

ASTROVITAE



"A GLIMPSE OF LIFE ON OTHER WORLDS"

ISSUE 4

SEPTEMBER 2022

AN INSIDE LOOK AT
**THE YAETUAN
SAGAS**

ALSO FEATURING

**THE WORLD
OF PHTANUM B**

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SECTION CATEGORIES:

Each article within the body of the magazine is tagged with an icon that best summarizes the type of content it contains. Listed below are all of the existing icons for readers to familiarize themselves with:



SOFT SPEC

Light research with an emphasis on conceptualization



HARD SPEC

Heavy research or use of data in worldbuilding



EARTH SPEC

Involves Earth or organisms from present day



PALEO SPEC

Involves organisms from Earth's past history



MICRO SPEC

Focus on small organisms like mites, viruses, and cells



ALIEN SPEC

Xenobiological anatomy, biology, and evolution



PLANET SPEC

Focus on planets and their unique features or physics



UNIVERSE SPEC

Unnatural or otherworldly physics and matter



MYTH SPEC

Related to cryptids, fantasy, and mythology



ENVIRO SPEC

Emphasis on environment, landscapes, or scenery

LETTER FROM THE EDITOR:

Dear Reader,

Thank you all for your interest and support in *Astrovitae*! Issue 4 is historic for the magazine, as it's the final issue of 2022 and officially marks *Astrovitae* as two years old! Before issue 4 was released, you may have heard about the [James Webb Space Telescope](#) from the media either on TV or online. The device lets us gaze into the universe once more—but this time with more accuracy and clarity. Astronomy has grabbed our global fascination again! We can all experience the vastness of space—taking in all of the brightly-lit stars, extravagant nebulas, and funny shaped galaxies. But despite all this space, where is all the life?

Speculative biology had its origin exploring what life could be in the future of our planet. It speculated on how prehistoric organisms may have turned out if history was drastically altered. But today, modern scientific advancements gives speculative biology a new purpose. Now, more than ever, artists within the genre have an important job: to speculate on what life may look like and how it may evolve across the universe.

Together we can collaborate to further explore the beauty of life and speculate on all its interesting mechanisms and features. Christian Cline, author of *The Teeming Universe*, was asked to create this issue's cover. It depicts intelligent lifeforms from several different speculative projects—each coming together to read an issue of *Astrovitae* and discuss the nature of life among the stars. It is a wonderful symbol of our community's willingness to connect with one another, collaborate, and be simultaneously creative and curious.

Thank you again for reading this issue's letter. Please enjoy the art and projects included in this new issue, and stay tuned for more great content to come.

Sincerely,

Domenic Pennetta
Founder of *Astrovitae* & Chief Editor



Although *Astrovitae* is very much a labor of love, a small donation or two would really support the editor, the magazine, and its featured artists. If you would like to donate, please visit the link below:

www.ko-fi.com/astrovitae.



Alarmlathar (a *deum* human created by SteveMobCannon, top-left), a *Birrin* (created by Alex Ries, left), an *Eck* (created by Vincent Girgenti, top-right), a *Zalic* (created by Battyboio, right) and even an *Eosapien* from Darwin IV (created by Wayne Barlowe, top) all surrounding *Keni*, a *Yaetuan* (created by Christian Cline, center).

SPEC NEWS:

Have some interesting news to share? Anything special going on in the community that has sparked your interest?! It could be a blog post, a new YouTube video or book release, or even a video game! Whatever it is, Astrovitae Magazine is looking to feature more speculative biology news! If you'd like to help the Editor-in-Chief out, send a brief description and link to astrovitaeofficial@gmail.com, subject line "SPEC NEWS". The magazine would love to share whatever caught your interest! - Domenic Pennetta

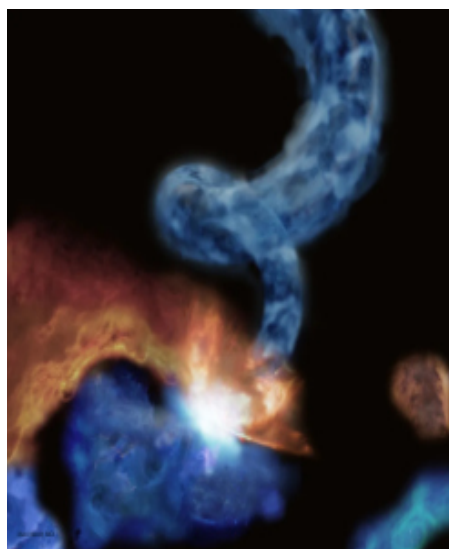
YOUTUBE VIDEO

THE EVOLUTION OF SPECULATIVE BIOLOGY

June 23, 2022

Today, Speculative Evolution is everywhere—from *Subnautica*, to *Humanity Lost*, to the *Birrin*, to *After Man*, to *All Tomorrows*, to any of the hundreds of amazing online projects that explore worlds beyond our own. But how did it begin? Watch this breakdown by the YouTuber, Curious Archive, detailing the incredible history of the genre of speculative biology.

Watch the Video: www.youtube.com/watch?v=NifBVOeVd00&ab_channel=CuriousArchive



ARTICLE

BUILDING BLOCKS OF LIFE DISCOVERED

July 8, 2022

New research finds that molecular clouds are loaded with key precursors for life on Earth—Nitriles. Read this article and learn why this chemical is so peculiar!

Read the Article: www.scitechdaily.com/key-building-blocks-for-life-discovered-in-cloud-near-center-of-our-galaxy/

2022 ASTROVITAE NEWS



RATE ASTROVITAE 5-STARS ON GOODREADS.COM!

Do you often frequent Goodreads? Well good news for you, *Astrovitae Magazine* is now found there! See what others are saying about everyone's favorite speculative biology magazine, and make sure to leave your own review there too!

[RATE ISSUE 1 ON GOODREADS](#)

[RATE ISSUE 2 ON GOODREADS](#)

ASTROVITAE GUEST POST FEATURED ON ISAL'S NEWSLETTER!

What's another speculative form of life? Artificial life of course! *Astrovitae* and editors of ISAL's Newsletter connected over the summer to form a new partnership. Every month there will be a new guest post about a creature from the Creature Compendium, and other interesting specbio posts. How cool is that?!

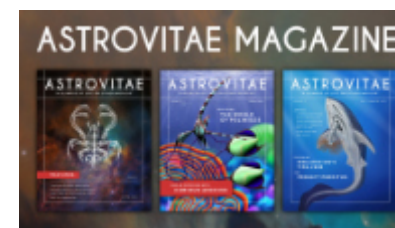
[READ FIRST ASTROVITAE POST](#)

FIRST VIDEO FEATURING ASTROVITAE!

Paleo-YouTuber CHimerasuchus collaborated with *Astrovitae* to make a promotional video offering an overview of the magazine. Every Paleontological-related speculative project featured in *Astrovitae* makes an appearance. Give the video some likes and show your support!

Watch Video: www.youtube.com/watch?v=NxQjO5wftzk&ab_channel=CHimerasuchus

[WATCH VIDEO](#)



PUBLIC SERVICE ANNOUNCEMENT:

Dear contributors and readers,

I thought the following would go without saying, but *Astrovitae Magazine* DOES NOT condone harassment of any form, whether inside or outside the magazine. *Astrovitae* does not hold the views of its contributors, so if an artist with disagreeable views or past bad behavior participates in the magazine, that does not mean that *Astrovitae* condones those particular views or behavior. Sometimes there is drama among the members of our community, however, such drama has no place in *Astrovitae*. If you find a contributor's views disagreeable, then your issue should be taken up with that particular contributor and NOT with the Editor-in-Chief or the affiliates of *Astrovitae*.

Please understand the following:

- That contributors upon submitting their work agree to not harass others or organize, promote, or participate in any form of harassment online or in person.
- That contributors own or have received explicit permission for use of their submitted images.
- That *Astrovitae* is not an arbiter between community or personal disputes, and is not obligated to comment on community drama or controversies.
- That *Astrovitae* is not liable for any damages that may occur on behalf of a contributor or guest writer's actions.

To prevent potential harassers from participating in *Astrovitae*, and to also further protect *Astrovitae's* readers and contributors, the magazine has done the following:

- *Astrovitae* has updated the magazine's guidelines to reflect *Astrovitae's* anti-harassment views.
- *Astrovitae's* Editor-in-Chief will look more thoroughly into the background of new contributors before accepting their work for publication.
- *Astrovitae* will reject the submission of a potential contributor who has recently engaged in any form of harassment or has a history of engaging in harassment.
- *Astrovitae* has the permission to remove published articles from contributors engaging in harassment and can permanently ban them from participating in *Astrovitae*.

Public Service Announcement Continued on Next Page...

Public Service Announcement Continued: I would like to add that the Editor-in-Chief of *Astrovitae* acts professional when interacting with contributors, readers, and media. If you come in contact with an *Astrovitae* account that engages in slander, harassment, or uses profane language, please be aware that you are in the midst of a doppelganger. Behavior like this is not acceptable or condoned by *Astrovitae* or its Editor-in-Chief.

Also, for all of those who have sent hate mail or left rude or slanderous comments about *Astrovitae* and its Editor-in-Chief online, I urge you to think critically about your actions. Such behavior, whether directed at the Editor-in-Chief or others, only holds back the community. Please understand that you have the power to act in good faith and make a difference online, so I challenge you to be kind and empathetic toward others. After all, behind the screen is a real, tangible human being. Be nice. :)



WATCH VIDEO RECORDING - PART 1

WATCH VIDEO RECORDING - PART 2

WATCH 2022 SPECPOSIUM RECORDINGS

June 29, 2022

See the full recording of the first day of Specposium 2022! Specposium is an event held annually for enthusiasts and creators to give presentations about speculative biology topics. Some of the artists featured in issue 4 may have presented in Specposium this year!

Watch the 1st Video Recording: www.youtube.com/watch?v=Dzi3k6Pp4yw&ab_channel=Specposium

Watch the 2nd Video Recording: www.youtube.com/watch?v=dByLI0K4u4U&ab_channel=Specposium



A FIELD GUIDE TO MERMAIDS OF THE GREAT LAKES

BY JOHN MESZAROS — INSTAGRAM: @johnmeszaros
WEBSITE: www.johnmeszarosart.com

The Great Lakes are some of the largest freshwater bodies on Earth. Though they formed relatively recently from meltwater during the last Ice Age, these inland seas have had a profound effect on the environments of North America. While the deepest, coldest waters are devoid of life, the shallows and shoreline ecosystems are home to a great diversity of organisms such as eels, salmon, otters—and perhaps more fantastic creatures too, such as the aquatic humanoids that Debbie Scheller details in her book

Speculative biology covers a broad spectrum ranging from meticulous designs steeped in rigorous attention to real world organisms, to more imaginative creatures inspired by mythology and fantasy fiction. Scheller's book leans closer to the latter end of the spectrum, however her mermaids are depicted with a naturalist's eye and a clear love and understanding for the

ecosystems of the Great Lakes.

Despite the “Field Guide” in the title, this is not a rigorous identification guide with taxonomic names and data keys. Rather, it more closely resembles an ecologist's sketchbook lovingly crafted in the field. The information about each mermaid species varies. Some entries detail unique aspects of the creatures' anatomies. Others focus on ecological interactions and social behaviors. One entry is even a first-hand sighting of a mysterious giant mermaid that appears to be drawn to lighthouses.

The mermaids are depicted as personifications of the Great Lakes watershed. Some are based on animals like lake chub and river otters, while others are inspired by semi- and fully aquatic flora such as milfoil, cattails, pitcher plants, and even wild ginseng. Still others are unique species adapted to the rivers and ponds that make up the



Great Lakes' watershed, such as mermaids with tails that mimic the fallen leaves, or with fleshy collars that resemble pink flowers floating on the water's surface. The book does not concern itself with how these creatures evolved or whether they are natural or magically-created beings.

The book's colored pencil drawings are bright and vibrant and frequently supplemented with black-and-white spot illustrations that detail aspects of behavior and ecology. Styles vary, too. Some drawings have rich, detailed colors and dark outlines. Others are lighter and airy, almost like faded preliminary sketches in an old drawing book that has sat in a museum's archives for years. Both

styles add to the feeling that this is a notebook constructed with a passion for the Great Lakes and its creatures.

While readers who prefer hard science in their speculative biology may be put off by the fanciful depictions in *Mermaids of the Great Lakes*, the book will appeal to those who enjoy bestiary-style guides such as *Arthur Spiderwick's Field Guide to the Fantastic World Around You* or the goblin- and fairy-themed books of Brian Froud. It will be especially interesting to readers who live near the Great Lakes, as the mermaids' ecologies will hopefully enkindle a deeper interest in these unique environments.

Learn more about the author at her website: www.debbiescheller.com/





WORLDS OF THE WILDMAKER

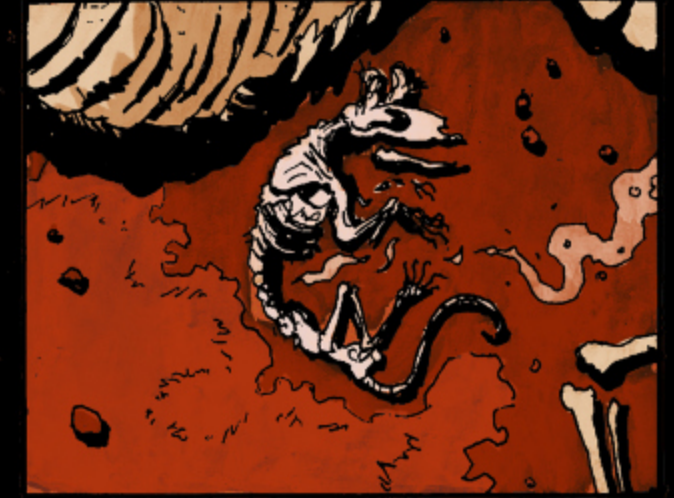
EXAMINING THE ALLOZOIC ERA

BY VINCENT GIRGENTI — INSTAGRAM: @vincent_girgenti_art
WEBSITE: www.vincentgirgentistudios.com

66 million years ago, an asteroid set the world on fire. Flames, tsunamis, and choking dust clouds would kill off the majority of life on Earth. The dinosaurs and other great reptiles faced their unsightly demise... leaving the world for mammals to take over. This may sound somewhat familiar. However, in this alternate dimension, the asteroid's damage was more severe, as additional casualties include several flowering plant clades and fauna like modern birds and butterflies. The most notable victims were the therian mammals—a taxonomic group including the placental and marsupial mammals of our timeline (including humans). With no competition, the monotremes, a group of venomous, electricity sensing, earless, mesothermic, egg-laying mammals will rule this alternate Earth. This is the setting for Worlds of the Wildmaker.

In this alternate timeline of evolution, I aim to explore the ramifications of a world where the most underappreciated

and bizarre members of the mammal family tree get to dominate the planet and evolve into uniquely unexpected forms. In our own world, the monotremes never became as successful as other mammals, and their fossil record is not nearly as well understood. However, those aforementioned traits of mesothermy (being between the activity levels of a warm and cold blooded animal) and egg-laying were partially what let dinosaurs become so successful. With mid-ranged metabolisms, dinosaurs were adaptable to many changing environments as the earth cooled and warmed back and forth. Laying small eggs which grew into massive adults was also a better path to gigantism than live birth in therian mammals, whose maximum sizes are constrained by the capability of the pregnant mother. Who's to say that monotremes could not do something similar if given the chance? In this Allozoic era, they fill all the ecological niches left by the dinosaurs, yet they must





Bluf (Rusty Zalo). This mouse-sized insectivore is Hojn's dear familiar, providing him with musical beats via drumming of his throat pouch with his front paws. He also packs a venomous bite with four tridental fangs, which is gravely painful to large animals and near-instantly fatal to smaller ones.

adapt to many climate shifts throughout the next 66 million years and a floral roster that sees gymnosperms more so share center stage with angiosperms.

At first, the monotremes thrive in the global tropics of the Paleocene and Eocene. Moving on, however, the cooling climate leads to prairies replacing forests. Without grasses, the dominant ground cover there is a horsetail cousin called skirt. Later, the Pleistocene Ice Age leads to a variety of megafaunal and cold-weather clades evolving. As of the time of the main story, the world is in a

somewhat warmer climate than in the Last Glacial Period, and while some clades of megafauna have died out, many more survive than in our timeline (for reasons that will be touched on later).

The monotreme family tree includes both billed and unbilled suborders—both of which are quite successful. The unbilled ones sport a variety of facial tentacles and nasal flares, whereas the billed ones, of course, have a leathery bill in place of lips, as well as a sense of electrosensitivity and male-biased venomous ankle spurs. The primary

herbivores of this world are the okjans, bipedal hoofed mammals with flashy head frills. They come in a plethora of forms across many biomes, from tiny jungle opportunists to skirtland dwelling giants. However, the largest terrestrial herbivores are the sauropod-esque, thoms, whose egg-laying habits and semiporous bones let them reach larger sizes than any therian mammal could. There are also great carnivores like the cualj—a diverse clade of facultative bipeds that go after everything from insects to megafauna. The shajo are the largest terrestrial predators around, hoofed carnivores with slicing teeth and ramming horns specialized in killing thoms. Birds of the Allozoic are all toothed, wing-clawed descendants of basal

Mesozoic forms, some of which evolved into quadrupedal flying giants like the pterosaurs of old. Analogs to marine mammals like cetaceans and pinnipeds exist in the ejna and ityi respectively, and arboreal koshekons occupy the role of primates (if primates were sluggish, tentacled creatures with sail backs).

However, one species of monotreme in this world has become something entirely new. Descended from jungle browsers who became African skirtland hunter-gatherers, the Eck are the only beings of the Allozoic era to have sentience. These quadrupedal omnivores are a little smaller than a horse, with a rhinoceros-like hide and mobile head quills displaying their emotions (the male's are on the back of his head, while



Hojn. This young bull has lived his whole life on the run from the Dreamhunters, for a Wildmaker like him is too powerful to hide his unmastered gifts. Despite the fantastical and speculative creatures he amazingly draws every day, he's never created a reason to stop deprecating himself.

