

OF STARS, SEARCHES AND SUITABILITIES

In this issue:

- Finding Our Frontiers In The Stars
- National Astronomy Week Opening and Closing Day
- ALP celebrates Earth Hour



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Philippine Journal of Astronomy

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Finding Our Frontiers In The Stars

By John Ray Cabrera



Coined as a cosmic energy engine that generates radiated heats sources, expedient to the formation of life, stars has always been the subject of our amazement and human curiosity.

To some, stars are there to be gazed upon, light years from where it is at, and the twinkling of each points in the sky is simply whimsical. For others, it may be our frontiers.

Our own star, the Sun, is only expected to have a hydrogen-consumption lifecycle of about 5 billion years old, and to further advance race as a planetary civilization, we have to find another star system out there that can support life.

Stars are composed largely of gas and plasma, a superheated state of matter composed of subatomic particles. It is nuclear furnace tantamount to detonating billions of hydrogen bombs every second.

No one knows how many stars exist, but the number would be staggering. Our universe likely contains more than 100 billion galaxies, and each of those galaxies may have more than 100 billion stars.

Yet on a clear, dark night Earth's sky reveals only about 3,000 stars to the naked eye. Humans of many cultures have charted the heavens by

these stars

Stars evolve over billions of years. When their main sequence phase ends they pass through other states of existence according to their size and other characteristics. The larger a star's mass, the shorter its lifespan will be.

The Sun is of no exception. It will die soon. And although 5 billion years is a long period when we talk about human time scale, it is short when we think about astronomical time scale.

Twenty years from now, almost all developing countries must have a space program, and that another 20 years, we have at least started terraforming another planet outside our Solar System already.

How to achieve this might be monumental, but with one small step at a time promises a huge leap of mankind to further advance that cause.

And it requires a huge mindshare, a different level of mental conditioning, from setting up institutions that will be part of the exploration activities to the strategic command center, from policy-making to governance, from ground testing to disaster control, from the intercoordinating with other space agencies to the industrialization of the supply chain of the tools and equipment used in the exploration.

Everything has to be holistic, comprehensive and the details arrayed. We need more than just the intellectual resource of doing so, we need a political will.

All images featured in the article are derived from www.rhfleet.org.

Stargazing Session:

Cometgazing in Nasugbu Batangas

by James Kevin Ty



Last January 10, ALPers namely James Kevin Ty, Christopher Louie Lu, Arnel Campos, Ronald Sison, Shubhashish Banerjee, Saju Pillai, Andrew Ian Chan and Iah Serna went to JohnDel Beach Resort at Nasugbu, Batangas to observe and image Comet C/2014 Q2 Lovejoy and other deep sky objects under dark skies.

ALPers James Kevin Ty brought along his Canon EOS500D DSLR with Canon EF100-400mm f/4.5-5.6 IS L lens mounted on a Vixen GP-DX mount. Andrew Ian Chan brought along his Canon EOS 500D DSLR on Skywatcher 80ED refractor on Vixen GP mount, Christopher Louie Lu with his Canon EOS 450D DSLR on Vixen Polaris star tracker, Shubhashish Banerjee with his Canon EOS 350D DSLR mounted on sturdy tripod, Saju Pillai with his Canon EOS 550D DSLR mounted on sturdy tripod, Arnel Campos with his Explore Scientific AR102mm refractor on Skywatcher HEQ-5 mount.

They arrive at the site more or less around 7:30pm with Arnel and Ronald arriving a bit earlier to observe the sunset. After getting some rest, they started to setup their equipment and started to locate Comet C/2014 Q2 Lovejoy . After checking for a short while, they located the comet which is almost visible to the naked eye at

around mag 4.5 and sporting a +/- 2 degree tail! The sky was partly cloudy in the early evening but cleared up late in the evening till dusk. They were also able to observe and image M42, M31, and other deep sky objects. The Waning Gibbous Moon then rose from the eastern horizon at around 11:00pm. They continue to observe and image until the Moon had risen near the zenith thus ending their observation and imaging session. As they were packing up their stuff, a magnitude 4+ earthquake was felt by ALPers at the roofdeck and after a minute of mild tremor, they jokingly stated that this is what we call ending the event with a bang (or shock).

After getting some rest in the morning, some of them went to the beach for a dip to relax their body while others roam around the resort to get some good shots of the beach front. They left the resort at around 11:30am and looking forward in the days to come to return again with a much larger group.



All images featured in the article are owned by Astronomical League of the Philippines.



