** (ax), **Malala** (bolo), **Sogob-a-ton** (pole), **Baka** (wild boar jaw), **Molopollo** (hunting hill), and **Ti-ok** (puppy). Clearly, these are composed of Orion and other stars beside it in the sky. Only a few of these were identified by researchers as to which ones they are.
  6. The **Balatik** is Orion as well. It is a type of trap used in hunting. Two pieces of wood are pointed to cross on the ground. At both ends, there are rubber-like bands like in a

slingshot. An arrow is placed there. The trigger for this is a string that, when moved by any animal in front of the trap, will release the arrow. In the sky, the shape of Orion is like a *balatik*—the four stars at the corners are the crossed ends of the wood, while the three stars in the middle (*Tatlong Maria* of the Tagalogs) represent the arrow.

7. One of the concepts in the picture of the universe is the **tukod** or pillar of animals, people, or gods that support the world. In Greek mythology, this is represented by *Atlas*. In indigenous mythology, this is represented by the **Tinukod** of the Ifugao and the **Taliakud** of the Tagbanua. Among the Maranaw, it is a creature called **lumbong** that carries the world.
8. There are **eleven divisions of a day** among the Tagalogs: *madaling araw, buwang liwayway, umaga, hampastikin, tanghali, tanghaling tapat, hapon, dapithapon, takipsilim, gabi* and *hatinggabi*.
  - **Madaling araw** is the time after twelve midnight or midnight until before the sun rises. **Buwang liwayway** is the term for the time when the light of the sun can be glimpsed in the east. **Umaga** is when the sun has risen until around eight or nine in the morning. **Hampastikin** is the time when it's past the first bamboo height of the sun. It's nine until around ten in the morning. **Tanghali** is ten until twelve noon. **Tanghaling tapat** is exactly twelve noon. **Hapon** is from after noon until five in the afternoon. From five until six is **dapithapon**. Around six in the evening is **takipsilim**, the time when darkness and light struggle. **Gabi** is from the onset of darkness until before midnight.
9. The **Bontoc** have eight terms for the face of the moon: *fis-ka-na, ma-no-wa, kat-no-wa-na, fit-fi-tay-eg* (fullness), *ka-tol-pa-na-ka, ki-sul-fi-ka-na, sig-na-a-na, li-meng* (truth/disappearance). The people of Leyte have four terms: *gimata, magbabot, kabog-os* and *kawara*. There are two for the Tagalogs: *kabilugan* and *katunawan*.
10. The term of the Tagalogs for the universe is **sansinukob** or **santinakpan**. From the root words *sukob* or *takip*. Everything under the sky or roof of heaven is part of the *sansinukob*. Everything inside the lid or cover of heaven is *santinakpan*. If we are the only ones referred to, humanity is the term. It should be noted that people or animals on earth are called *nilalang* or created in English. Created by whom or what?
11. There are two types of **eclipse**: solar eclipse and lunar eclipse. When the moon covers the sun, it's a solar eclipse. *Labo* is the Tagalog term for it. When it enters the shadow of the earth, it's a lunar eclipse. In a solar eclipse, people in the Philippines and other parts of Asia are usually cautious. It is because of the belief in a giant animal chasing the sun to swallow it.
12. There are some invented words for astronomical phenomena like **buntala** (planet) and **bitumpok** (constellation). These are combinations of the words *buwan* (moon) at *tala* (star) and *bituin* (star) at *tumpok* (clump). *Tala* or *bituin* is the term for everything seen at night, except the moon and **bulalakaw** (meteor). The Tagalogs distinguish between **Tala sa umaga** (Morning star) and **Tala sa gabi** (Evening star). These refer to Venus which is sometimes seen in the morning and sometimes at night—before sunrise and after sunset. It was a time when they didn't know that these are just the movements of Venus around the sun.

13. In Yokohama, Japan, Ricarte gave the constellations names. Because of his location, the constellations in the northern sky were what he saw. He didn't see or give attention to those in the southern part already seen in the Philippines but not in Japan like the *Southern Cross* or *Krus na Bituin*.
- **GatTamblot** (Cassiopeia) was named after Tamblot, one of the priestesses who rebelled against the Spaniards in the 1600s; **GatDandan** (Perseus) was from Pedro Dandan, a revolutionary priest in the 1896 Revolution; **GatPanyong** (Draco) was named after Epifanio de los Santos.
  - **Poncrizpil** (Cygnus) is a combined name of Mariano Ponce, Jose Rizal, and Marcelo H. del Pilar. **Bondimpla** (Lyra) is a combined name of the first triumvirate of the Katipunan: Andres Bonifacio, Ladislao Diwa, and Teodoro Plata. **Pingkian** (Ursa Minor) was from the *nom-de-guerre* of Emilio Jacinto. Meanwhile, the *nom-de-guerre* of Andres Bonifacio, **GatMaipagasa** (Ursa Major).
  - The constellations mentioned above. In the bright stars in the northern sky, the ones named by Ricarte were Jacinto, Rizal, and del Pilar: **UtakHasinto** for Polaris, the North Star in the constellation Ursa Minor; **GatRizal** for Vega in the constellation Lyra; and **GatPlaridel**, from the *nom-de-plume* of del Pilar, is Deneb of the constellation Cygnus.
  - The zenith was named **PuyongUlo** by Ricarte, perhaps because it's at the very top of the head of a person on the planet; while the horizon was called **GuhitDagat** because it connects the sky and sea creating a line or circular outline.