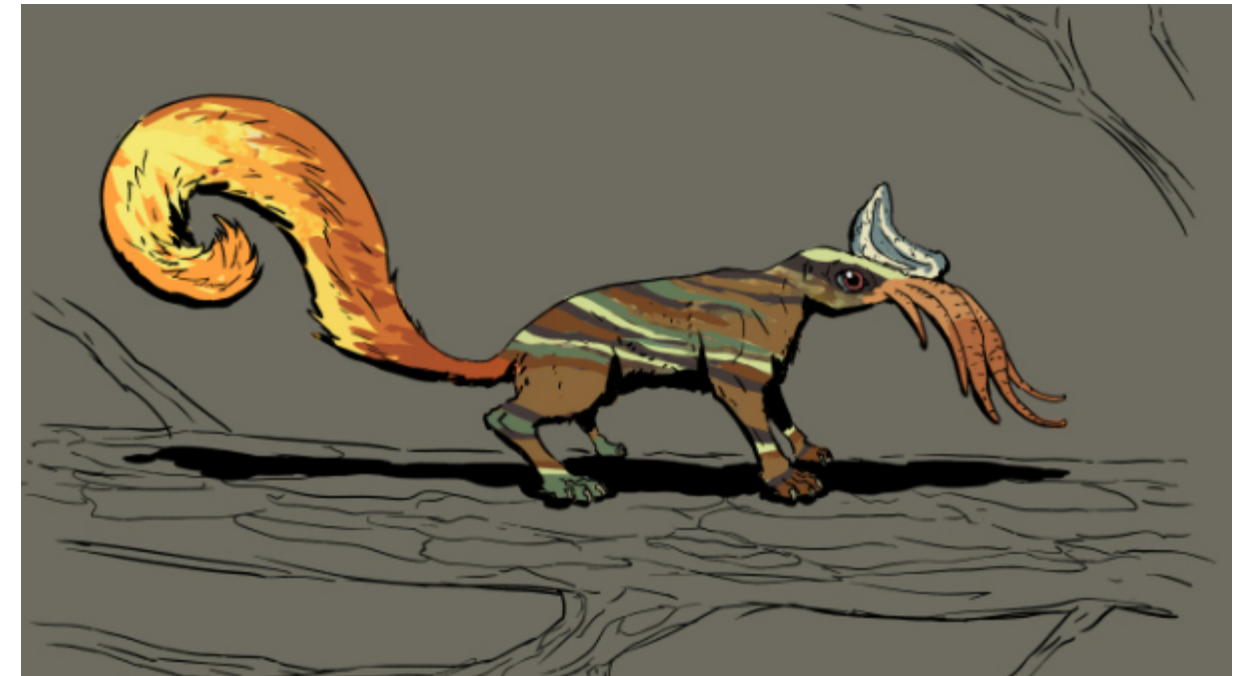


***Deliverance.** A holy general for the Dreamhunters (a contender) prays in his aquatic retreat for good favor in the expulsion of heretics. How else will the great vision of Soohah be realized for the good of paradise's people?*

the female's are at the base of her neck). In place of hands, their tongue has become a prehensile appendage complete with false fingers and an analogous thumb structure. As descendants of herding animals, they are social beings, always seeking connection and agreement; but this also results in a tendency to be desperate for approval. Unlike humanity, their protein mostly comes from eusocial insects—so when they spread across the world and started settling down, the giant megafauna of the ice age were relatively unaffected

compared to our timeline where humanity finished off many large mammal species.

Chronologically, the Ecks are at a similar point to our Iron Age, yet many cultures are at a level of advancement more in line with the medieval or classical era. The story I am choosing to tell is centered around a particularly advanced culture known as the Daubori empire, which is situated on the West African Congo river. Here, evolution is part of the religion, trade, and commerce which are integral components to daily life. A unique quirk of this alternate dimension's



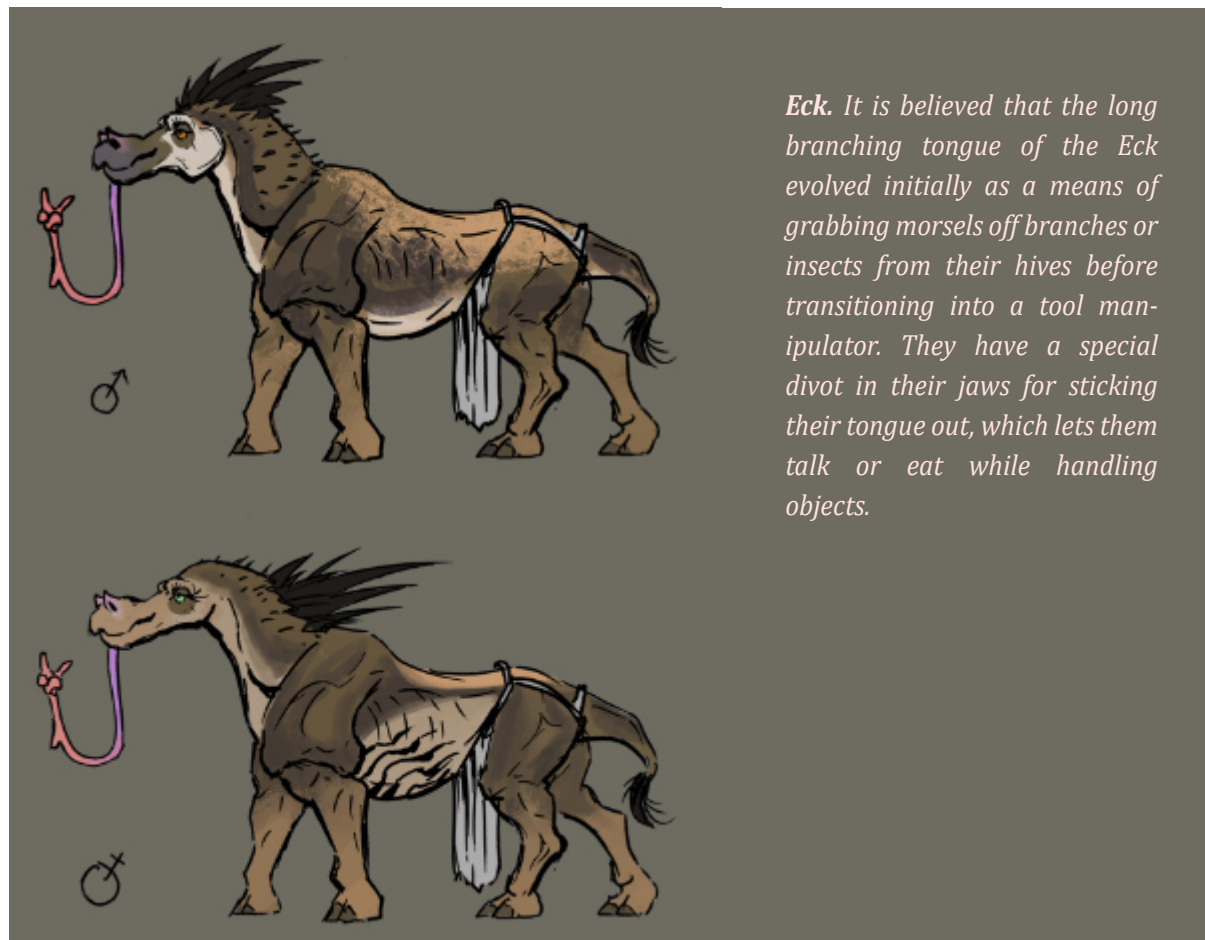
Fire Ninuk. This rodent-like granivore sports 8 long facial tentacles used for reaching nuts and pinecones on distant branches. Its hollow head crest connects to its nasal cavity, allowing it to make trumpeting signals through the thick jungle canopy to other ninuks.

natural laws is that these laws can be harnessed as a sort of magic system. Whenever an Eck creates an artistic expression of any sort (music, art, poetry, etc.) and then burns a specially crafted incense, their creation literally comes to life. The better the creation, the more it morphs from an illusion to a physical thing. Many in the empire use this power to proclaim the virtue of embracing diversity to make the world better and they are hailed as the Wildmakers. Others aspire to culturally conquer the world with it, to cement their twisted vision of tomorrow; these are the Dreamhunters.

The story of Worlds of the Wildmaker follows a young male Eck named Hojn, an

amateur Wildmaker who has spent his whole life running from the Dreamhunters in the jungle. His only company is a temperamental zalo, nicknamed Bluf, who guards him with a fatally venomous bite. One night, the pair meet a master Wildmaker named Gohah, who has honed her craft over many years and is now seeking an ally against the Dreamhunters. With Gohah as a mentor, and a few friends made along the way, Hojn will venture across the Daubori empire and become a true Wildmaker, all while contending with the crooked power that tears his new home apart.

As many might suspect, this project is a work-in-progress and nowhere near



Eck. It is believed that the long branching tongue of the Eck evolved initially as a means of grabbing morsels off branches or insects from their hives before transitioning into a tool manipulator. They have a special divot in their jaws for sticking their tongue out, which lets them talk or eat while handling objects.

completion. School and my personal life have forbidden me from spending as much time on this world and its characters as I would have liked, but I've kept it alive for the past 4 years. This will certainly not be the last iteration of these designs that I create. There is more to come, but at the end of the day, I want this to be a story about learning to embrace oneself in order to do good for others. All of the greatest pieces of science fiction

have revealed profound truths about ourselves using fantastical settings and characters, and that's what I hope the world of the Allozoic can be. Some may call it child's play or escapism, but I believe we may all be able to learn something from exploring the Worlds of the Wildmaker.



Arrow Ho-am. This 10-meter tall titan spends most of its time alone in the jungle, stripping leaves and fruit from trees while on the lookout for fool-hardy predators. Such a giant herbivore starts off hatching from an egg the size of a football and must constantly follow its mother to avoid predators.



Black Sajo and Blue-Billed Pask. The black sajo (top) is gigantic hunter of the Saw Neck Tho-am will patiently stalk from the thick brush before trying to knock its prey over with a powerful headbutt. The blue-billed pask (bottom) is a feared pack-hunter in the jungles of West Africa, known for its razor-bladed bill and venomous front claws.

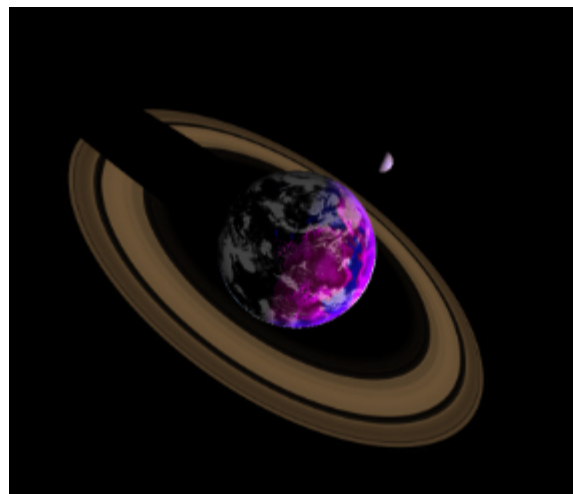


THE TITANERON 24563 A PROJECT

BY GABRIEL RICHARDSON — INSTAGRAM: @titaneron_official

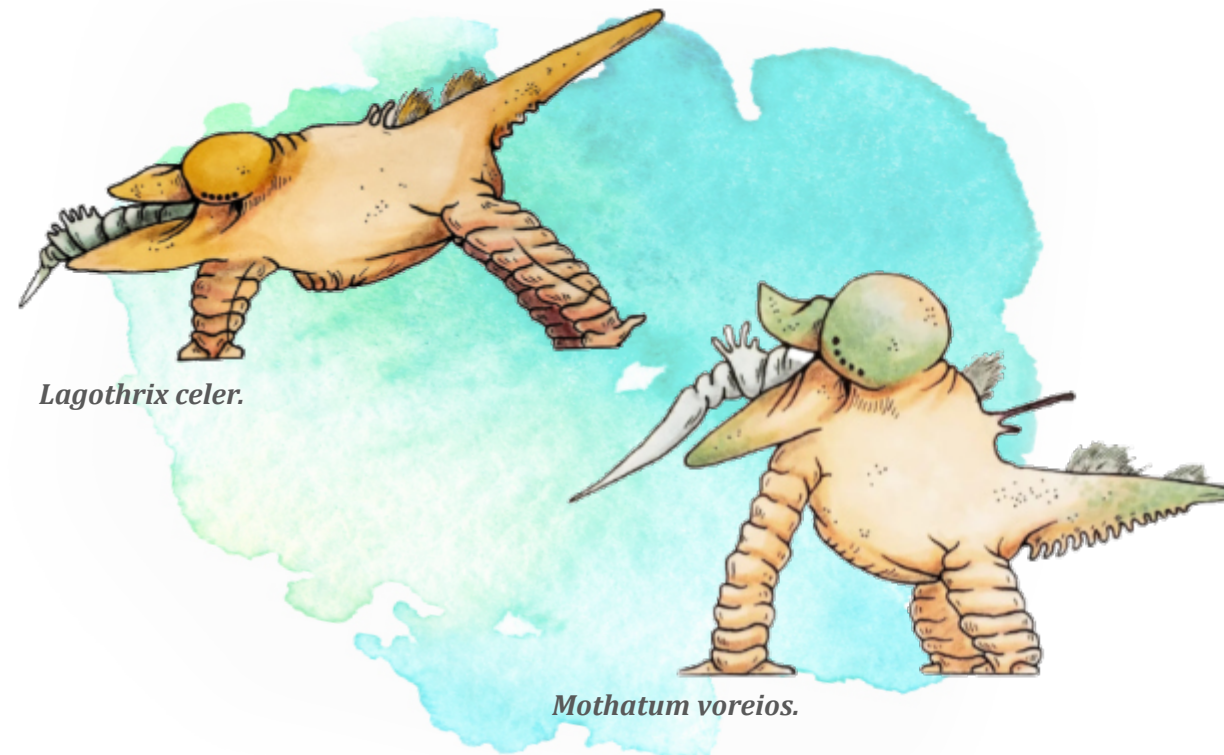
Titaneron is a long time passion project of mine. Ever since I was younger I've been drawing and creating fictional worlds—always interested in the genre of speculative biology. Titaneron is my first attempt at a big, long term project. Drawing new creatures regularly and thinking of alien ideas has been the most fun and also challenging part of the project. It took me quite a while to think of a creative body plan—one that I thought that no one had done before. And for the most part I believe the creatures of Titaneron have accomplished this goal. Three legs, ten eyes, and unique body parts constrain the artistic process I take when drawing up new designs. I've really enjoyed working on Titaneron, and I hope to evolve my alien body plans and flush out the project's own creature compendium.

Brief History. The first documentations of Titaneron were from the Mars Colony Super Telescope in the year 3004, when the planet was spotted and archived in the planet database. It wasn't until 3014 when



Titaneron. The probe image from first contact of the 24563 system. This image sparked much interest in the scientific community. It was first assumed that the coloration was simply some sort of low hanging clouds and Titaneron 24563a was just a small gas planet.

the strange ringed world caught the attention of the science community after a probe sent to the 24563 system sent back pictures of the planet. It showed what looked to be a purple surface and what seemed like oceans. However, due to the lack of funding the idea of a manned mission to the system was put on hold



until 3016. On April 12, 3016, a manned crew of eight on the vessel Journey IV, departed from the Mars colony headed for the 24563 system—a journey which would last 6 years. On October 13, 3022, the scientific research center that funded the mission received a transmission from Journey IV reading, “We are not alone”. This transmission made world news and marked the beginning of the Titaneron Discovery Foundation (TDF). Over the next few months the crew sent home images of the surface, fauna, and flora that they documented. Early January of 3023 the TDF released their papers of the documented species. As of now the Journey IV crew is set to return in 3030 with more information collected from Titaneron.

Titaneron. The probe image from first contact of the 24563 system. This image sparked much interest in the scientific community, especially among spacing industries. It was first assumed that the coloration was simply some sort of low hanging clouds and Titaneron 24563a was just a small gas planet.

Lagothrix and Mothatum. The first two genera described by the Journey IV crew were predatory groups. A smaller step dwelling group later named Lagothrix, and a larger closely related group Mothatum. The first species documented, *Lagothrix celer*, is very curious. Easily characterized by its ten simple eyes, three banded legs, and its long projectile-like tongue, *L. celer* is a

staple species of Titaneron. One of the first mysteries surrounding the animals on Titaneron was why so many organisms had a long pouch on their underbelly. At first it was believed to be reproductive organs, but it was later discovered to be a second tongue-like appendage the use of which was for water consumption. *Mothatum voreios* was the second species described, as well as various other species in the *Mothatum* genus. *M. voreios* is a large predatory species with a large spear-like tongue tip for subduing prey. The banded legs of *M. voreios* are structured to withstand a great deal of weight. The most perplexing part of the

Lagothrix sp. and *Mothatum sp.* Genera is their tail-like structures, especially in *Mothatum*. As of now the use of such “tails” is unknown.

Teyonegeta and Fyteroita. Two very interesting groups of Titaneron denizens are the genera *Teyonegeta* and *Fyteroita*. So far, these are the only documented flying genera. These creatures only have three limbs and their evolution is not quite understood. Utilizing their singular foot, they bounce across the ground—and with well placed flapping of their banded wings—they can achieve flight. *Fyteroita lacea* and other species of the genus are known as aerial predators. *F. lacea* is



Comparing Sizes. A line-up of organisms from Titaneron 24563 A, using a human and elephant for size comparison.

brightly colored and has a sharp tongue used to puncture prey at high speeds. *Teyonegeta hoverna*, a species within a large genus of omnivorous aerial creatures. Uniquely, species in the genus have large appendages at the head end of the creature. What stands out about this is that it seems to serve no purpose at all.

A World Unlike Ours. The creatures so far documented on Titaneron have far exceeded the expectations of the TDF. Those listed before are but a small sample of those discovered. Exploration on the planet has been difficult as it's mostly conducted by remote controlled rovers and drones. A human research center is planned to be constructed on the planet in the year 3039 to increase productivity of exploration. The biology of fauna and flora of Titaneron is very, very different from that of Earth's. “Plants” utilize a purple compound in order to absorb

sunlight and carry out photosynthesis. The creatures as described before, have a unique three legged body plan and large banded muscular legs are common among terrestrial species. Within the documents released by the TDF, 10 species were described, four of which were part of the genus *Mothatum*.

Overall, the species of Titaneron are unlike anything we have seen on Earth. Creating such a diverse and creative world has certainly been fun! Continuing on the great history and diverse lineages of Titaneron is exciting, and there will surely be even more interesting species to come!