ALPer Andrew Ian Chan and lah Serna beside his Canon EOS 500D DSLR with Skywatcher 80ED refractor on Vixen GP mount.



ALPer Ronald Sison posed beside his Celestron C90 Maksutov Cassegrain on Skywatcher EQ-5 mount.



ALPer Shubhashish Banerjee posed beside Arnel's Explore Scientific AR102 refractor on Skywatcher HEQ-5 mount.



ALPer Saju Pillai posed beside his Canon EOS 550D DSLR with EFS 55-250mm lens on sturdy tripod.



ALPer Arnel Campos posed beside his Explore Scientific AR102 refractor on Skywatcher HEQ-5 mount.



ALPer Christopher Louie Lu posed beside his Canon EOS 450D DSLR on Canon EFS55-250mm lens mounted on Vixen Polaris Star Tracker.



Comet C/2014 Q2 Lovejoy by ALPer Arnel Campos



Comet C/2014 Q2 Lovejoy by ALPer James Kevin Ty



Comet C/2014 Q2 Lovejoy by ALPer Saju Pillai



Comet C/2014 Q2 Lovejoy by ALPer Christopher Louie Lu



M31 Andromeda Galaxy by ALPer Christopher Louie Lu



M42 Orion Nebula by ALPer Saju Pillai

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Stargazing Session:

Comet Gazing at the PAG ASA Observatory

by James Kevin Ty



Last January 16, a late afternoon decision by ALPers James Kevin Ty, Christopher Louie Lu, Edgar Ang and Edge Late to go to PAGASA Observatory at UP Diliman to try to observe Comet C/2014 Q2 Lovejoy. They meet up at Jollibee Commonwealth before proceeding to the site.

ALPers James Kevin Ty brought along his Canon EOS500D DSLR with Canon EF100-400mm f/4.5-5.6 IS L lens mounted on a Kenko Sky Memo-R star tracker, Edgar Ang brought along his Vixen Polarie star tracker and mounted Edge Lat's Canon EOS 60D DSLR on it. Christopher Louie Lu brought along his Canon EOS 450D DSLR with Canon EFS 55-250mm F/5.6 zoom lens mounted on sturdy tripod.

The sky was partly clear with lots of fast passing clouds and a bit of light pollution coming from nearby building construction near the observatory. Despite this circumstances, they were able to observe and image the comet. They were also able to meetup with some guests of the observatory and observe planet Jupiter through the observatory's 7" f/15 Meade Maksutov-Cassegrain telescope on LX200 mount.

At around 10:30pm, clouds started to cover up the sky and they ended their observing

session at around 11:00pm with traditional group shot before heading home at around 12:00am.



ALPer Edge Lat beside his Canon EOS 60D DSLR with Canon EFS55-250mm f/5.6 zoom lens mounted on Vixen Polarie star tracker mount.



ALPer Edgar Ang beside Canon EOS 60D DSLR with Canon EFS55-250mm f/5.6 zoom lens mounted on his Vixen Polarie star tracker mount.



Comet C/2014 Q2 Lovejoy by ALPer James Kevin Ty



Comet C/2014 Q2 Lovejoy by ALPer Christopher Louie Lu

Event:

National Astronomy Week Opening Day

by James Kevin Ty



ALPer Norman Marigza presented his lecture on "Spark: The Birth of a Star." It describes the process of stellar formation in a technical and artistic manner. It identifies the physical processes involved in stellar formation and tries to answer fundamental questions such as: What makes a

Last February 14, Astronomical League of the Philippines (ALP) held their National Astronomy Week (NAW) Opening Day event at National Museum Planetarium. Members who are present are ALP President James Kevin Ty, wife Charito and son Kendrick Cole KC Ty, VP Jett Aguilar, Secretary Christopher Louie Lu and daughter Frances Lu, Treasurer and NAW Chairman Andrew Ian Chan and Iah Serna, Auditor Edgar Ang, directors Arnel Campos, Edge Lat, Peter Benedict Tubalinal, Jason Comia, Shubhashish Banerjee, Mark Ian Singson, Justine Garcia, Per Edman, Manuel Goseco, and Norman Marigza.

The event started at around 1:30pm with the singing of the Philippine National Anthem and followed by a prayer invocation by ALP director Peter Benedict Tubalinal. National Museum Planetarium curator Ma. Belen Pabunan and ALP VP Jett Aguilar gave their opening remarks to welcome ALP and guests to the ALP NAW 2015 opening day event. This was followed by a planetary film show Journey to the Solar System and 2 lectures presented by ALPers Norman Marigza and Peter Benedict Tubalinal.

a star? What role does gravity play? How does gas hydrogen gas behave? What are the conditions for stellar birth? What generates a star's light/energy? The formation of matter in the universe allowed for gravity to create structure in the universe. The early universe was hot allowing only the most simple atomic structure (H-atom) to have formed. Gravity acts on the matter in the universe causing compression of gases. Stars either originate from the gravitational collapse of dense and cool molecular clouds, or by compression of large amounts of material by other physical processes. A build up of thermal pressure and continuous gravitational collapse takes place. Nuclear processes are triggered and finally a balance between thermal pressure and gravitational collapse takes place. A star is born.



Then, a 15 minutes break followed before the start of the last lecture topic on opening day which was presented by ALP director Peter Benedict Tubalinal entitled "A Star Name."



Almost every star has a name. Although we know that the International Astronomical Union is the official body that supplies the naming stars in the modern times, we date back how the oldest among the stars were named.

Names of the heavenly bodies came as early as before Christ (BC.) wherein a few were already mentioned in the Bible – particularly in the book of Amos, and Job. The constellation Orion, the star cluster Pleiades, and defunct constellation which was broken into three separate constellations due to precession. The proper names of stars have been popularized by the Greeks, Latin, and Arab people. During the 1600's, Johannes Bayer applied the small letters of the Greek Alphabet to the stars in order of brightness. This paved the way of creating a more meaningful code as it pertains to describing the brightness of a star and what constellation it is associated with; this is now being adapted in star charts. Also, astronomer Charles Messier who was considered the greatest comet hunter during the 16th Century was cataloging comets according to which he spotted first, one after the other. He coded every one as M1, M2, and so forth as he viewed them from his 3-inch refractor. Because his telescope was of poor quality, he has did not realize that what he cataloged turned out to be star clusters, galaxies, nebulae, and double stars. His catalog was adapted and used by astronomers throughout the years and found out that all 110 Messier objects

are possible to find in a single night of which it became a popular challenge to astronomers worldwide in what is famously known as the Messier Marathon. So now we know that it is not only stars that are given names, but also clusters of stars, galaxies, quasars, and star clouds. And having the IAU, we are prepared that when new stars are discovered, they can be named properly which corresponds to their origin and other details that best describe them.

At the end of the lecture. National Museum Planetarium also provided some complimentary light snacks and drinks to the members and guests and had the customary group shot taken at the entrance of the Planetarium. The planned solar observation through white light and Ha scopes was cancelled due to cloudy skies.

At around 7:30pm, ALPers started get together for their free public stargazing event at Rizal Park but the sky was very cloudy and they had to wait till around 8:00pm before they can spot on planet Jupiter creeping out of the shadows of the trees. ALPers brought along numerous telescopes to the event. ALP President brought along a WO Megrez 90FD refractor on Celestron CG3 mount; VP Jett Aguilar with his Celestron Nexstar 5, Treasurer and NAW Chairman Andrew Ian Chan with his Skywatcher 80ED refractor on Vixen GP mount; Secretary Christopher Louie Lu with his Celestron Powerseeker 80 refractor on CG2 mount, Arnel Campos with his Celestron Powerseeker C127 Newtonian reflector on CG-2 mount, Justine Garcia with her Celestron Astromaster C130 Newtonian reflector on CG3 mount, National Museum Planetarium with their Celestron Nexstar 127, Cutting Edge with their Celestron Astromaster C130 Newtonian reflector on CG3 mount.

Unfortunately, the sky did not cooperate for the event so after waiting till 9:30pm, they

had their customary group shot before packing up as light drizzle started to pour down a bit. Anyway, we are looking forward for next Saturday (February 21) ALP NAW closing event at SM MOA Exploreum to wrap up the annual event.



ALP President James Kevin Ty leads the singing of the Philippine National Anthem.



ALP director Peter Benedict Tubalinal leads the prayer invocation before the start of the ALP NAW Opening Day Event.



National Museum Planetarium provided free snacks and drinks to ALPers and guests during the ALP NAW opening day event. Thank you!



ALP VP Jett Aguilar gave his welcome remarks to the ALP members and guests during the ALP NAW Opening Day Event.



National Museum Planetarium Ma. Belen Pabunan gave her welcome remarks to the ALP members and guests during the ALP NAW Opening Day Event.



Around 80 members and guests attended the ALP NAW Opening Day Event.