CREATURES FROM MARNWICK

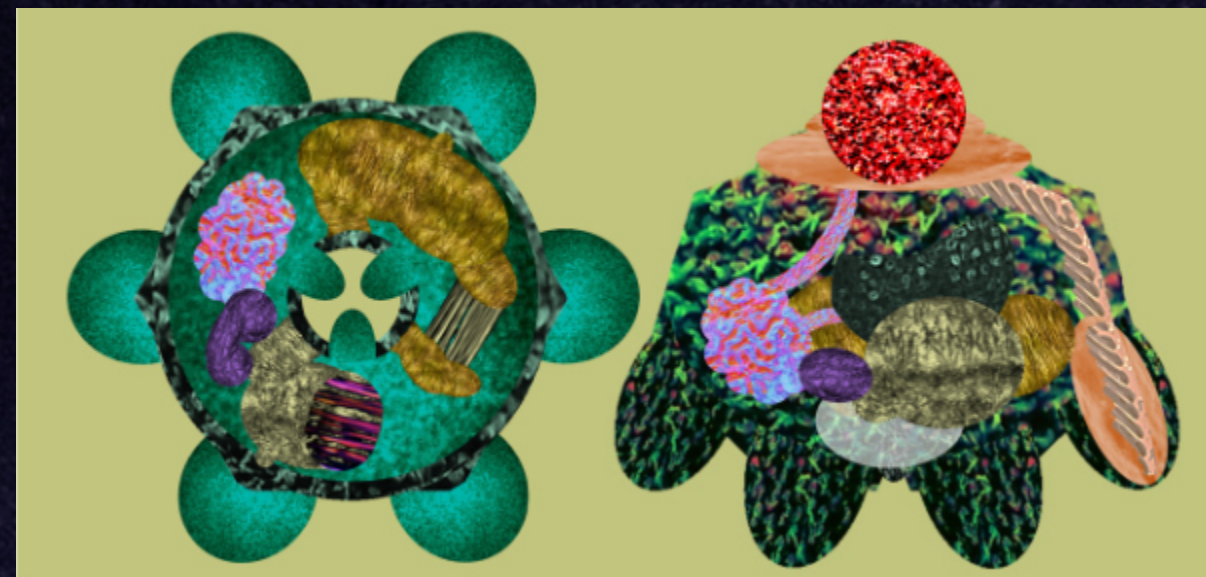
THE HAUNTED PLANET

BY AUTO ICON — ARTSTATION: auto-icon 1

Marnwick is a habitable planet with agreeable gravity and temperature; however, its atmosphere requires explorers to use a breathing apparatus due to high levels of carbon dioxide. High volcanic activity has created an abundance of soot and ash in the cloud layer. This results in the trapping of heat on the planet's surface and the blockage of incoming sunlight. A constant wind also blows beneath this cloud layer. When humans first landed on the planet, they noticed how their boots sunk into a spongy mycelium-like layer in the ground, leaving stark bootprints. These first explorers set up a military outpost for their interstellar empire, but it is now abandoned, and the planet is said to be haunted. There are rumors of boot prints appearing with no one making them, and some say that the ground itself grows mouths to consume visitors. Recent investigations have determined that the field the outpost was built on is made up of interconnected organisms. These

colonies feed by learning the paths frequented by creatures, and growing mouths from below to intercept them.

The Common Dunug. The Common Dunug is the most frequently sighted species of their clade. They can often be seen wandering in packs of a half-dozen individuals, huddling together for warmth. Like most of the organisms on the planet Marnwick, they are thermosynthetic, meaning they can utilize heat energy in their environment. Their cells possess equivalents to mitochondria and chloroplasts like a plant of earth, but also have an organelle that converts heat into light. They move around on six tentacles, and when one finds a potential food item, it picks up using a smaller three located closer to the mouth. It then places the item within a gill-derived pouch to smell it, and finally moves the food from the pouch to the true mouth in order to digest it. The Common Dunugs cannot see the color red, or the ground they walk on; however, they have



Anatomy of a Common Dunug. Life on Marnwick has perplexing anatomy—(left) ventral view of a Dunug, (right) lateral view of a Dunug.



The Common Dunug. Dunugs are often seen in packs, but this particular individual is resting outside its heard.



Red Reaper. The blind red reapers are surprisingly adept hunters of slimes.

an unusual interest in stargazing, often climbing to the tallest peaks they can find to get a better view.

The Red Reapers. The Red Reaper is a predatory species resembling a six-legged spider. They are taller than the common Dunug (to which they are related), with a similarly sized body, but longer legs. They have red skin for camouflage, but beneath is photosynthetic green flesh. Despite being almost blind, the Red Reaper hunts with surprising accuracy. They often pick up Freeze-Slimes with their three feeding tentacles and squeeze the slimes in such a way to spray the cold bacteria into the eye of their prey. In truth, the Red Reapers are functionally automatons, having evolved a symbiotic relationship with the Living Land that houses them. The intelligence beneath the hunter tells them the location

of prey, and releases them when it wishes to cull the other species living atop it.

The Cuttle-Torpedos. The Cuttle-Torpedos have convergently evolved with squid. Their three feeding tentacles are longer than related species, resulting in them having nine full size appendages to swim with. They live in caves made by underwater volcanoes, which helps them to remain warm enough in the otherwise cold oceans. The volcanic activity pumps heated water through the cave tunnels, which provides the micronutrients required to feed the sedentary organisms that the Cuttle-Torpedo feeds on. However, this flow also means that the Cuttle-Torpedo must frequently dive deeper into the caves to stay inside.

Wind Tree. A broad fan-like leaf is able to withstand even the strongest of gusts.



Land Mouth. The ground beneath your feet on Marnwick may consume. Structures move apart and allow an opening to swallow up unsuspecting predators.

The Wind Trees. The Wind Trees are abundant where the wind reliably blows. The planet is too overcast for normal photosynthesis to occur so the Wind Trees have evolved alternative means of collecting energy. They have a broad, fan-like leaf that is held perpendicular to the flow of air, causing them to be pressed over during the strongest gusts. The trees have a counterweight within the trunk that holds the leaf up. When it resets the leaf's position, the friction is absorbed as energy.

The Living Land. Where the aforementioned human outpost now lies abandoned, there once was a lake. As nondescript organisms clung to the

geothermally heated bottom, their descendants grew on top of them, until the whole lake was being pumped in the circulatory system of the colony. After a few millennia, the entire location became a mix between a field, a lake, and flesh. The top layers began to grow traps and mouths, and shared nutrients and chemical signals between neighbors. This cooperation became more complex until eventually the entire ecosystem became a thinking mind. It extended the gift of cooperation to the creatures alive upon it, holding back its hunger long enough for the harmless ones to breed, and slaughtering anything that did not comply.



INTRODUCTION TO PHTANUM B

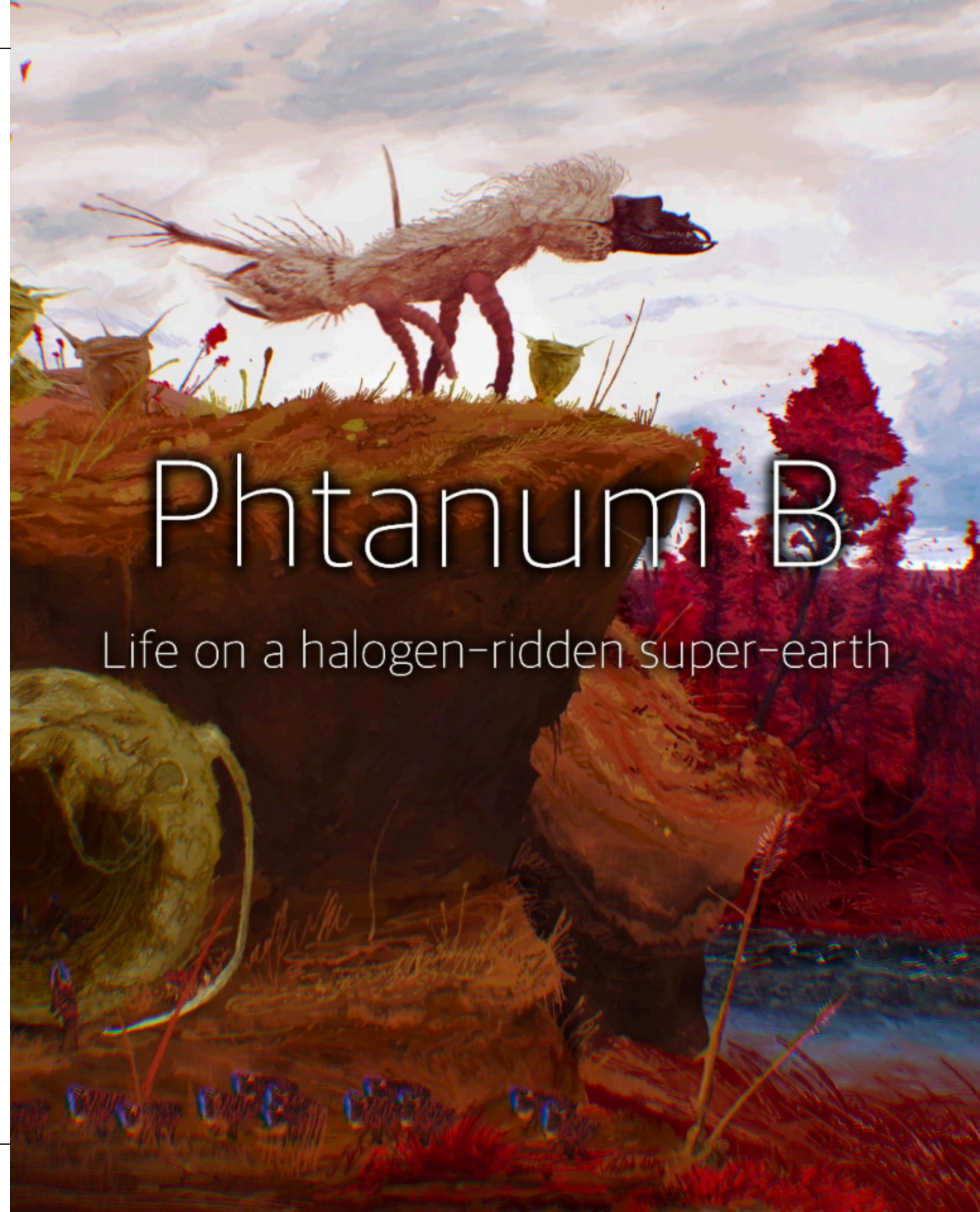
Life on a Halogen-Ridden Super Earth

BY PAUL DRENCKHAHN (STEVEMOBCANNON) — *INSTAGRAM: @phtanum_b_official*
TWITTER: @stevemobcannon
ARTSTATION: stevemobcannon

Introduction. The exoplanet Phtanum B is a colossus of a world—measuring 21,412 kilometers in diameter, 1.67 g’s of surface gravity, and with four and a half earth masses crammed into it. This makes Phtanum B a super-earth—a type of planet between the size of Earth and Neptune. The planetary crust is rich in heavy metal elements, and multiple large moons, formed from the planetary collisions that made Phtanum B a titan, keep the inside of the planet churning with their tidal forces (leading to high volcanism). The planet’s atmosphere is thick and enriched with chlorine and ammonia, giving it a characteristic tint that one can see from orbit. Complex life on Phtanum B is incredibly old compared to Earthly standards (at least over three billion years). Organisms that still to this day thrive on this super earth utilize these lethal (to us) compounds in their biology—synthesizing plastics from atmospheric chlorine or by reinforcing their bones with metals.

Due to Phtanum B’s old age, it is difficult for xenopaleontologists to currently create a detailed tree of life for many phtanumbian organisms. However, one can still extrapolate a very rough taxonomic tree from the little data known. From the strandbeestbest-esque barragiformes, to the pyrite-boned deuvertebrates, Phtanum B is home to a variety of life that is unheard of on Earth. To bring some clarity into the chaos that is phtanumbian phylogenetics, here is a detour into Phtanum B’s prehistory.

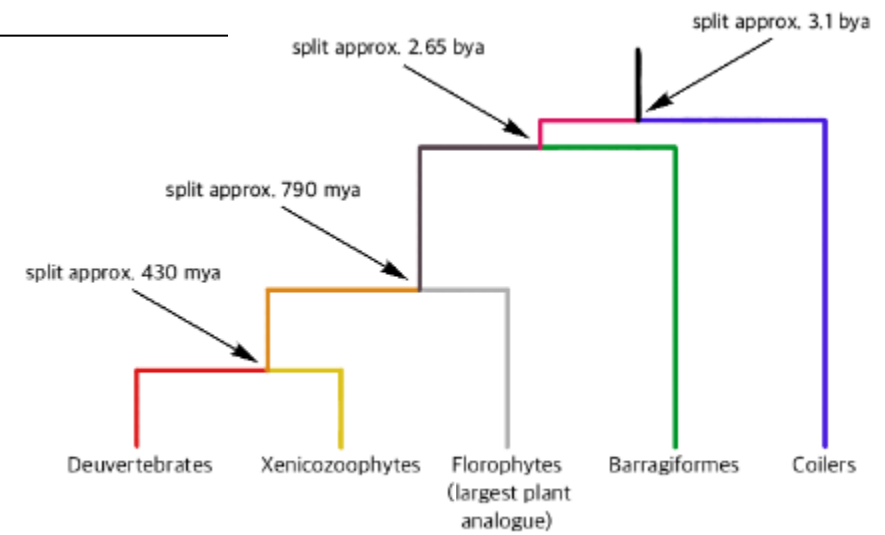
Phtanum B formed approximately 9 billion years ago, in an iron-rich dust cloud. During the Amarygmozoic and formation of the planet, Phtanum B collided with multiple smaller planetoids, bloating the rocky planet to a point where its mass exceeded that of four Earths. Many large moons that still adorn Phtanum B’s sky are results of these very collisions. The first forms of life formed approximately 8.7 billion years ago, and were promptly rendered extinct by a



Phtanum B

Life on a halogen-ridden super-earth

Phtanumbian Animal Phyla. This little graphic showcases the four biggest animal phyla on Phtanum B - Deuvertebrates, xenicozoophytes, barragiformes and coilers. The term „animal" in this context refers to the metabolic speed of the organisms inside the phyla, which are similar, on-par or faster than the metabolic speed of earthen animals. It does not refer to the earthen clade animalia. Xenicozoophytes are excluded as animals by some xenobiologists due to comparably slow metabolisms similar to earthen plants, but are still regarded as very animal-like by the majority of xenobiologists.

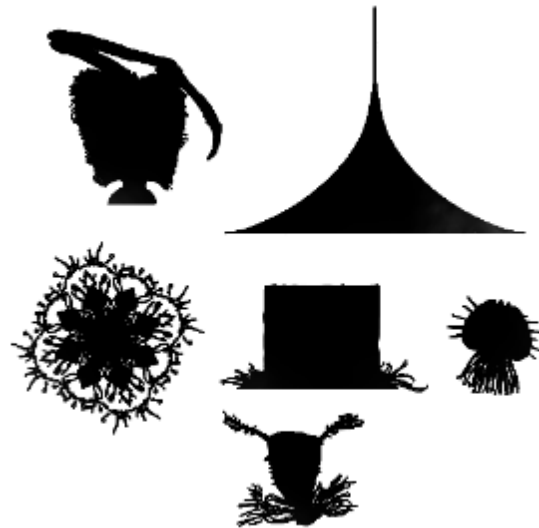


Deuvertebrates



- Bilateral-reflective symmetry
- Pyrite-enriched plastic bones
- Motile lifecycle stage following a sessile lifecycle stage (Polyp)
- Protein-based neural communication
- Cosmopolitan (can be found everywhere)
- Possess three sexes (A, B, AB)

Xenicozoophytes



- Bilateral-reflective, asymmetric or radial symmetry
- Plastic bones or bones infused with other metals
- Only a sessile lifecycle stage, motility evolved independently in a few clades
- Protein-based neural communication (if brain is present)
- Cosmopolitan (can be found everywhere)
- Possess two or more sexes

Barragiformes



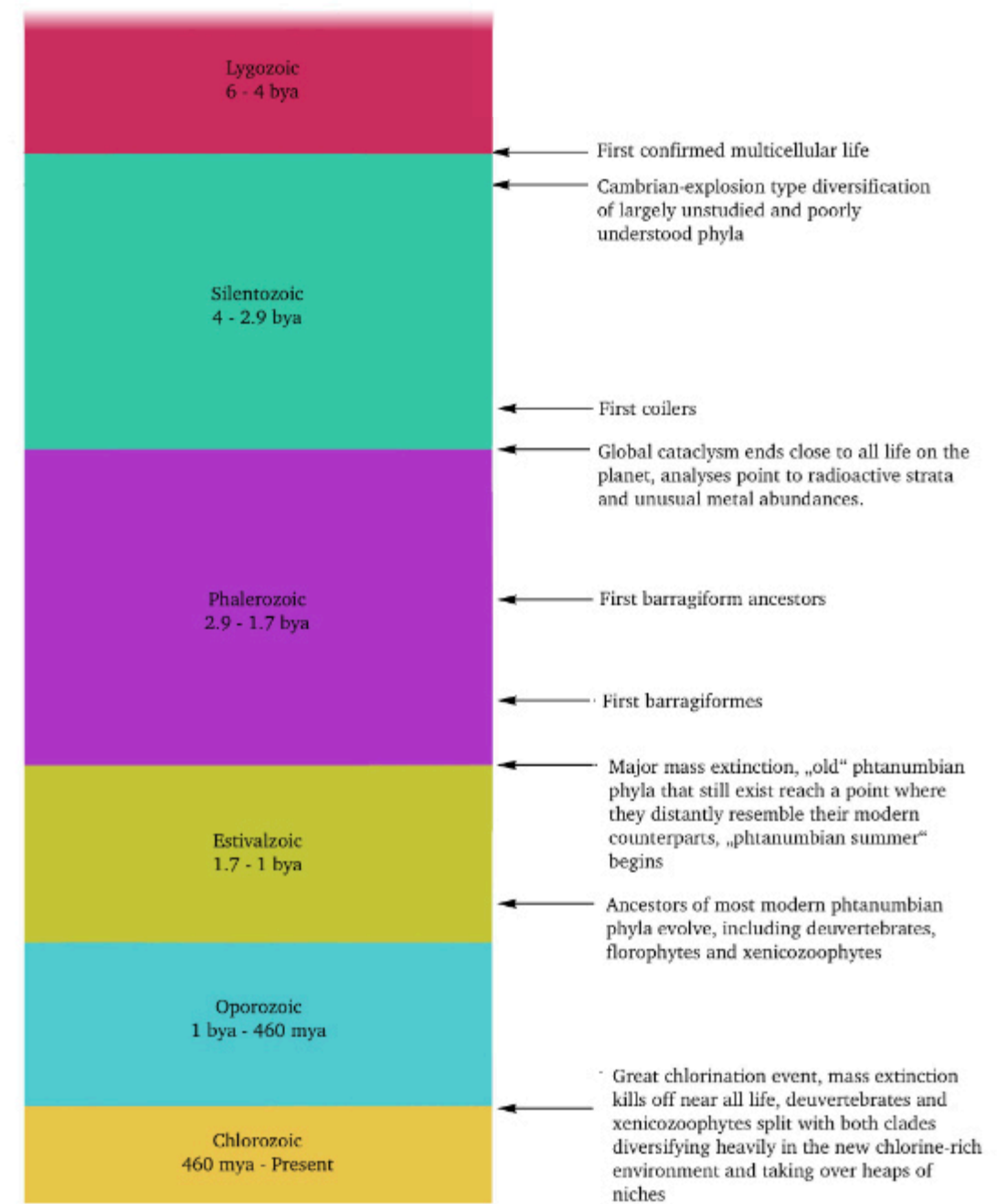
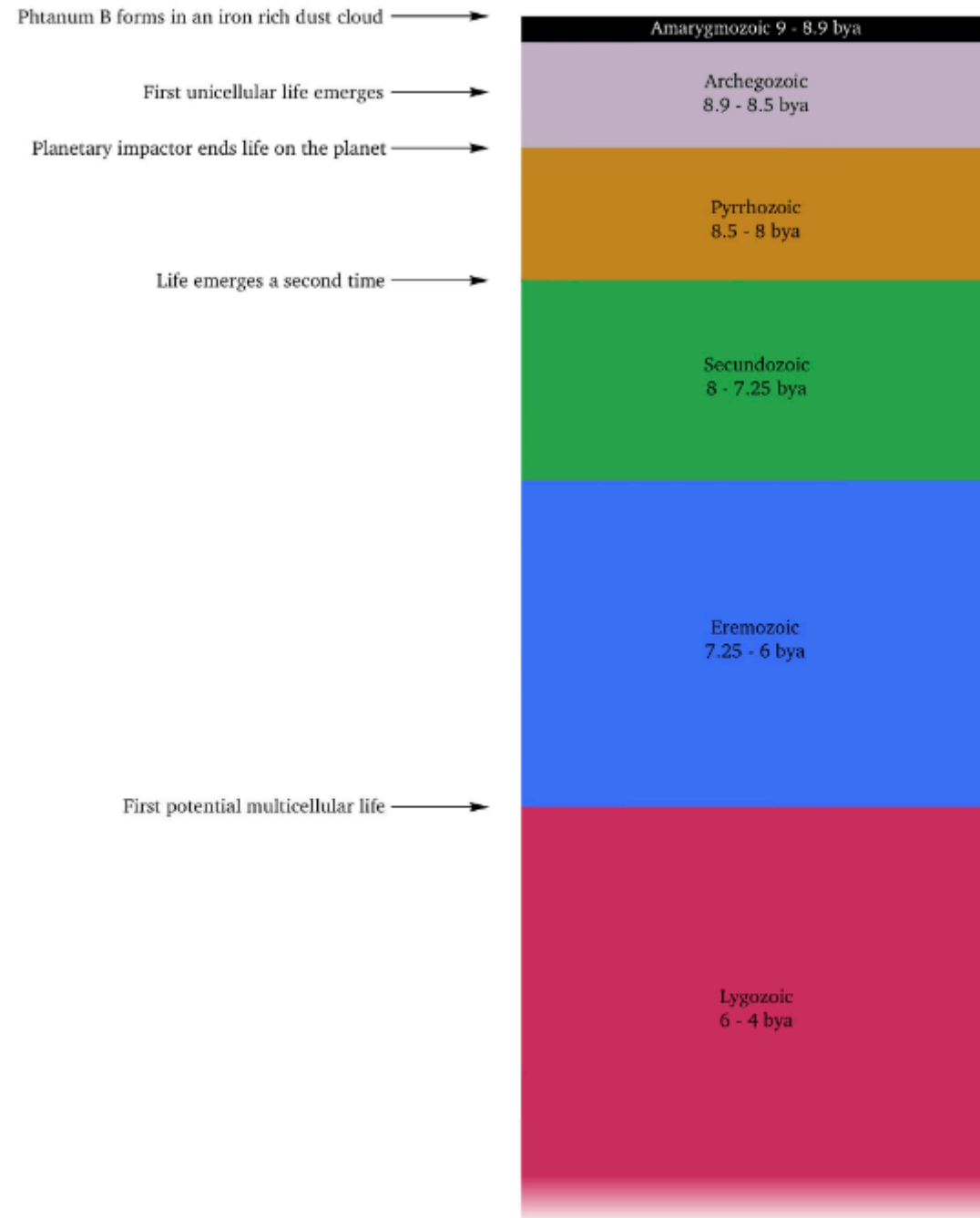
- Bilateral-reflective symmetry
- Argutite-infused bones
- Exclusively motile lifecycle stages
- Metal diode-based neural communication
- Limited to areas with a lot of biomass or wind
- Possess two sexes (X, Y)

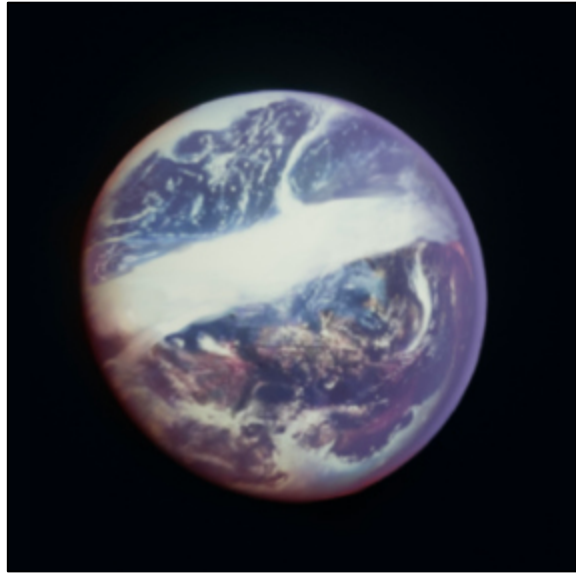
Coilers



- Bilateral, helical, radial or asymmetric symmetry
- Hydroxylapatite-infused bones
- Exclusively either motile or sessile lifecycle stages
- Protein-based neural communication
- Cosmopolitan (can be found everywhere)
- Usually possess one sex, two-sex systems independently evolved in a few clades

Phtanum B Timelime. The geological eons of Phtanum B. Each of these is roughly analogous in size to Earth's pantherozoic. The vertical image has been sliced in half to best fit Astrovitae's dimensions the left page is the top half (most recent eons) while the right is the bottom half (less recent eons).





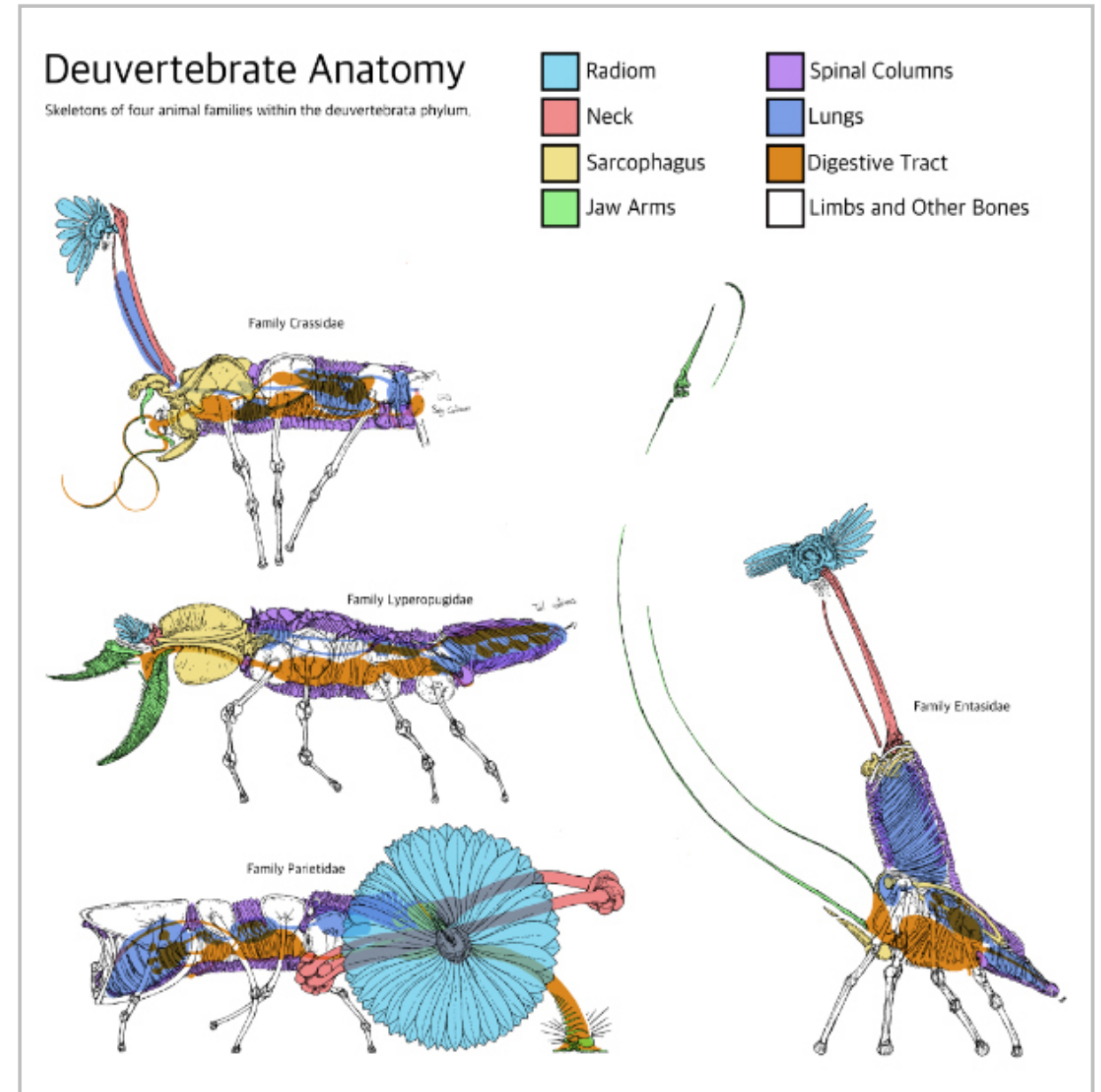
Orbital View of Phtanum B. The exoplanet Phtanum B from orbit, as seen by a telescope at a distance of four billion kilometers.

planetary impactor. Life independently reemerged 8 billion years ago, with first directly recorded multicellular life emerging 4 billion years ago. Following this is a “silent period” in phtanumbian prehistory—fossils and strata of this era are absent in nearly every excavation site.

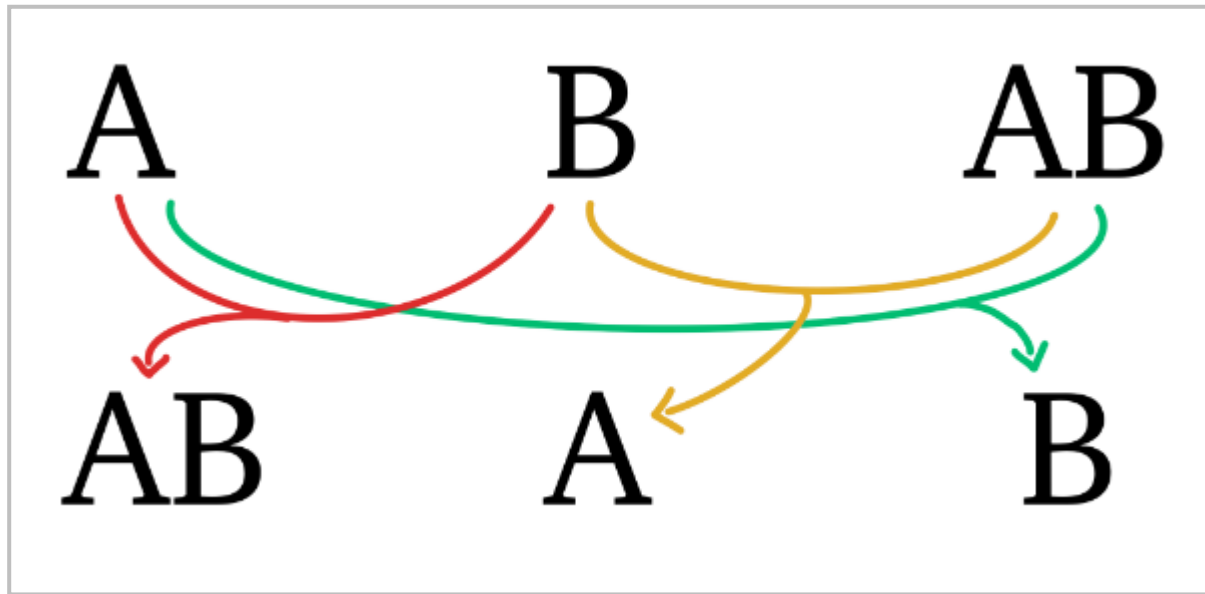
Evolution of Life. Following the silent period was a mass extinction that reduced life back to the level of pond-scum. This significantly altered the composition of Phtanum B’s crust—enriching it with heavy metals such as iron, germanium, titanium, copper and lithium. Life would eventually learn how to use these highly abundant materials in their biology. The three following eons would not see extensive mass extinctions, until

approximately 460 million years ago where an unknown event heavily saturated the atmosphere with chlorine, leading to nearly all life going extinct. Deuvertebrates and xenicozoophytes, at that time inhabiting niches in rare chlorine-rich environments before the event, would eventually overtake global niches and become the dominant animal-like phyla.

Deuvertebrates have an anatomy that only distantly resembles Earth’s vertebrates—two spinal columns connected via bone arches, a large number of limbs, and the apparent lack of a true head. A central bone sphere in the thorax, named the sarcophagus, holds the brain inside and acts as an attachment point for many muscles. Spurting from it is a telescopic arm mechanism which holds the radiom—a disk-like structure which anchors the visual organs—and lense pads, whose many outer lenses shed occasionally. The bones themselves consist of pyrite-reinforced plastics, the plastics being synthesized from atmospheric chlorine. The lungs of deuvertebrates are multi-chambered and usually run along the back of the animal, connected to an air chamber system that lightens the body weight. The mouth is located at the front thorax, and in many cases, adorned with two manipulating tendrils—the jaw arms. Deuvertebrates go through a sessile period in their early lives, where they photosynthesize but



Deuvertebrate Anatomy. The skeletal anatomy of four select deuvertebrate families. See key for specific anatomical body parts.



Deuvertebrate Dynamics. *An almost math-esque reproductive logistics of deuvertebrates. In a number of deuvertebrates, AB type individuals are more resilient to environmental changes and are able to produce more AB type individuals until conditions stabilize and A and B individuals are created.*

also feed on organic matter. Deuvertebrates as a whole have very short life-spans, not just because of the chlorinated environment. Some insect-sized deuverts are birthed and die within a single phtanumbian day, and elephant-sized animals reach the ripe old age of 5 for common. Thus, deuvertebrates are forced to follow a very r-selected survival strategy. Deuvertebrates have three sexes, in which the sex of the parent determines the sex of the offspring.

Another notable aspect of deuvertebrates is their iron metabolism. Iron is a key component within their biology, as deuvertebrates need to ingest fairly large amounts of the metal to build their bones and create energy by oxidizing it. With

the chlorine in Phtanum B's air turning any small water source into dilute hydrochloric acids and speeding up erosion tenfold, acquiring iron is not much of a difficult task. Many herbivores have radulizing mouths which can scrape away at rock, and many carnivores get their iron from the bones of other deuvertebrates they consume (or simply by drinking water sources). However, this does mean that the occasional stray human vehicle can become an object of interest (or food) to them.

To make it easier to sense large amounts of iron or other metals, deuvertebrates have heightened magnetoreception abilities. Similar to a radar, this allows them to sense large amounts of

metals (such as from a recently deceased, large organism) for miles. Human cities use this for defense by constructing enormous walls and installing powerful magnetic fields that effectively overload and blind their magnetoreceptors to deter them. Xenicozoophytes, like the infamous blitz spire, use magnetoreception to their advantage—luring hordes of deuvertebrates with their sheer metal-enriched mass and inducing a sort of pheromone-induced trance. Deuvertebrate then become smited by a guided, self-generated lightning strike, that can cook prey medium rare for digestive tendrils to then consume. Blitz Spires are a true oddity of Phtanum B, like an alien on an already alien world—too strange, extreme, and complex to explain in just a

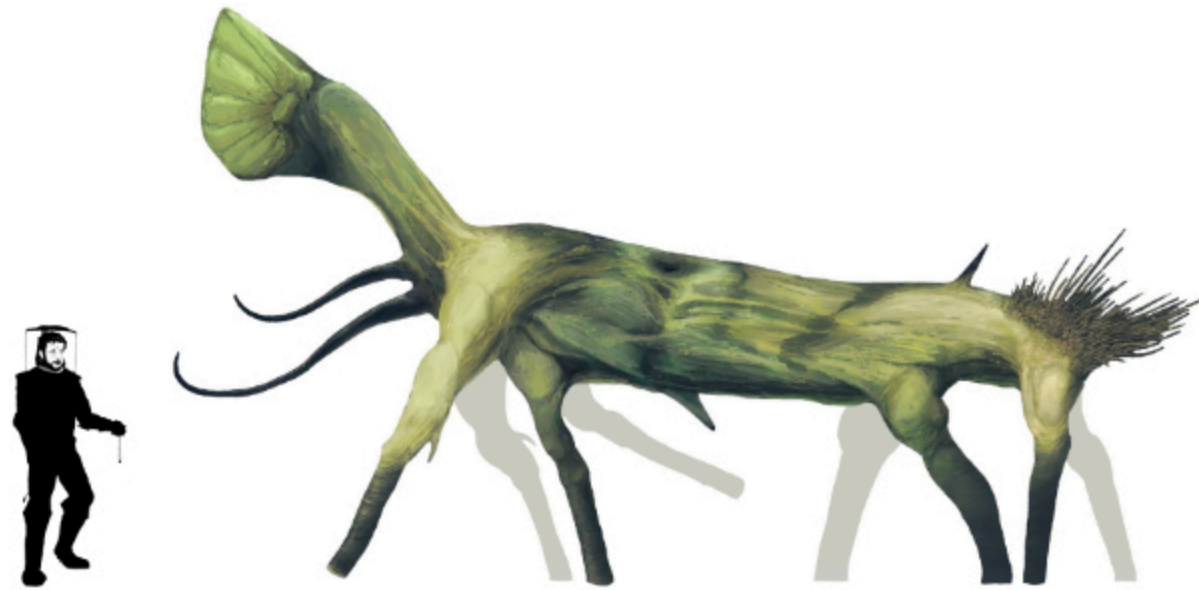
few sentences. They will likely be covered in detail in another issue of *Astrovitae*.