Event:

National Astronomy Week Closing Day

by James Kevin Ty



Last February 21, Astronomical League of the Philippines (ALP) held their National Astronomy Week (NAW) Closing Day event at SM Exploreum. Members who are present are ALP President James Kevin Ty, wife Charito and son Kendrick Cole KC Ty, Secretary Christopher Louie Lu wife Karren and daughter Frances Lu, Treasurer and NAW Chairman Andrew Ian Chan and Iah Serna, directors Arnel Campos, Edge Lat, Peter Benedict Tubalinal, John Ray Cabrera and Mike Enage; Jason Comia, Shubhashish Banerjee, Mark Ian Singson and wife Cristina Singson; Justine Garcia, Per Edman, Shubhashish Banerjee and family, Saju Pillai and family, Val Villanueva and wife Milette Villanueva, Miguel Cajita and parents Trix and Mel Cajita, Adriel Lim and sister Kimberly Lim, Melseajoy Degala and her friends and staffs, Angelo Canillas and GF Cyrine Natividad

The event started at around 1:15pm with the start of 2 exciting space shows entitled "Journey to the Stars" and "We are Astronomers." This was followed by a short snack break wherein food were served to the attendees. This was followed by an interesting lecture entitled "Relating to the Hunter: The constellation of Orion." It describes a brief tour in and around the constellation of Orion, telling myths and stories & how this particular



constellation inspired & influenced humanity throughout the ages. This is followed by a brief story on stellar evolution from nebulas, proto-stars, exoplanets, and eventually, to red giants.



The last but not the least, ALP director John Ray Cabrera presented an interesting lecture entitled "Black Hole: Into The Cosmic Quicksand." Black Hole is an infinitesimally small but horrendously massive region in the fabric of space, a point of no return, coined by many as a cosmic cannibal. It virtually sucks up anything that got on its way. But what is really a black hole? Why is it behaving like a bogeyman in space? Could Large Hadron Collider be capable of making mini-black holes that will someday wipe us out of existence? Will we be eaten by a black hole? Can our Sun form a black hole after it consumes all its fuel toward the tail end of its existence? John Ray Cabrera, editor in chief of the Philippine Journal of Astronomy, demystifies the myths surrounding black holes and took us to the journey into the unknown.

At the end of the lecture. Members and some guests posed for traditional group shot before being guided by Exploreum tour guide on the Exploreum facility.

At around 7:00pm, ALPer proceeded to SM By The Bay North Side beside Viking Restaurant to conduct a free stargazing session to the public. ALPers setup their telescopes while simultaneously observe and image the Pyromusical Fireworks as well. ALP President James Kevin Ty setup Meade 8" f/10 SCT on Vixen GP-DX mount, ALP Treasurer and NAW Chairman Andrew Ian Chan brought along Skywatcher 80ED refractor on Vixen GP mount, ALP director Arnel Campos brought along Explore Scientific AR102 refractor with Skywatcher HEQ-5 mount, ALP Secretary Christopher Louie Lu with his Celestron Powerseeker 80 refractor on CG-2 mount, ALPer Mark Ian Singson brought along a Nexstar 114 Newtonian reflector, Miguel Cajita brought along an AstroMaster C130 Newtonian reflector on CG3 mount, Per Edman with his Orion XT6 dobsonian reflector, Shubhashish Banerjee brought along his Celestron Ultima 80 spotting scope on sturdy tripod, Cutting Edge staff with their Celestron Astromaster C130 Newtonian reflector on CG-3 mount. They started the stargazing session from 7:00pm till 10:30pm before they end the observing session with more than 600+ people got to look through various telescopes brought along by ALPers. The main highlight of the night was planet Jupiter with lo casting its shadow on Jupiter during the observing session. Afterwards, the posed for soem group shots before packing up their telescopes. Some of them also proceeded to Starbucks to chill out after a long and tiring but enjoyable NAW closing day event! See you again in NAW 2016 !!!



ALP NAW Chairman Andrew Ian Chan and lah Serna manned the registration booth.



ALPers went in ahead of the other viewers to get good viewing seats :)



ALPers and guests took time out to have some light snacks before the start of the lecture sessions.



ALPers relax as they watch a 3D short story on Natural Camouflage.

All images featured in the article are owned by Astronomical League of the Philippines.



ALPers posed a group shot at the entrance of the Planetarium.



ALPer Shubhashish Banerjee aimed his Celestron Ultima 80 spotting scope toward M45 Pleiades star cluster.