Now, let us return to the deuvertebrates. There are currently over 85 different deuvertebrate orders, ranging from ground-browsers of all shapes and sizes, large subterranean worms, airborne organisms, lung-propelled flyers with fecal turrets, long-necked harpoon predators, spiral-limbed ambush hunters, plant-sucking herbivores with non-newtonian fluid armor, many limbed battering-ram carnivores, shield-headed communal grazers, spark-gnashing jaw-armed biters, pheromone-guided herders and many, many more. Following this, here are a few examples of the many deuvertebrate families to give a glimpse into the diversity of Phtanum B.



Nitrogen Dioxide. *One waste material produced during digestion in deuvertebrates is nitrogen dioxide. These greatrumblers eject this substance to form long, red smoke tails, in order to appeal to the other sexes.*

A Look at Some Deuvertebrates. Take a look at some interesting deuvertebrate species native to Phtanum B. Please note that the organisms displayed are not shown in scale together—a figure is shown to help compare size differences.



Ptyonocodite. Ptyonocodites are among the most common large herbivores on Phtanum B, with the order encompassing about 2000 species ranging from fox-sized, aphid-esque tree parasites to large megafaunal herbivores like *Ptyonocodias archi*. Ptyonocodites have muscles in their flanks encased in a matrix of bubbles filled with non-newtonian fluid, akin to corn starch. If an enemy attack is imminent, the ptyonocodite contracts these muscles to form an impenetrable wall to deflect attacks.



Black Curvoglavid. Jaw armed biters are one of the biggest deuvertebrate orders, harboring just over 12,000 species. The black curvoglavid is the book-true example of one such animal; the jaw arms stiffened and ossified to work in function akin to true jaws, and with a lung-filled tail that extends way behind the body itself.



Giant Lactismid. Giant Lactismids are colossal organisms. Weighing up to 80 tons and spreading their weight on many legs to walk on the wobbly and unstable biomat ground, these animals patrol the edges of forests or open plains for a well sized snack. The tips of their jaw arms hardened into bony phalanxes, which allows them to spear up food.



Burnfringe Shieldhead. “The bigger the blade, the bigger the shield” applies to this extravagant clade at least. Shieldheads are a small order of deuvertebrates, harboring only about 70 species. These animals congregate in large herds and constantly feed on low-growing plants with their radulizing mouths.



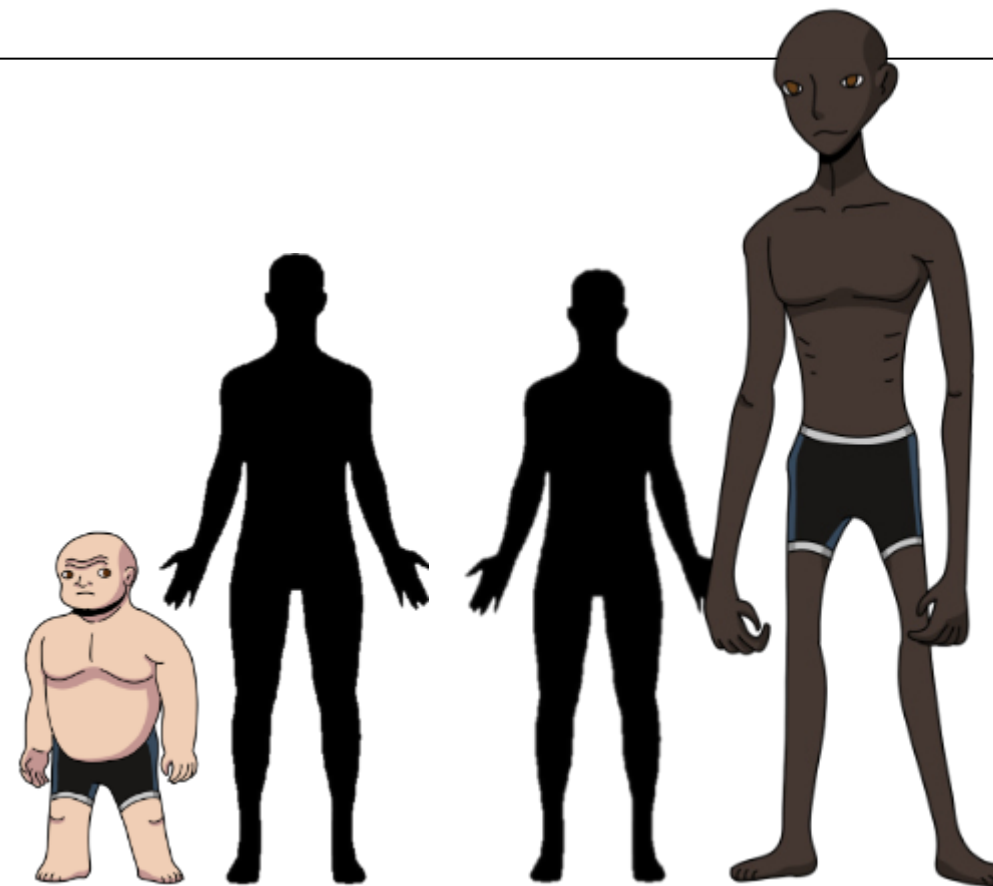
HUMANITY IN THE FENIVERSE

BY BATTYBOIO — INSTAGRAM: @battyboio
DEVIANTART: BattyBoio

The story of the Feniverse starts in the year 2036, where a project known as Breakthrough Starshot first began. Thousands of cameras were attached to solar sails and sent to the Proxima Centauri System. These crafts would move up to 20% of the speed of light, and took 20 to 30 years to complete their journey. The expectations for such a mission were low. Even if no life was found by Breakthrough Starshot, it would still be incredibly successful since there would be a plethora of images from outside our solar system for study. These images would finally arrive in the year 2062... and they were surprising. Termed the 'Wow Images' in homage to the Wow Signal of 1977, these images showed complex lifeforms that resembled plants on a distant planet.

Colonizing the Moon. The Wow Images would drive humanity into the new space age and further their spread across the solar system. The first settlements were established on the moon in the year 2070. These settlements

weren't meant for humans though - they were artificial habitats used to create self-sustaining ecosystems on the moon. These artificial habitats each harbored its own unique species and ecosystems, and all were created by robots. Construction was finished in 2110. As these were being built, some temporary settlements were designed for humans, which were used to prepare humans for eventual permanent residence. The first ever established settlements were located within caves around the poles of the moon. These stations were periodically abandoned as their solar panels couldn't work during a lunar night. The first crew was made up of scientists and engineers who would study the moon's composition, and explore ways to use lunar materials. They would purify lunar ice and turn it into water which could be used by humans. As the colonies evolved, they became self-sufficient and supported themselves by sending exports back to Earth. Lunar businesses and private contractors would arrive in the colonies to get rich off the



New Humans. Homo Sapiens Pumilus (left) is a species of human species adapted to higher gravity, while Homo Sapiens Elatior (right) is adapted to lower gravity planets.

precious metals, and other materials on the moon. Space hotels became quite popular for the wealthy in the late 2080s. Strangely, these hotels would be the beginning of settlements in space.

These two environments would change the humans who lived there. The lower gravity of the moon made humans taller and thinner, and their skin would darken significantly to protect them from the radiation of the sun. The humans of the space settlements adapted to their new zero-gravity environment. They evolved larger eyes in accordance with the artificial lightning. The microgravity of

space makes their faces appear puffy, and their bodily fluids moved to the chest. Their legs became thin, and their feet re-evolved to become prehensile.

Colonizing Mars. Humanity started to colonize Mars somewhat similar to the Moon in the 2150s; however, trips to the red planet had already taken place in the late 2040s. The Lunar humans were sent, since they were already adapted to high solar radiation levels, and low gravity environments. They started by melting ice caps to create martian oceans and sent countless genetically modified cyanobacteria to create an oxygen-rich



Mars Livestock. Genetically modified animals were sent to populate the livestock of Mars. Seen here are two massive cows altered to become large, hungry creatures designed for slaughter.

atmosphere. Genetically modified plants and animals were sent to populate the Martian surface much later.

As this was going on, small Martian outposts were being made. Powered by nuclear energy, with a pressurized interior full of artificial nitrogen, and oxygen, they were rounded both inside and out with extremely tight airlocks. These early habitats were covered up with martian soil, and had no windows. These weren't ideal conditions, but it was survivable for those who lived inside. Robots were used for missions outside, and they were mass-produced within. Any humans who did go outside had to wear spacesuits that were heavily washed

when re-entering their base to remove any dust. Aquaponics were used as an efficient, and cheap means of producing food. In these Martian colonies, the crew was switched out every 3 years for intense psychological evaluation.

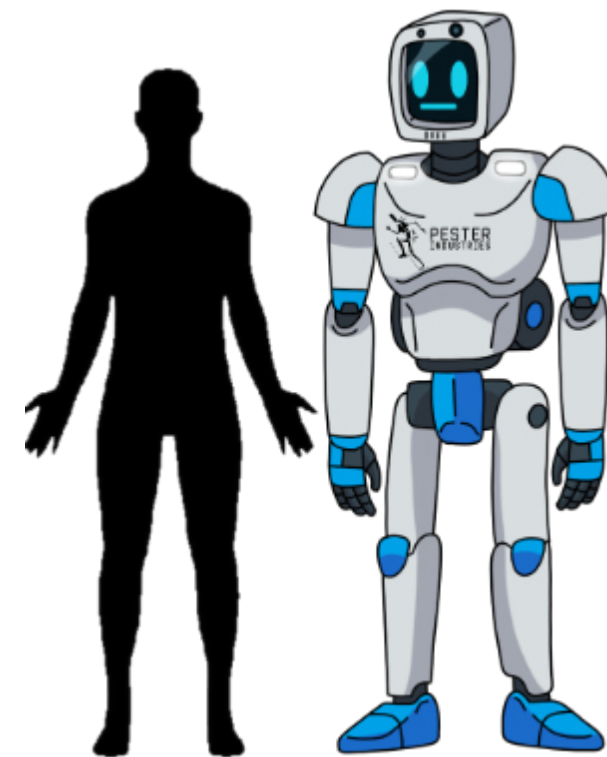
In the late 2200s new genetic modification technologies had advanced quite significantly. Characteristic Gene Modifications could change aspects of the human body as they saw fit. Humans could now adopt their ideal bodily characteristics such as different eye and hair colors, and even entirely new organs like horns. They achieved this by modifying RNA so as to not potentially ruin the human genome (following a

similar process to cephalo-pod gene mutations). Eventually, this led to a project to create a perfect human—an individual missing every flaw of the human body. Traits such as the lack of a blind spot, cancer-fighting genes, and an increased number of stem cells lead to enhanced regenerative properties that would be transferred to all species of humans.

These perfect humans, known as *Novahomo Sapiens*, are so genetically different that they cannot breed with other human species (much like the zero-gravity adapted humans). They have cephalopod-like eyes, a choke-proof windpipe, swan-like lungs, sturdy lower backs, the shoulders of chimps, sturdy necks, and ostrich-like legs and feet. To get rid of the pains of childbirth, artificial wombs were created to hold the developing baby. The rest of humanity would use these as well. The first successful individuals, and healthy population of *Novahomo Sapiens* would be finished in 2423.

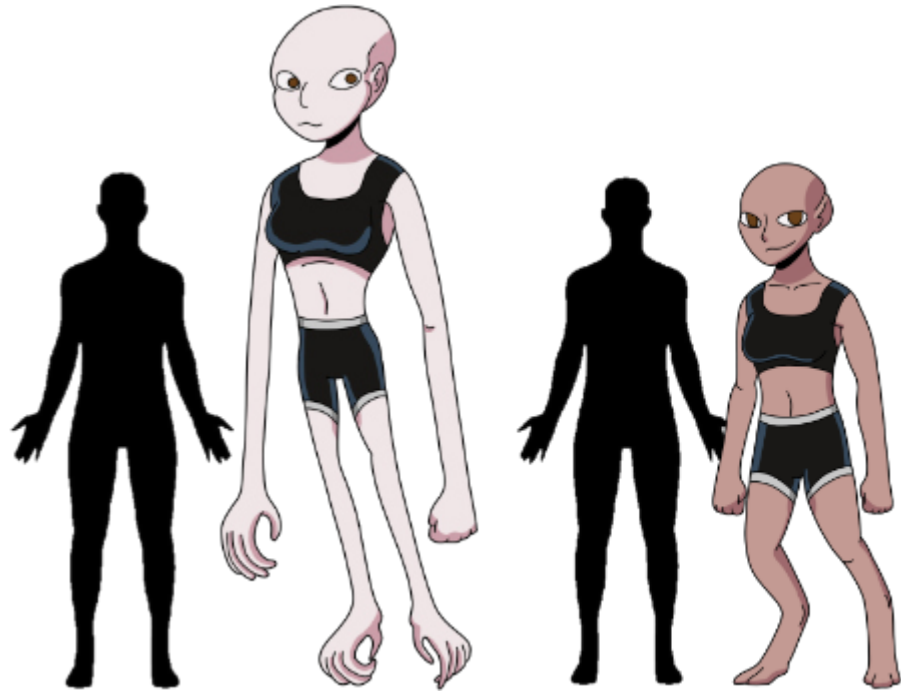
New Technological Advancements.

With the advancement of genetic engineering, many other aspects of human life changed. More pet breeds were created, and many other animals were properly domesticated. Although more traditional farming methods still existed, cleaner and more renewable industrial farming prospered. To make industrial farming more humane, they genetically modified all livestock to have



Clockworker. Clockworkers were humanoid robots designed by Pester Industries. These were highly successful and intelligent sapient machines equipped with high-tech AI.

smaller and simpler brains. The nervous systems of livestock became so simplified that they resembled those of jellyfish, or starfish. They could no longer feel emotion, or pain—only possessing the most basic instincts. Meat livestock were modified to have more muscles, and constant induced seizures made muscles contract, grow, and prevent muscle rot. They absorbed nutrients more efficiently for higher quality meat, and also had stronger immune systems to prevent the spread of diseases.



Future Humans. An Asterohomo sapiens (left) and a Novohomo sapiens (right) specimen. N. sapiens are considered the “perfect” human species as they have altered body parts inspired by many different animal features.

As biological sciences were advancing, so too were the technological sciences. During this time, a small start-up company known as Pester Industries would start its small robotics business. They started off by creating robots to fulfill work-related duties. One of the first projects worked on was a humanoid robot with an AI that could adapt to new situations and make itself more efficient. These robots became known as the “Clockworkers”. Later models of the Clockworkers were highly successful and intelligent, and ultimately became the first sapient machines. After years of success with robotics, Pester Industries would move on to other technological

ventures. They collaborated with some astro-nautical businesses to create robots for space operations, along with robots made to explore other planets. Pester Industries would eventually experiment in astronomical technologies in their later years. Other AI’s of similar intelligence would be made by competing companies after the success of the clockworkers. One other notable example was “Kit”, a virtual-assistant AI that was found within many brands of cars, phones, and other technological appliances. The AI was designed to be friendly, helpful, and adaptable for many user’s and their specific personalities. Kit AI units could be programmed to have special or unique

voices, predetermined personalities, other settings, and much more.

War, Peace, and Alien Life. By the end of the 2880s, humanity had finally colonized the entire solar system, but tensions had begun to arise on Earth. Inequality between colonies and different human species reached its boiling point, and a fully-fledged war broke out on Earth. The main combatants were the new humans, and the creation of these humans heightened racial tensions. This war lasted 6 years, and left the Earth in a disastrous state. Many billions of human lives were wiped out, hundreds of habitats were destroyed, and many species were brought to extinction. As a result humanity made massive reforms to their societies. Humans fled Earth for the young Venus colony, and others massively disarmed themselves before a peace treaty for all colonies was created. An alliance between all human societies and species was formed, and created the United Sol System. The Final War was a brutal, yet crucial step to success and led to the discovery of, and alliance with other alien species.

When another intelligent lifeform was discovered within the galaxy, there was much excitement, but also significant fear. Humanity learned that they weren’t the only intelligent beings in the universe, but feared they could become hostile or xenophobic. Thankfully they weren’t. These creatures were peaceful species that wished to help life thrive throughout the universe. They had made an alliance composed of hundreds of species throughout the universe who helped them with their cause and they invited humanity to join them. This ensured that humanity would survive, and had hundreds of allies to protect them. The newly contacted race, which came to be known as “The First Intelligence”, helped humanity advance tremendously, and become a true spacefaring species.



Ahh! What an adorable baby that yaetuan is holding! Wait a moment...

*Hey everyone! I wanted to introduce myself to you! I'm **Professor Scoot**, and I've been helping Astrovitae explore life across the universe and multiple dimensions! I might be a little guy, but I have a big brain! I'm here to offer commentary on articles seen in future issues and help write footnotes for speculative biology terms. I can't wait to become part of the Astrovitae crew!*

- Prof. Scoot

***P.S.** Shoutout to my creator, Sava Kochnov!*





CHARACTER IN FOCUS:

THE YAETUAN SAGAS & CHARACTERS IN SPECBIO

BY CHRISTIAN CLINE — INSTAGRAM: @christian_cline
WEBSITE: www.christianscreations.com

I want to thank everyone again for purchasing and being interested in my first book, *The Teeming Universe*, and for also showing interest in my next title, *The Yaetuan Sagas*. When thinking about what I should discuss in regards to my next book in production, I immediately thought of something that has been on my mind a lot recently—characters in the genre of speculative biology.