ALPer Miguel Cajita points his telescope toward Jupiter.



Cutting Edge brought their Astromaster C130 Newtonian reflector and is being assisted by ALPer Mark Ian Singson.



Jupiter and its 4 Jovian satellites can be seen through ALP director's 4" refractor!



ALPers chill out at Starbucks after the conclusion of NAW Closing Event.

All images featured in the article are owned by Astronomical League of the Philippines.

Event:

ALP Celebrates Earth Hour

by James Kevin Ty



Last March 28, ALP and Exploreum join hands to celebrate Earth Hour Stargazing Session at SM By The Bay (SMBY) at SM Mall of Asia , Pasay City. Members who attended were ALP President James Kevin Ty, and son Kendrick Cole KC Ty; VP Jett Aguilar , Treasurer Andrew Ian Chan, Secretary Christopher Louie Lu, PRO Edge Lat, directors Peter Benedict Tubalinal , Arnel Campos, Ronald Sison and Rich Pijuan ; Shubhashish Banerjee, Norman Marigza, Adriel Lim, Justine Garcia, Per Edman, Miguel Cajita, Mark Ian Singson, and Michael John Cunanan.

ALPers and Exploreum staffs started to setup their telescopes at SMBY as early as 4:00 pm. ALPers held setup Exploreum 4 big telescopes for the event. They are the Celestron CPC8 8" f/10 Schmidt-Cassegrain Telescope (SCT) , CPC11 11" f/10 SCT, C14 14" f/10 SCT on CGE-Pro equatorial mount and Skywatcher 10" f/5 Newtonian reflector on HEQ6 mount. Earth Hour 2015 touches on Climate Change as well as showing to the public how much we are wasting electricity and adding light pollution. Here at SMBY, lights were put off from 8:30-9:30pm and they use this opportunity to show how much light pollution can destroy the beauty of the universe. During the lights off period, deep sky objects such as Orion Nebula and Pleiades were clearly seen

compared to when the lights were powered back after the end of the 1 hour shutdown. Also shown to the public that evening were gas giant Jupiter and its Jovian Moons and a Waxing Gibbous Moon.

The event gets started at around 7:30pm after watching the great fireworks show. Afterwards, more than 1000+ people queued up on the 4 big telescopes from 7:30pm -10:30pm! It was a very successful event . ALPers then take their traditional group shot before calling it a night! See you all again on April 12 Global Astronomy Month (GAM) SUNDAY free solar observation session at SMBY from 4:00pm-6:00pm.



ALPer Arnel Campos here helping a small kid to view the Moon.



Group shot.



All 4 telescopes has endless people queueing to view the Moon and Jupiter!



ALPers Ronald Sison, Peter Benedict Tubalinal, Norman Marigza, Justine Garcia and Shubhashish Banerjee beside the CPC 8 SCT.



ALPers candid shot with Norman Marigza, Arnel Campos, Rich Pijuan, Justne Garcia and Edge Lat.



ALPer Per Edman handling the C14 SCT!



ALPer Arnel Campos here explaining to the crowd on Jupiter.



More than 1000+ people got to view through the telescopes from 7:30-10:30pm!

Journey of a Star

Nebula

A cloud of dust and gas. Nebulae are the birthplaces of stars. There are different types of nebula.

3% Helium
97% Hydrogen

There are more than **2,000,000,000,000,000,000,000,000** stars

Convective envelope

Convective Core (no helium)

Red Dwarf

Cool, faint and small stars that burn slowly and have estimated lifetimes of 100 billion years.

Red Giant

A large bright star with a cool surface, formed in the later stages of the evolution of a star. The larger ones are called Super Giants.

Hydrogen + Carbon

Hydrogen + Helium

Excess Hydrogen

Supernova

The explosive death of a star, obtaining the brightness of 100 million suns for a short time. The explosion expels the star's material at a velocity of up to one tenth the speed of light (30,000 km/h).

White Dwarf

Very small, hot stars; they are the shrunken remains of normal stars, whose nuclear energy supplies have been used up.

Helium + Carbon + others

50 km thick gas

Black Hole

Formed from massive stars at the end of their life. The gravitational pull is strong enough to trap everything, even light.

Black Dwarf

Remains of a star created when a white dwarf becomes sufficiently cool enough to emit heat or light. The time required to reach this state is longer than the age of the universe. Hence, no black dwarfs exist yet.