Characters in Speculative Biology. The idea of characters in speculative biology is something that has increasingly intrigued me since the publication of *The Teeming Universe*. The idea of using characters in the genre is something that has begun to increasingly intrigue me since the publication of *The Teeming Universe*. It is an element within the genre that is probably the least explored compared to other elements like creature design and worldbuilding. The emphasis on the latter two is due to a handful of artists who began the popularization of speculative biology in the early 80s–90s,

deciding to focus on elaborate creatures and environments (since it was likely more interesting to them).

But why does this happen to be the case? Why is character exploration on the backburner for so many speculative artists? Seeing such a lack of characters in projects led me to begin exploring how characters, with unique lives and personalities, could be integrated into my own work and possibly inspire others to do the same. These explorations ultimately brought me to my next book, *The Yaetuan Sagas*, which was briefly mentioned in issue 3 of *Astrovitae*. In this forthcoming book, I explore the planet of Yaetu—delving in detail about its climates, biosphere, prehistory, and the like.

Three-fifths of the book's content takes an exhaustive look at the history of the yaetuan species as a whole. Here I expound on the prehistory of the world, which in turn provided me with the perfect place to explore characters in



***The Evening Conversation.** Outside in a bar/restaurant, Ilso and her friend Jool have a deep conversation about her life going forward. In background is a gorgeous view of the seiyau metropolis at sunset.*



The Rainy City- A Blighted Past. From about 5,000 to 3,000 years ago, Yaetu's climate was in dire straits. Many of the world's people lived in dense cities, like the one seen here.

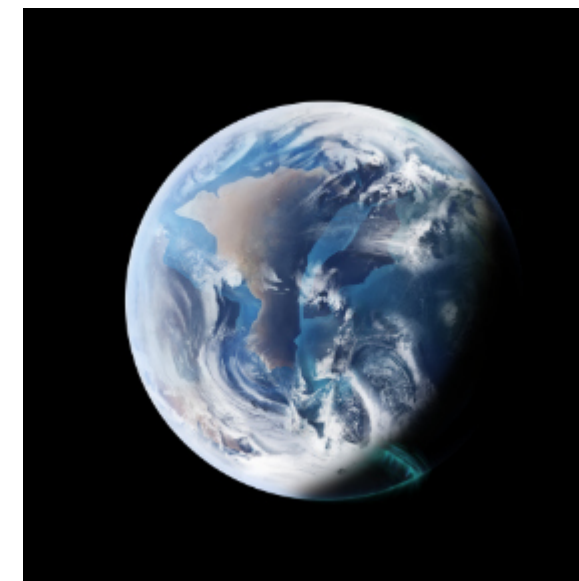
speculative biology. Even in our own world, we learn a lot about the cultures and lives of humans long ago (in large part thanks to traces left behind by laypeople, like a simple photograph, a diary excerpt, or even their buried bodies which can provide incredible clues about the past).

A Look at Keni. In *The Yaetuan Sagas*, much of its content will be about origins of cultures across the yaetuan world throughout time—proving to be a great opportunity to take a look at the lives of the yaetuan people. While a great deal of yaetuan history is condensed, involving hundreds of thousands of years of

conflicts and cultural exchange, the book will be stopping at specific points in time to analyze the lives of one or more yaetuan individuals. One example of which is the first character introduced in *The Yaetuan Sagas*—Keni. Keni is a young artisan girl from more than 17,000 years in the past, who lived on the western coast of the ancient kingdom of Uta. Thanks to this brief section detailing her life and career as a pottery and sword maker, we readers are able to get more of an immersive look into a single day-to-day life of a humble yaetuan. This is essentially what I want *The Yaetuan Sagas* to be. It is a unique opportunity to explore

character building within my own work, but also an opportunity to introduce this line of creativity to a larger audience interested in speculative biology. With all that having been said, it is now time to take a brief look at another character that will be featured in *The Yaetuan Sagas*—Ilso. But before talking about this new character, it might be important to explain some background yaetuan history:

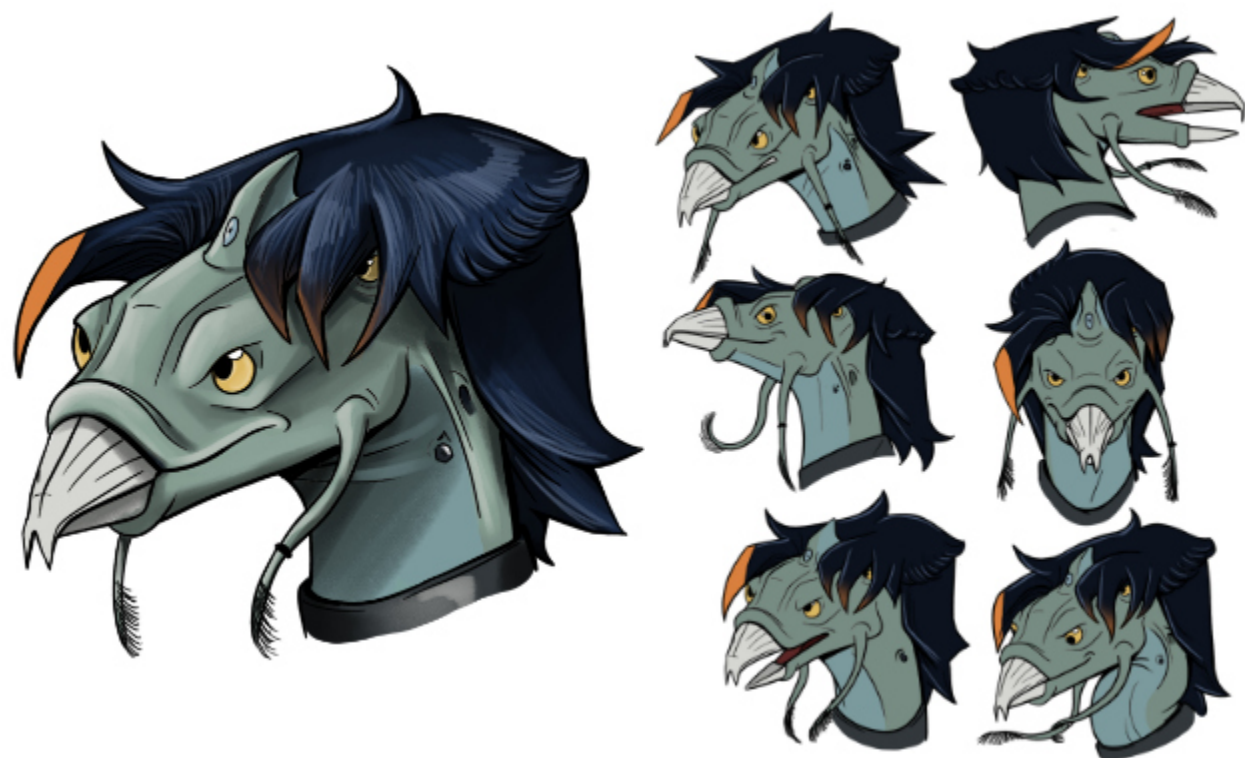
Synopsis of Yaetuan History. As I'm sure many *Teeming Universe* readers will know, the yaetuan homeworld in the distant past was heavily polluted, and its habitability was beginning to wane as a result of cumulative climate change and technological impacts. As the governments across the World Alliance cooperated with colonies across the moons and asteroid belt, these negative climetory effects were essentially reversed. Although now there was another initiative that would establish the first exoplanetary colonies outside the planet's star system. This initiative would occur in three long-term phases, but the first of them began roughly 3,250 years ago. Here, the world would begin tracking the global population for generations to come, and select the fittest and most genetically viable individuals for building a gene pool on a new world. The world's genomes would be sampled and quotas from each part of the planet would be selected by their fitness



Yaetu From Space. This is a new render of planet Yaetu seen from space, for *The Yaetuan Sagas*.

(capped at about 50-million in Phase one). This is where the third character introduced in *The Yaetuan Sagas*, Ilso, makes their debut.

A Look at Ilso. Ilso was a bit of a punk. This was something that wasn't without good reason though; as even at a young age, the teenager would know what it was like to live in the city. About 3,235 years ago, the homeworld was beginning to make improvements in its climate and ecosystem. The planetary temperature dropped by about 1 degree Celcius under its maximum (thanks to aggressive terraforming efforts), and other causes such as the removal of pollutants, reintroduction of species, etc. Even still, the dense cities like the one Ilso lived in was perhaps not the most



Ilso Model Sheet. Here we have a behind-the-scenes model sheet of Ilso, the third character introduced in *The Yaetuan Sagas*. This contains a small expression sheet and bio.

hospitable. In the seceirian country Seiya, for people who weren't in the higher regions of the city, would often have to wear masks due to severe breathing issues. They unfortunately had to deal with other problems like theft, smuggling, and ritual murders which became a sporadic issue in the lower city regions. Ilso would have grown up in this environment, and as a juvenile, would have had to live in a group shelter (since her mother was sick). She would become at home by confiding in people her age, and eventually her company would grow

to be somewhat rebellious in nature.

She was, to say the least, not a fan of the current system, and would often buck at the current authority. As you can see in her bright-orange dyed bang, she was a young advocate of the Yaetuan People's Movement, whose roots began following the development of the World Alliance but even since then continued to advocate for the people. This ideological leaning would lead to her being in frequent contention with authorities, often getting in trouble as she at her age was quite prone to getting into situations she



The Ultimate Journey

3,220 years ago-After being selected as one of the many Phase 1 colonists, Ilso says her goodbyes and gives her home one last look; her family may be left behind, but she will carry on for their legacy.



Ilso. This is the one-page illustration of Ilso and her robot companion, Gida. Each introduced character will have a one-page spread visual.

perhaps should not have been in. She was certainly a free spirit.

Per judicial obligations, the shelter in which she was assigned had to turn their occupants in to be genetically tested, and Ilso would have been tested around the age of 10. Having a quick, painless sample of the mucus in her tendrils taken for DNA sampling, her genes were recorded and, despite the incredibly overwhelming odds, she was one of only 50 million on the planet to be sent away on a one-way trip to a nearby star system.

While this was an astronomical blessing in some regard, Ilso had mixed feelings about her new life which she would have to confront. On one hand she was happy to be able to move somewhere new, with a better future, but on the other, it was a trip she would take totally alone. Her friends and family were marked as viable, meaning that they would have to stay on the recovering homeworld. Additionally, because of the limits of light-speed communication like radio, communicating would be just about impossible—and this fact was perhaps the hardest for her. She'd have five years to mull over it as the world prepped the generation ships for their journeys and continued testing around the world, and to confirm a positive test result she would have a microchip planted in her tendril, and an indicator placed around her neck near her nostril. She would, by the advice of her best friend Jool, dedicate her life for her family, choosing to live and carry

on for the sake of those left behind on Yaetu. By the time she was 15, she would have said her goodbyes to her friends and family, tried to make right with those she wronged, and then would be sent off to space onboard one of the four Titanic Engines. She, along with her AI comfort buddy and voice of reason, Gida, would be sent to the Anter System, 10.2 light years away. She and the millions of other passengers would enter artificial suspended animation, and after this suspended state, she would awaken to begin a new journey. The ultimate journey.

I believe characters like Keni and Ilso in the *The Yaetuan Sagas* will truly shine from its “teeming universe” predecessor. The idea of speculative biology influencing both history and how characters live their lives is such an interesting idea that is not explored much in speculative biology today, and it is an idea that I feel can be brought to the forefront in a really compelling way. Again, thanks to everyone for all of the support given to *The Teeming Universe*, as well as this new project, and I urge you readers to think about the value characters may bring in your speculative projects!

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THE WORLD OF WALLACE II

BY CORAX LARA — INSTAGRAM: @corax.corvid
DEVIANART: CoraxLara

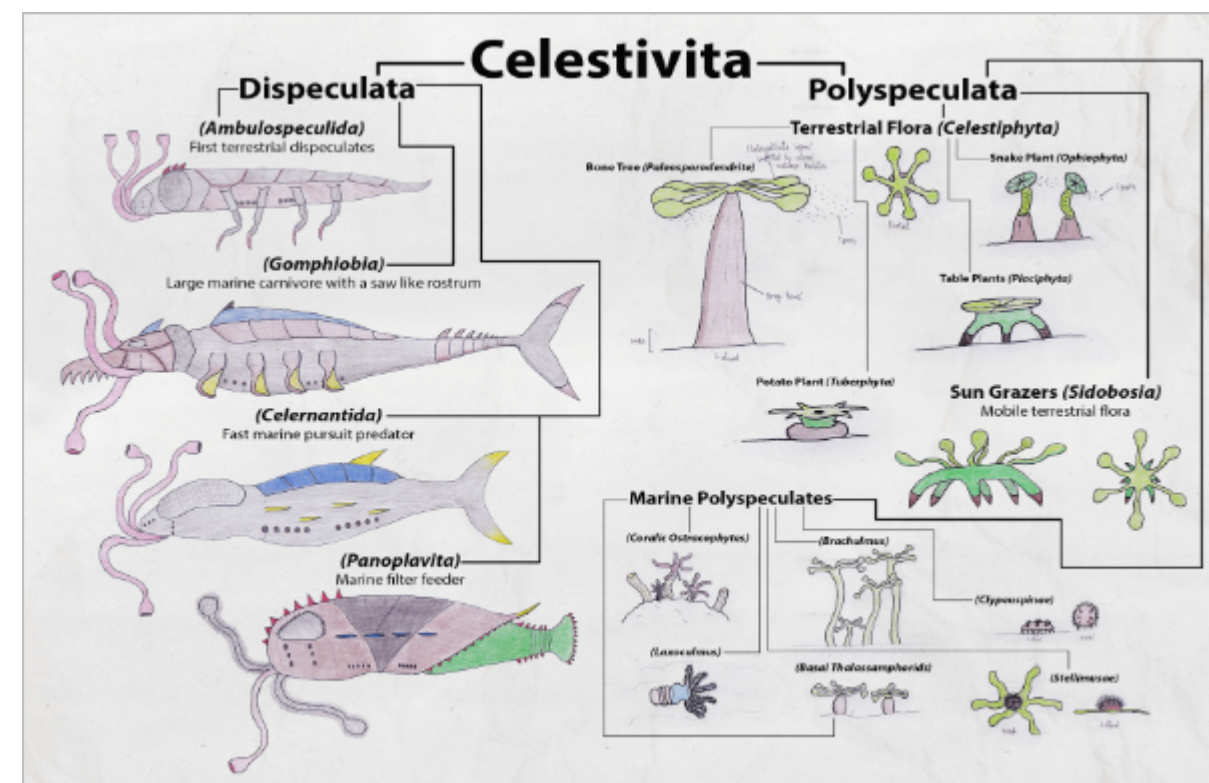
Hello! I'm Corax Lara, also known as "Corvid.Lara" or "Corax.Corvid", and I'm a mixed media artist and animation student who loves to draw and create illustrations. I like fantasy and sci-fi media, and I enjoy doing character and creature design. And one of my major interests is within the topic of speculative evolution. I've done a lot of artworks for personal and community spec projects. One of such projects is what I'm going to focus more on in this article, a xenobiology project known as *Wallace II*.

What is Wallace II? *Wallace II* is a speculative evolution community project started by Ben G. Thomas (BGT) in their YouTube channel. It is the second habitable planet in the Wallace system, home to a varied number of unique organisms. It is roughly an Earth sized planet with slightly lower gravity, orbiting a sun like yellow dwarf star. It possesses three small moons known as Doug, Oliver, and Matt. The planet takes around 430 earth days to complete its rotation around its star and a day in Wallace II is

around 20 hours long. Its atmosphere is similar to Earth's but has a higher concentration of Oxygen. Overall, it has similar conditions to our own planet.

BGT provided the community with multiple basal species so that people could derive their submissions out of them. Living organisms within *Wallace II* are called 'Celestivitans', meaning celestial life. They are divided into the animal like the Dispeculates and the generally plant-like Polyspeculates. Dispeculates and Polyspeculates are far more related to each other than plants and animals are back on Earth, and many intermediary forms exist between the floral and faunal forms. These two large groupings are later subdivided further into many lineages. In the modern state of the project, the taxonomy is quite detailed and complex, with many unrelated organisms taking on familiar forms, and some that look nothing like Terran life.

In the first video made by BGT, which established the world and organisms, viewers were provided with a glimpse of



Original lifeforms of Wallace II. A collage of all the original basal organisms. Original drawings made by BGT.

an ancient *Wallace II*. It started off as a supercontinent with all the basal life forms we were given. And the viewers were asked to create the descendants that lived 300 million years after this glimpse to the past. At the current era of the project, the single supercontinent has divided into five major continents, with multiple island chains and islets that have allowed Wallace II to become extremely biodiverse.

The original submission period was in December 2019, and it ended on the 1st of January 2020. More than 800 submissions were received, and multiple videos have

been made showcasing the canon *Wallace II* organisms. Despite no other official submission periods taking place afterwards, the *Wallace II* community is still fairly active through its own means, either through discord servers or through the Wallace II wiki. The project itself and its community has been around for more than 2 years, and I'm just one of the multiple artists who have participated within this extensive project.

The 'Extended Universe' of Wallace II. Due to the nature of the original submissions for *Wallace II*, many people who wanted or tried to participate after



Day at the Beach. One of the first dioramas I made for Wallace II, it featured in the second Wallace II video called “The Speculative Aliens of Wallace II - Part 1” by BGT.