Neutrons + others

20 km thick crust

Neutron Stars

Composed mainly of neutrons and produced when a supernova explodes. Neutron stars are very dense.

Temperature (10^3) K	Star*
30,000	O type
20,000	B type
10,000	A type
7,500	F type
5,000	G type
3,500	K type
2,500	M type

SUN is the closest star to Earth

LUCY

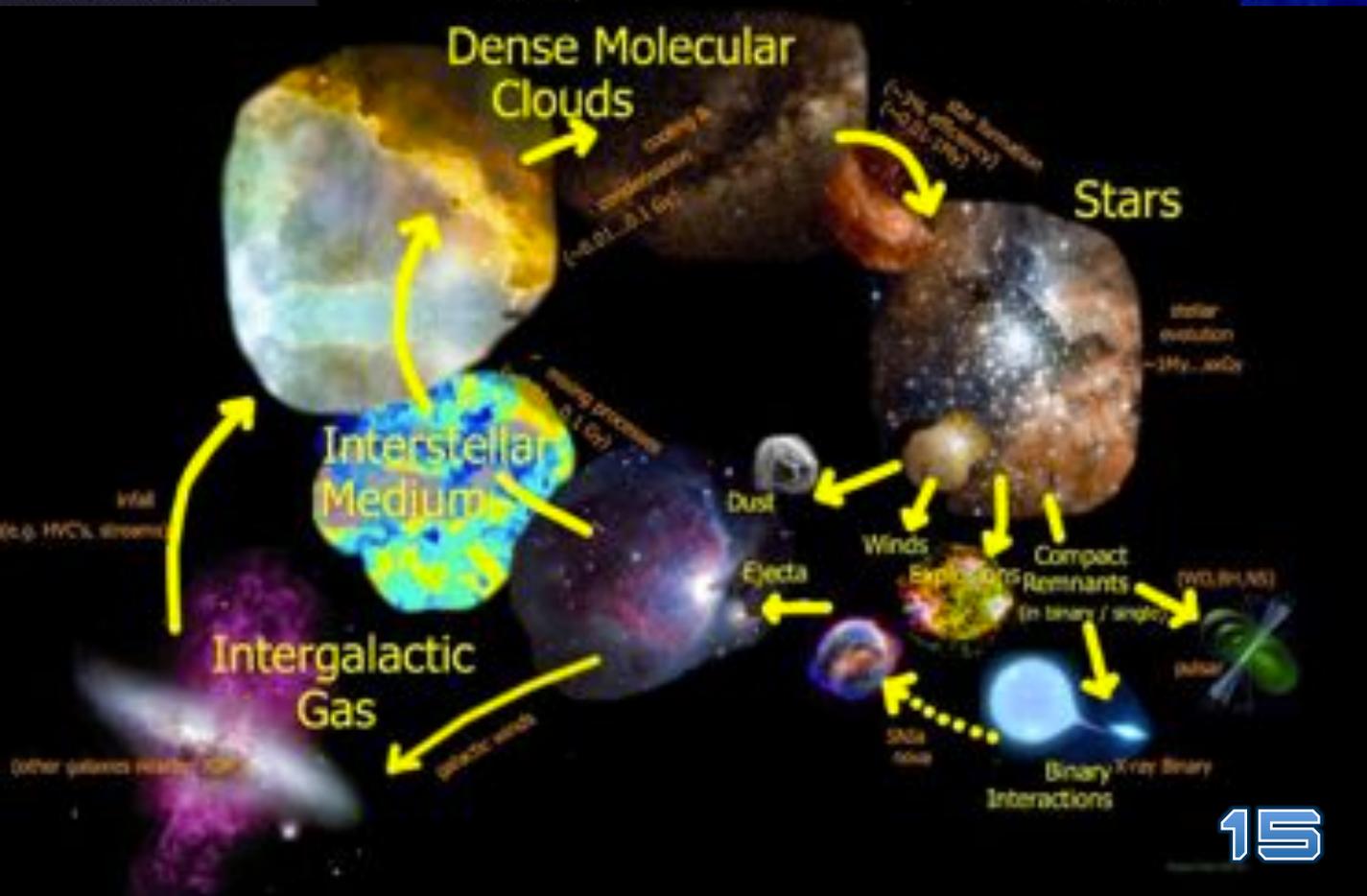
White dwarf consisting of carbon weighing 5 million trillion trillion pounds (equal to a diamond of 10 billion trillion trillion carats).

Dense Molecular Clouds

Stars

Interstellar Medium

Intergalactic Gas



Exploring the Mind of a Young Astronomer

by John Ray Cabrera



Ma. Nessie Sobina Yu
Young Astronomer

With this issue of the PJA, we seek the help of one of our youngest members to help shed light on the ardors of this field.

The name, Ma. Nessie Sobina Yu, one of the most promising members of this league, and had garnered numerous awards in the realm of science. Let's start exploring her mind.

Astronomers agree that our collective threshold of interest lies in the night sky, when it displays a trackless maze of glittering points and begins to transform itself in the mind of the observer into the real universe of planets, stars, galaxies and nebulas, with names, distances, dimensions to boost a powerful aura of mystery waiting to be unraveled. It indeed is an infinite wonderland waiting to be explored, for all its subtlety and suitability.

These are and more are the highlight of this quarter's issue of the Philippine Journal of Astronomy (PJA). Positing on a theme "**Stars, Searches and Suitabilities**", PJA touches on what drives the interest of humankind to marvel at the stars. Is it merely to satisfy our innate human curiosities? Is it our resolute kinship with nature? Is it our yearning for survival as a planetary civilization by moving into another star system?

PJA: As a society, why do we study stars? What do you think are we hoping to accomplish?

Yu: There are a lot of reasons why astronomers keep pondering the realms of stars. One reason is that by studying the stars, our personal needs are finally sated. Studying the stars also helps us understand more about ourselves. The same basic elements such as carbon, oxygen, and hydrogen that make up our bodies are also the same elements that make up the stars. Another reason is that if our species is finally in the verge of extinction, stars can help us seek a new planetary system to operate and cultivate in. Studying other stars will also help us predict the motion of our star, which is the sun. Sun affects our climate, life, and biodiversity here on earth. Therefore, by predicting the motion and cycle of the sun it can help our species survive here on earth. Likewise, if stars are indeed somehow in

tandem with nature, by studying it, we get to learn more about nature and finally concede to it. We study stars the same reason we are studying anything, it is because we want to know more about the environment we are living in – we are curious. We have the urge to derive all facts from what we are scrutinizing, simply because we can and we want to. Aside from the obvious, this line of reasoning has always led to technological and scientific advancement, which gives us, as a society, a feeling of accomplishment and triumph. This will yield long lasting outcome that will surely aid us in many important circumstances. To sum it up, we are studying the stars because we hope to successfully decode the ultimate and most enigmatic mystery of the cosmos.

PJA: As an individual, what ignites your interest in astronomy. How did it all begin?

Yu: When I am still in the primitive point of my life, I am just like a direct translation of a living ghost. In order to please and to captivate my parents, I am pretty much doing everything that they are ordering me even though most of the time, I am unhappy about it. At first, I thought that I will be a musician because both of my parents are into music, same as my sister. However, as time goes by, I started to feel different and forlorn because I sensed that a piece of me is missing and learning music is not restoring that piece. I gradually felt alienated toward music and I knew that it broke the hearts of my parents when I told them I will never be a musician just like them. I utterly felt desolate during that time. My teacher then noticed my particular demeanor and disposition that she considered to be appropriate for the learning environment in science. She encouraged me to learn science but I am a bit hesitant at first because science is the last thing I will consider in my mind when I will be selecting a talent. She then gave me an aptitude test to contemplate with but without even reviewing the slightest, I got a certificate in return. Similar conditions occur during classes. Most of the time, I got the highest score in an examination where I knew it is totally absurd and impossible. With these circumstances arousing, I do not know why but I started studying science legitimately. Even

up to these days, the ecstasy and tranquil that I am feeling today will never match what I felt before when I first glimpsed into the realms of astronomy. A lot used to enquire about my sudden change of path because they consider me far too preposterous if a girl is going to pursue astronomy. Now why exactly do I love astronomy more than any other branch of science? It is the idea that astronomy can grant me solace and felicity in times when I am feeling forlorn and disconsolate that concedes me to continue studying this particular field of study. Just like recently, with the Mamasapano incident outbreak, deep down I am really terrified with what occurred, but I knew it is totally out of my hand to resolve that kind of case. So instead of pondering with what is happening around me, I just looked at the night sky to relieve the inner stress I am feeling. Likewise, without astronomy, everything will not be in perspective in my life. I will never discern what is right from what is wrong. Things will never change in my life. I will still be the living ghost that my friends used to know me. In conclusion, astronomy has able to satisfy my curiosity and it totally changed the direction of my life.