January 1st, 2020, didn't have the opportunity to. Some artists missed the original submission period, so people decided to work on an 'extended universe' of sorts—a way to add extra content and depth within the project itself. It started on many different discord servers, within many micro-communities, and in the *Wallace II* wiki. But as the years have gone by, it has become more organized, and now most of the extended universe activity is done within the *Wallace II* Spec Evo Art server on discord. This server has been active since the beginning of the project all the way back in early 2020, and has developed several

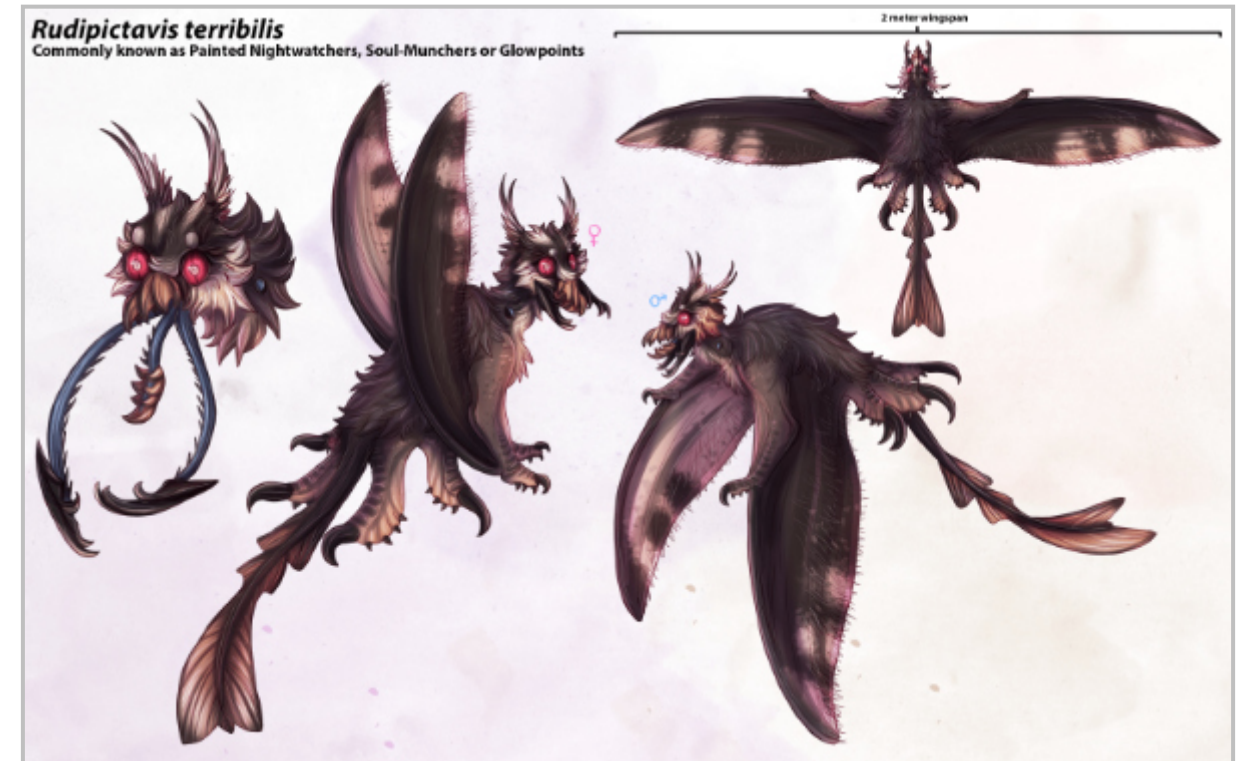
ways to keep *Wallace II* active through the years. The main way that new creatures get created is through frequent 'challenges'. Within these art server challenges, the community votes for a region and a biome, and then we as creators develop many varied organisms to fill out the region. The goals for these challenges are to expand upon the different biomes in *Wallace II* and to add more depth to the original 2019 submissions by adding related organisms and more detail within the environment by filling in niches that have been left vacant after the first submission period.



Teraseptan Woodlands. An artwork showcasing extended universe organisms, all located in the southern Terra Septentrionis woodlands.



The Whistling Tree Symbiosis. A recent ref sheet for the Art Server Challenges, showcasing the Whistling Tree, and its two symbiotes.



The Soulmuncher. One of the largest flying birbs, the Soulmuncher. A large flying nocturnal predator. One of my favorite Ornithosmilids species.

We have the overall philosophy to create believable creatures that could realistically function and fill out the niches we've laid out for them, whilst still trying to stick as close to the "canon" as possible. While the canon organisms in many cases were more fantastical in their approach, many of the extended canon organisms are well thought out and worked on by the community as a whole to help them feel more believable. Many extended universe organisms have their own wiki pages in the *Wallace II* wiki, and several have expanded greatly upon the project. With this approach and with

the passage of time, we've created a multitude of new extended universe organisms that all help with making *Wallace II* a much more believable biosphere.

My Own Contributions to the Project. I've been an active member in the *Wallace II* community since its conception back in 2019. I've also created many artworks exclusively for this particular spec ev project—from creature spreadsheets to biome dioramas, graphs, size charts, and even some animations. I've also created many different species outside and within the art challenges which have expanded

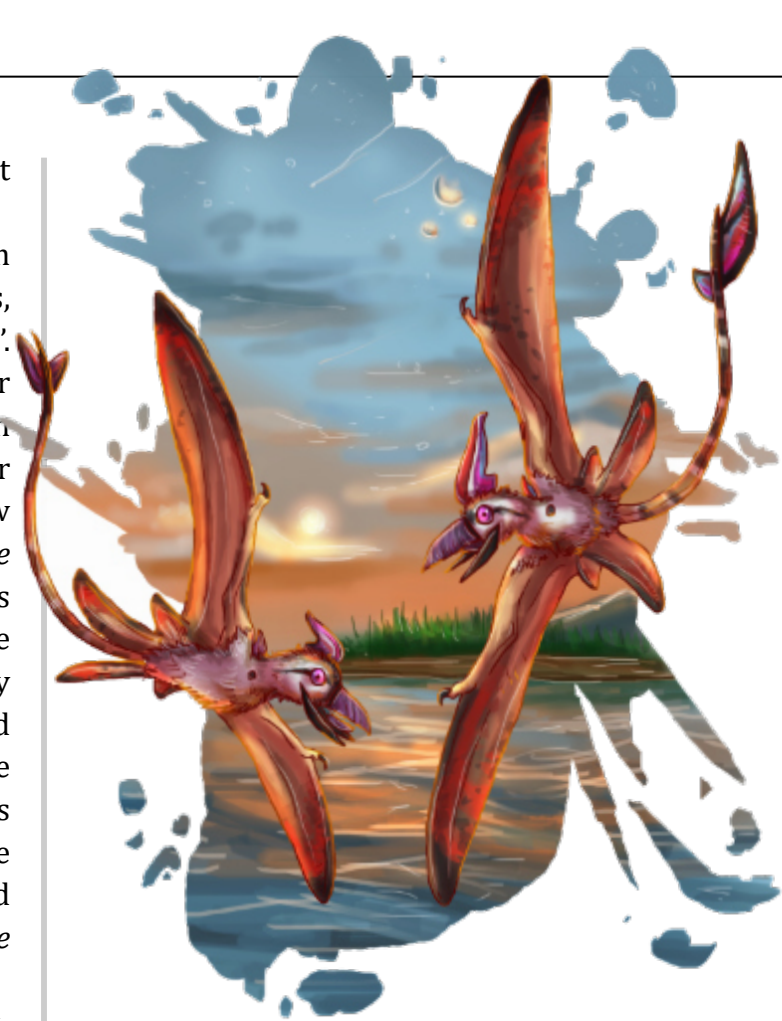


Authic Desert. A diorama showing the many diverse inhabitants made for life in the dry Authic Desert.

upon the original submissions to fill out the world of *Wallace II*.

My original submission was the avian flying dispeculates called Ornithosmilids, more commonly known as 'Birbs'. Originally, they were just five similar species. Since then, I've expanded a lot on their evolutionary history, what their extinct and extant relatives are, and how they relate to everything else on *Wallace II*. Many friends and community members have helped me greatly in expanding the amount of birbs that now exist. Now they come in many shapes and sizes, and there's more than fifty species of these avian lifeforms. There's so many birbs now, to the point that they have become one of the most commonly depicted organisms when it comes to art of *Wallace II* lifeforms.

Along with my birbs, I've also expanded upon several different lineages and created many of my own within the *Wallace II* art challenges. Amongst those there's the Chirrets (cold tasting pepper like plants), Boggins (bug/pig like cursorial herbivores), and many plant/animal "Planimal" Sidobosians, as well as all the relatives of my birbs which take different body plans and niches. All of these organisms can be found in the art server challenge archives as well as in their own wiki pages within the *Wallace II* wiki, as well as in my own social media platforms.



Saw-Birb Dance. A pair of Bi-colored Sawbirbs, the first Ornithosmilids to be discovered, doing their iconic mating dance.

Throughout my work in *Wallace II* and its community I've met a lot of great and talented people. I've also learned a lot—my artwork and skills have developed greatly throughout the years. *Wallace II* has been a great learning experience for me, and I'm really proud of what people can accomplish when everyone works together to achieve something much greater than what we could do just on our own.



PROGRESS ON PROJECT TEMERE

BY MICHAL "MIČKIN" JANOVSÝ — *INSTAGRAM:* @mickin.speculative.bio
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In *Astrovitae* issue 3, I introduced you to lifeforms inhabiting the Salaš plains biome found on an alien planet called Temere. Thanks to this article I received a lot of positive feedback and questions! Many people wanted to learn more about the world and I realized I have never properly introduced the project even though it has been 8 years in the making.

Temere is a worldbuilding project focused on exploring environments and lifeforms of an extraterrestrial world. The aim is to utilize known principles of the natural world and apply them to a fictitious scenario on an exoplanet. Like many speculative biology projects, a biosphere both alien and plausible is the desired outcome. I hope to spark people's innate curiosities by showing bizarre and even relatively common natural phenomena that can be captivating if presented through a new perspective.

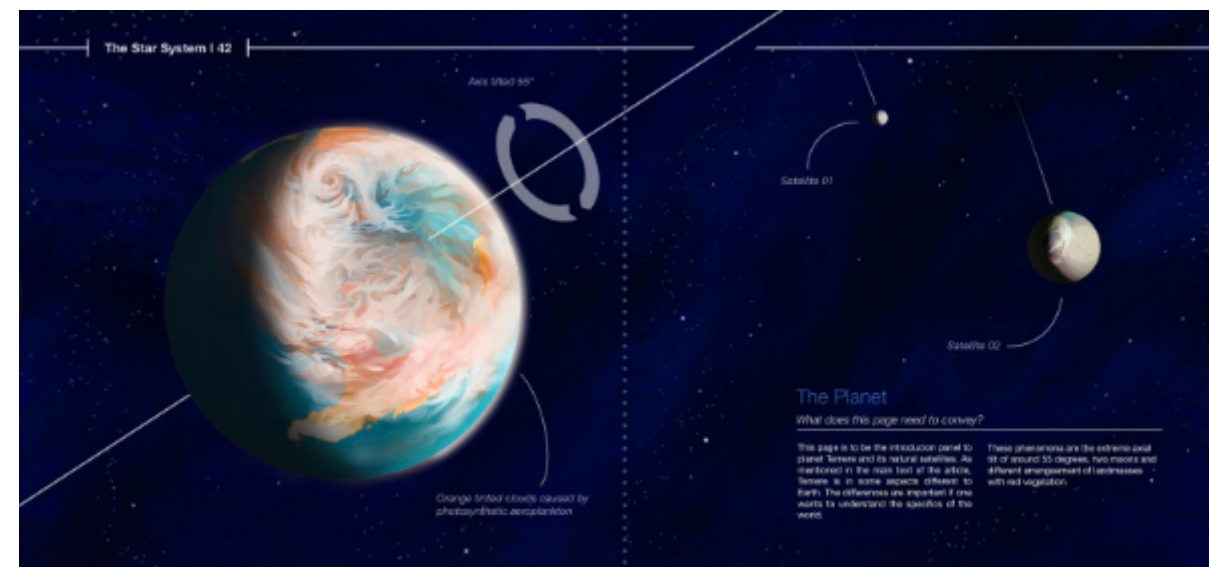
Compared to earth, Temere is slightly larger and has a denser atmosphere allowing for easier flight. Multiple moons orbit it (specific number yet to be

canonized) creating a cycle of tides. An axial tilt of around 55 degrees gives the planet its most striking attribute: Extreme seasons and switched biome placement. In comparison to the equatorial regions the poles receive more average insolation which causes hot conditions with seasonal downpours while the equator is cold and dry.

To illustrate this we might look at the course of a year for areas poleward of 60 degrees north and 60 degrees south.

Spring. The sun rises above the horizon for the first time since last summer. The days get gradually longer. Lifeforms procreate during the spawning season; plant analogues grow leaves and release massive clouds of their reproductive life stages into the air. Many air sifters migrate to feed on these.

Summer. The sun does not set below the horizon creating a season of uninterrupted daylight. The temperatures soar but are lowered by heavy rains and



Planet Temere. The first section of the book will focus on an overview of the planet, detailing its atmosphere, weather patterns, and geographical features.

storm clouds. The phototrophs are at their height. Some species burrow, aestivate or shed their fur.

Autumn. The nights appear again, the days get increasingly shorter and the temperatures lower. The rains stop. Organisms finish their reproductive cycles, prepare for winter hibernation or die leaving behind seeds and underground body parts.

Winter. The sun does not rise above the horizon for a quarter of a year. Atmospheric energy transport mitigates the temperature to around 10-20°C. Many organisms have adapted to darkness by shedding leaves or hibernating while some embrace it with seasonal fur, enhanced eyesight, echolocation or bioluminescence.

Origins of the project. In a way this project is a reflection of what I find interesting about the real world. Everything can become a source of inspiration! In fact, the idea for the project began in a poultry processing factory. My job was to sort chicken waste parts, and it struck me that avian rib cages, if abstracted enough, could make for a flying ctenophore-like animal.

Other designs have similar stories; inspired by an oil stain, a curious bug or seed pod, an asphalt paver, removable braces, etc. Gathering inspiration makes every day exciting. The mundane things become captivating again because I'm always searching for details I could utilize. The world of Temere is now populated by organisms from at least 20 distinct clades, each with a large portion

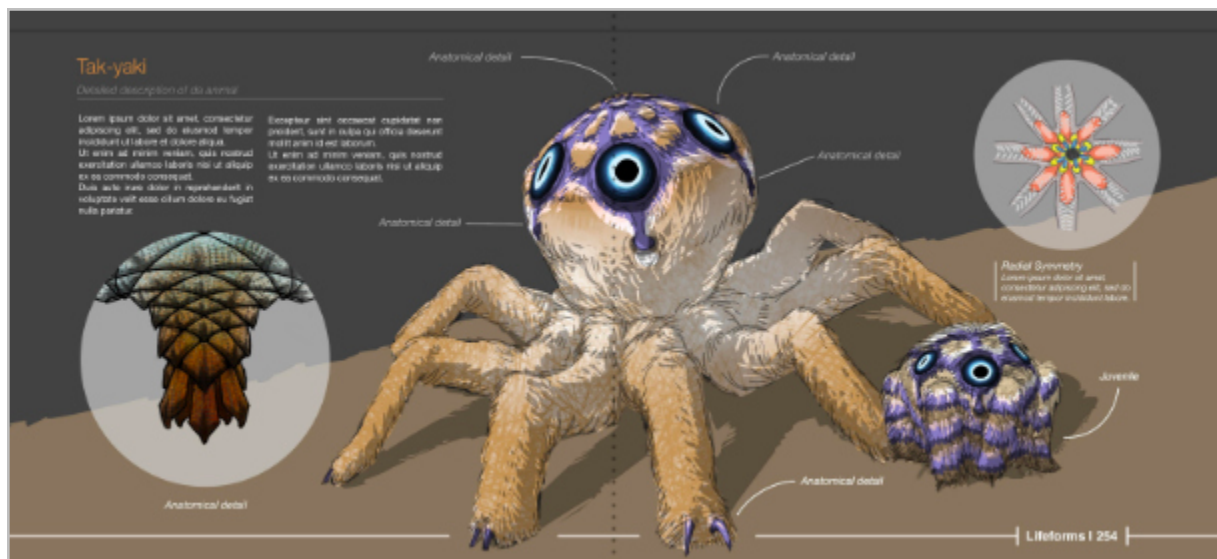


The Spawning Season

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Multifaceted approach. My vision is an approach that would depict the relationships between organisms and their environment as close as possible to their natural state. Please note that the text shown in these mock-ups is temporary placeholder text.



of species only currently documented in my sketchbooks. These species now number in the hundreds! With so many concepts I am forced to choose only the best for the sake of being able to finish the project. Completing a design of an organism includes considering the ecological role, lifestyle, evolutionary history, anatomy, color scheme, behavior etc. Coming up with a compelling idea for all these categories requires thorough research of real biology; a subject often far more bizarre and fascinating than any fictitious alien creature.

The future. As I continued working on Temere, I began to realize the project needed a goal or aim—so I set my sights on creating a book. My vision is a modern fictitious natural history book, like one which I would enjoy reading. I often encounter an itemized approach in the speculative biology genre. Artists treat

animals like products in a catalog. While I used to think similarly, now I understand what fascinates me the most about nature is the behavior and interactions of organisms between their environment and each other. Seeing life in this context is the reason why works like the *Dinotopia* books, *The Blue Planet* or *Walking With* series feel so immersive and alive. In the same spirit, hopefully, my book will be divided into several chapters that introduce the world and its inhabitants in a naturally flowing fashion. I imagine the book would be split into sections focusing on different areas. The chapter division looks like this for now:

The planetary system. Discussing Temere’s parent star, celestial bodies of its system and their influence on the world.

The Planet. Show the physical characteristics of the world, its moons, geography, plate

tectonics and effects of extreme obliquity on climate and seasons.

Biomes & Environments. Where you will be able to read about biogeography with a section detailing the most distinct environments. Some examples include the polar desert, circumpolar forest belt, islands, lakes of the rift valley, communities of aerial plankton or various marine biomes. I want each of these to include examples of phenomena such as island gigantism and dwarfism, convergent evolution, mutualism, parasitism, different feeding strategies, lifecycle adaptations, behavior, etc.

Natural History. Where one could learn about the evolution and a phylogenetic tree of all organisms in the book.



How can You support the project? As I began to grow as an artist, I have decided to create a [Patreon account](#) named “Mičkin Create” to fund the creation of the book. Writing and illustrating for a project is a time and energy demanding process with countless steps—but you can now follow my art process on the site. Here I post updates on the creative processes behind the book, like concepts, sketches, inspirations, glimpses of work-in-progress illustrations, and many more! If you like my project, please, consider supporting it. Your help is not only appreciated by me, but directly supports the world of Temere—filling it with life.