PJA: How is the trajectory of your academic route in relationship to this interest? Are you seeing yourself specializing in a profession someday that somehow hinges on astronomy? What profession and why?

Yu: I am envisioning myself that one day; I will be there up in space, performing the tasks and duties of an astronaut.

The idea of becoming an astronaut is palatable to me because of a lot of reasons.

First, being an astronaut gives me a sense of perspective. Seeing earth from outer space gives me a sense that this is the pale blue dot, the one and only home ever known to humankind and suddenly it gives me an overwhelming sense that we,

humans, shall do everything to preserve and protect this pale blue dot. In addition, it gives me sense of perspective that earth is one among the billions of planets found within this unimaginable vast universe and that life is precious because in a universe filled with replete enigmas, life is the solitary constituent that is said to be unique and immaculate, which altogether gives me a sense of pride because I am an inhabitant of earth and is experiencing life. Second, being an astronaut gives me a sense of satisfaction, contentment, and fulfillment. It gives me a sense of satisfaction because I knew that I have preformed the ultimate duty of an astronaut – to serve as a window to the universe for the people here on earth. It gives me a sense of contentment because I knew that I will not be asking for more from god because I am already contented with my life. It gives me sense of fulfillment because I finally I was able to fulfill my greatest ambition in life, to be an astronaut. Lastly, being an astronaut will be able to give me merriment and tranquil that I knew I can only acquire once I have been there up in space.

PJA: What will you advise to your fellow young generation who would like to stars astronomy as a specialized interest?

Yu: My foremost advice to youths out there who would also want to start studying astronomy is to never stop asking. Always be curious with what is happening on your surroundings. Fascination and curiosity is the key to unraveling life's greatest mystery. Every resolution to life's mystery stars with the big question "why?" It is also notable to always keep in mind to be humble. Being arrogant and boastful will not aid you in any way in ameliorating your knowledge about the cosmos. Take note, all of us started our life with being minuscule. Likewise, every success that astronomy has able to conquer right now start with questioning the little things around us. In addition, perseverance and dedication are also momentous in studying astronomy. Engaging in the field of astronomy is not an easy task wherein one can achieve the desirable outcome facilely. Most of the time, it took scientists years to finally debunked some series

of problems. Without the scientist's perseverance and dedication, every piece of knowledge that we are learning right now will never be yield, every bit of solace that we are experiencing right now will never be achieved, but most of all, we will remain constant forever without things changing and evolving, without us developing towards excellence.

PJA: in the acceleration of this field of interest, what lessons and values in life that you can share to everyone?

Yu: In my opinion, astronomy taught mankind one important aspect in life – to be humble. Astronomy taught us to look up to the night sky for guidance such us when is the right time for planting the crops. It taught us to humbly accept our errors and accept the opinions of other individuals. Likewise, astronomy taught us to be versatile and resilient individuals. Astronomy taught us that failure is part of living and we shall always accept it. It taught us to never give up on life and to continue living even though in hardships.

PJA: Do you see your school (and society in general) giving a modest support to this endeavor? If yes, how? If no, what should they do about it?

Yu: Truth to be told, I honestly don't think that the astronomical education that I have acquired from my institution, and my society, is adequate for the upbringing of the astronomical education in the Philippines. Instead of setting astronomy under earth science, we can proffer astronomy to be a separate subject. Consequently, juveniles will have profuse amount of time to explore and learn about the splendor of the cosmos. Second, we can conduct live public stargazing to further enhance the curiosity of humankind towards the night sky and to let them witness the grandeur of the night sky set before their eyes. Third, we can administer lectures that the public can easily

gain access to. Lectures are significant in my opinion because this can make the masses become more increasingly aware of the impacts astronomy have on our everyday lives. This will be enough to foment their inquisitiveness towards the heavens. Fourth, we have to change our mindset towards astronomy that it is only applicable to people filled with erudition, to someone with gifted talents, etc. Instead, we need to accept the fact that astronomy is for everyone and not only for selected individuals. Likewise, we also need to change our mindset that astronomy is futile and we would not get a single cent out of it. Doing something is not about the money or how extraordinary can we get all the time. Sometimes, it is about the sense of experiencing euphoria and satisfaction that is much more rewarding and comforting at longer terms.



Name of respondent: **Maria Nessie Sobina Yu**

If you were a celestial object, what would you be and why? **I**

I think that the celestial object that fits me the most is the planet Mars. My classmate always thought that I am mysterious, hot tempered, and aggressive that the planet Mars symbolizes which is true anyways.





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