18 cm
(~7 in)



Scientific Name: *Squalgradeus gigas*
Diet: Omnivore
Superfamily: Microdraconidae

CACTIMUNCHER

BY J.F. — *INSTAGRAM:* @jf_arts_2021
DEVIANT ART: joaovitor45556

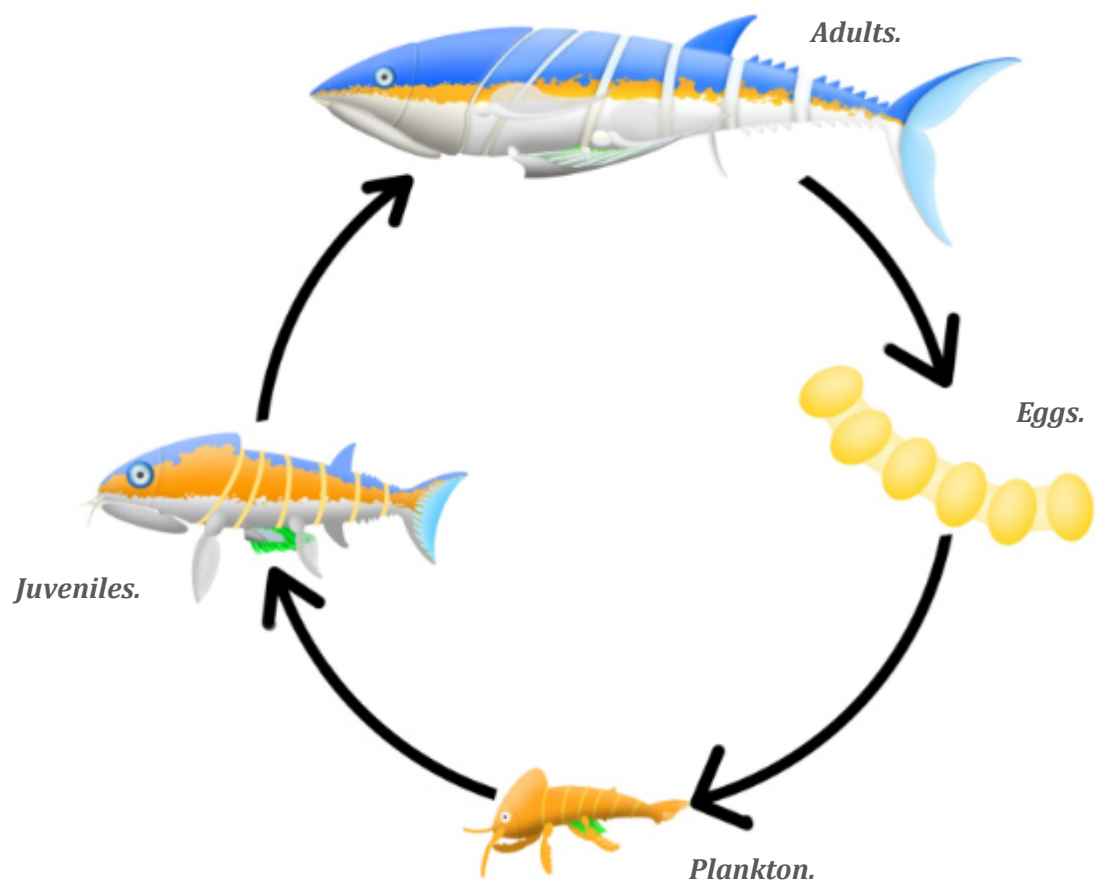
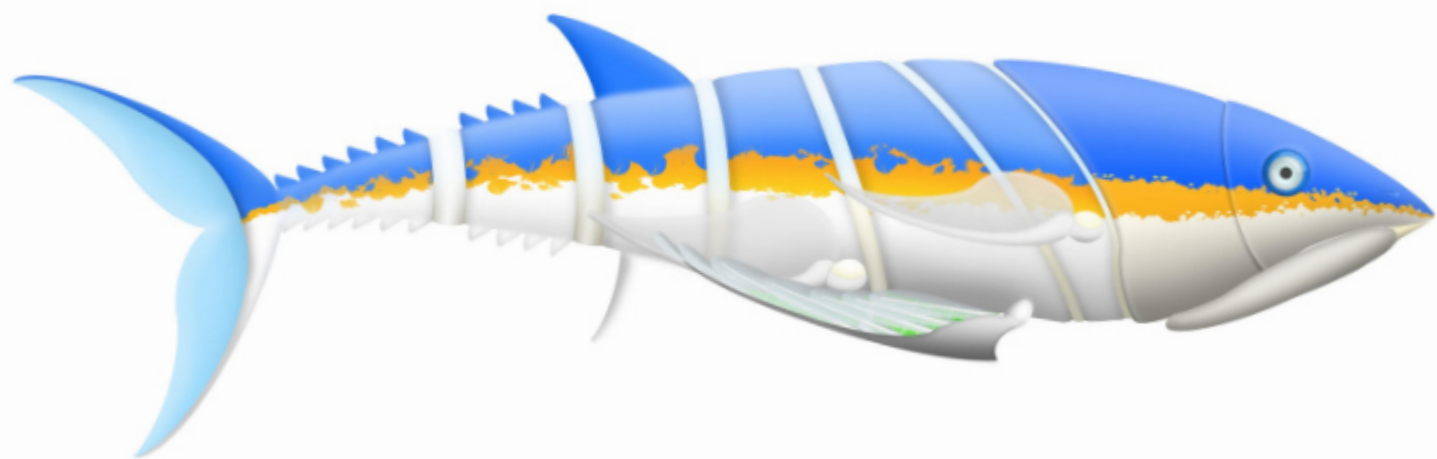
In the deserts and steppes of the continent (often referred to as the ‘Land of Beasts’) lives a small, elusive microdragon. The Cactimuncher is an odd-looking microdragon native to the region known as the ‘Great land’. They have long limbs (which are unusual for most Microdraconids) which help them to eat the food they were named after—cacti. Despite their preference for cacti, they are in fact omnivores eating anything they can get their jaws on. Although they are commonly seen munching on cacti and cacti fruits—using their long legs to navigate through the spikes of gigantic cacti they feast on.



TAEUMAEN FROSTSPEAR HUNTERS

BY JAMIE GUEST — *INSTAGRAM:* @jamiestart
DEVIANT ART: JAGuest

In the polar ice-capped wastes of planet Taelumae, the fearsome Frostspear Hunters are the planet’s terrestrial apex predators. At almost twice the size of a T-Rex, these fearsome giants have specialized padded feet to spread their weight evenly across the thick snow. Their large eyes can see far and in infrared. But most striking of all is the elongated, spiked tusk protruding from their jaws—which is coated with ice created from their saliva. This tusk becomes a mighty ice spear, able to impale prey—allowing the cold to penetrate deep. Shards of ice also break off inside the wound, causing numbing pain and fatigue.



THE LIFECYCLE OF A RAZOR STRIKER

BY FOLDER — YOUTUBE: The Folder

Like all armored swimmers, razor striker hatchlings are planktonic in size. They spend their time eating smaller zooplankton in the macro coral forest, allowing them to grow quickly into their juvenile stage. Juveniles will start hunting small prey like unarmored swimmers, armored diggers, digger worms, and occasionally coral climbers. At this stage they are vulnerable to predation from bugfish and bugsharks, so the juveniles will use the macro coral for cover. Their orange color is more prominent at this particular stage. When the juveniles grow in size they will start to develop a blue and white coloration which is useful while moving more open water environments. In adulthood, razor strikers will begin hunting schools of armored swimmers in the open ocean. When it's breeding season, they will migrate back to the macro coral forest where they typically spawn. The female and male will swim together and the female will lay a string of eggs from the last segment. The eggs will break into shorter strings scattered throughout the forest floor, with males following quickly after and spraying sperm onto the strings of eggs produced by the females. The eggs will incubate quickly and hatch into tiny planktonic juveniles ready to start the life cycle again.

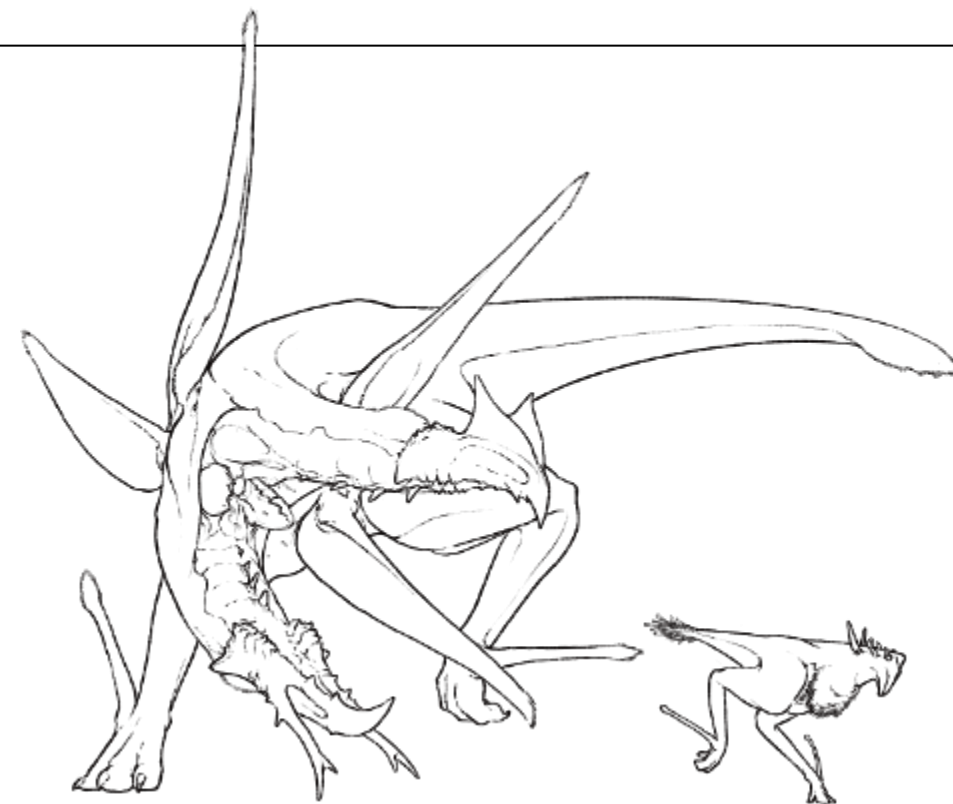
QUARIPAX

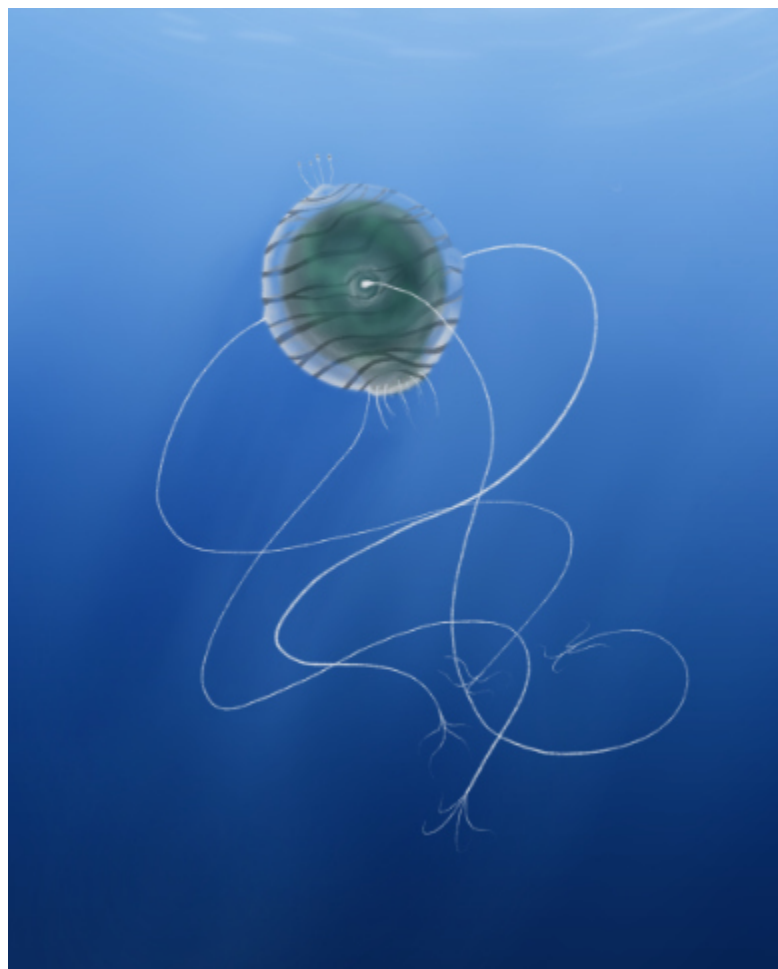
BY ALEXANDER J. CARBO — *INSTAGRAM: @ajc.create*
WEBSITE: www.ajccreate.art

Also known as the “Mes’Sorum,” or “Reaper,” this bizarre looking creature dominates the shimmering grasslands as the apex predator. The Quaripax’s massive jaws are the strongest of any terrestrial organism on the planet of Vita. Quaripax are able to crush and carry larger prey back to their territory where they feast using the secondary jaws inside their mouth.

The shimmering grasslands are constantly shifting in color, from the normal reddish tones of Vita’s flora to waves of purples, blues, and blacks with the wind. Many of the inhabitants here utilize this iridescent coloration as camouflage and the Quaripax are no different. It’s red fur accompanied by iridescent stripes help it blend in with the shifting fields during its hunts. Quaripax utilize their exceptional hearing to track their prey. They move and angle their ears in any direction to pinpoint specific sounds from miles away. Alongside their acute hearing and powerful jaws, Quaripax have another advantage that make them a top predator of the shimmering grasslands. Like many of the animals in the grasslands, their bifurcated limbs have adapted for life in the open fields. Specialized organs have developed to regulate the Quaripax’s balance at very high speeds during its pursuits.

Among the very few creatures that stand a chance against this beast, are other Quaripax. Typically solitary creatures, Quaripax are very territorial and will often battle each other when crossing paths. Their lower mandibles grow strong antlers which they use during combat, while the crest on the upper mandible is used for mating display. These incredible specimens are the monarchs of the plains, a Reaper’s territory is not something you want to trespass onto.

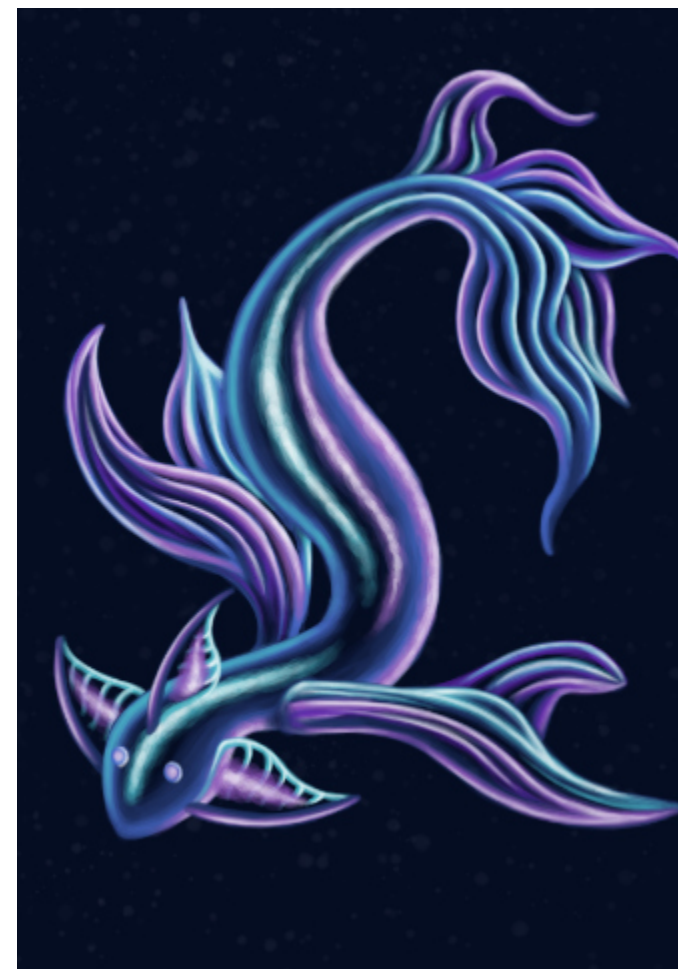




STRIPED GLASS SPHERE

BY JOSHUA MINOZA — INSTAGRAM: @the_planet_of_phthalo

In the shallow seas of Phthalo 14e we eye a curious animal called the striped glass sphere, also known as *Hualosphaerica Striatus*. This transparent creature is a simple one, reminiscent to some of Earth's Cnidarians and converging on stinging string-like tentacles. What is most striking, much like the rest of the Hualosphaericans, is the large, green, bulbous stomach cavity which has been recorded to grow to the size of a human head.



FRILL-FINNED JELLY

BY MARYANA SIMPSON — INSTAGRAM: @art_of_maryana_s
ARTSTATION: maryanasimpson1

The Frill- Finned Jelly is a small cnidarian-like creature that dwells in the frigid Southern Ocean of Planet Kahlanea. It lacks the venom-packed tentacles that are common among the planet's cnidarian-like species and sources nutrients by scavenging the seafloor, rather than ensnaring prey. While seemingly harmless, the creature is far from a viable food source for the predators of the Southern Ocean. With their diet consisting of decomposing plant and animal matter, much of what they ingest is riddled with marine bacteria, several of which can live symbiotically within the creatures' flamboyant fins, giving the creature a bioluminescent glow. While harmless to the jelly itself, these bacteria may cause disease when ingested by predators, ensuring that they are rarely hunted.

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SPECIAL THANKS

Special thanks to the two artists below for offering to help proofread again. You two are invaluable to the magazine, and your help is much appreciated!

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Reinhard Gutzat

KO-FI DONORS


Everyone listed below donated to help support Astrovitae. Thank you for your generosity!

Darin C.

Florenzo D.

Francesco T.

Vince R.



Nahlheide City Wall. Encasing a metropolis with 17.000 inhabitants, Nalheide is a safe haven inmidst the wilderness. The giant wall encasing it spots many scars, keeping anything out that should not get in. A mobile watchtower, set on rails, overlooks the scene. (Art Credit to Paul Drenckhahn aka SteveMobCannon)