



National Aeronautics and
Space Administration

THE LOST UNIVERSE



NASA's TABLETOP ROLEPLAYING GAME ADVENTURE

A lost space telescope, missing researchers, and a rogue planet.
Are you up for the challenge?





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INTRODUCTION



RUNNING THE GAME

This game has two parts that can both be completed in a single session that lasts approximately 3-4 hours. Don't forget to review the adventure background and NPCs (non-player characters) prior to the session – this information is crucial to smoothly running the game.

The first part of the game is an introduction to the world, and the city the players find themselves in. During this portion of the game the players find themselves thrown into the bodies of the characters they created; they know what they would normally know on Earth but have no knowledge of the place they're in. They won't recognize each other and will have to tell the other players what they see when they look at them. However, they will intuitively know they have magical ability if they are a spellcaster and can learn how to channel that in early encounters in the game. The NPCs they meet in this section will influence their perspectives of this world.

Information about the planet from the 'Adventure Background' and

'Overview' sections can be provided at GM discretion through these encounters, though guides are included at each for what characters may be most likely to share. Although the players will have many paths to explore, they will end up outside the city regardless.

The second part of the adventure is a journey outside the city to nearby ruins, where they will complete a skill challenge and encounter the dragon that was behind the disappearances. They must complete these challenges before they can recover the researchers and get home.

Throughout this game you will find notes for the GM about the DC of various things, these are guidelines to use at GM discretion and adapt to best fit your gameplay.

This adventure is designed for a party of 4-7 level 7-10 characters.



ADVENTURE BACKGROUND

In an age 400 years past, a planet called Exlaris orbited comfortably in its star's habitable zone. Within this delicate zone the planet grew to support life that became intelligent, developed a robust society, and learned to harness their innate magical capabilities. A peaceful world took shape that prized knowledge above all else. They focused on agriculture and bettering their societies through medical research and honing their magical abilities. The "magic" of this world came about when a small group of inhabitants discovered that they had the ability to harness the energy of the vacuum, the energy filling the universe around them [**more information found in Appendix A**]. Neither the ability nor the energy they harness itself has been well understood, but research into it is ongoing. In the meantime, more of the inhabitants of Exlaris have learned to harness this energy, some through study and others through innate gifts. However, that energy tends to fluctuate and isn't always reliable, hence the eagerness of researchers to more fully understand it so they can fix the problems.

However, the peaceful nature of the society changed when a black hole moved close to their planet – not close enough to consume, but close enough to alter the planet's orbit and slingshot it into a trajectory all its own, along with its moon, Noru. Shock roiled through the world's inhabitants, causing an eruption of chaos. Each of the other planets within this solar system suffered the same fate, though Exlaris was the only one that supported life. This event, known as "The Breaking," transformed Exlaris into a rogue planet.

Some Elves and Dark Elves inhabiting this planet can still remember this time, and the utter chaos that followed. As the light of their

sun faded into darkness the inhabitants of the world, Exlari, hoarded what little they could in order to get by. The peaceful planet of Exlaris quickly turned into a struggle for survival.

Amidst the chaos, an archmage assembled a team of scholars, wizards, sorcerers, and leaders to put the might of their intellect behind this problem. They developed a shield surrounding the planet, which would protect them from comets, asteroids, and other hazards of space travel while maintaining the planet's original temperature, mimicking Exlaris' original atmospheric makeup. This shield was created when the archmages wove their magic together, harnessing as much of the energy of the vacuum as they could possibly muster from the universe around them and intertwining it with the technology they possessed. Because Exlaris was now a rogue planet, they were able to harness even more energy than they had imagined possible. Once the shield took effect and the planet began to stabilize the mages developed a fear of it being undone. They sealed away knowledge of how they had harnessed so much of the energy of the vacuum, using it only among themselves for the maintenance of the shield. Since they had never before had the ability to harness the energy so powerfully they were secure in the knowledge that it was secret. Within cities, they created lamps using the same energy and technology they had for the shield, though far less powerful than the shield these lamps could mimic the day and night cycles they had while orbiting their sun, and farmers were given extra-powerful lamps that could keep crops healthy in order to keep the populace fed. Although much of the planet remained in perpetual night, society began to rebuild itself, and peace returned to the planet. During this time, creatures had emerged from the



underdark, once driven into shadow by an aversion to the light they now walked freely.

In the wake of The Breaking, a new chapter began. The studious ones who saved the Exlari were elevated to leadership roles and rebuilt society on the principle of keeping information open and accessible, a tradition that continues today. Although some people prefer to wander in bands separate from society, most settled back into peace and routine. Exlaris was forever changed, and they had a new focus for their academic interests: the cosmos around them.

In the centuries since The Breaking, this world's study of the cosmos took shape and honed a focus on studying other worlds like itself, rogue planets, and a special interest in black holes and the energy of the vacuum. In recent years, a mage in Aldastron, Eirik Hazn, developed a spell that allows him to connect with Earth in a way that allows for more than just observations about the planet, its civilization, and how it moves through its solar system. Eirik linked to the Hubble Space Telescope after learning of its observations that have propelled understanding of black

holes and dark energy (similar to the energy of the vacuum) on Earth, and copied data that he and select other researchers used to help decode some of the mysteries of their own planet and further drive new areas of research. Unknown to them, this drew the attention of a young dragon, Isilias, who stole the spell Eirik created, as well as Eirik himself and his fellow researchers, in order to steal Hubble itself so Isilias alone would possess its knowledge.

There are five major cities on Exlaris: Aldastron, Sarthelios, Beska-Pereia, Palereidon, and Arketnum. Each of these cities has a particular academic focus and trade flows openly between them, most commonly by teleportation spells but sometimes by braving the dark in between. While each city is home to most of the knowledge and study of a given topic, it is extremely common for researchers to rotate between the cities, learning many different disciplines. Although there are five main cities in this world, there are innumerable smaller towns and cities scattered throughout, some of them with their own unique academic interests as well, while others focus on agriculture, farming, or other facets of society.

CITIES & BASIC INFO:

Aldastron - Astrophysics

Sarthelios - Solar Science

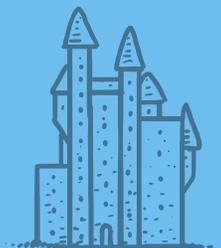
Beska-Pereia - Biological Systems

Paleridon - Planetary Science

Arketnum - Aeronautics

- This is where our adventure is set. The largest of the cities, it serves as the capital and largest hub of academic research as well as trade.
- Split into Inner and Outer. Inner Aldastron lies atop a large-flat-topped plateau, where the observatory, university, and various trades operate. Outer Aldastron sprawls outward several miles from the base of the plateau, with the oldest buildings at the base of

the plateau. Populated by farmers, Outer Aldastron is much newer than the plateau. Farmland surrounds it which is permanently illuminated by daylight, even when the rest of the world is in the deep of night, and is thus the most fruitful and heavily worked farmland on the planet.



It is in the dark, however, that you find traces of what life was like before The Breaking. Some of the major cities of that time did not survive the chaos, and travelers can still find their ransacked ruins. Those who dare to journey within these ruins seldom return, as they are home to various manners of dangerous creatures just waiting, lurking in the dark. This is why most use teleportation to travel.

Teleportation on this world is easy between major cities, but less so the more remote the area is, and is done through a series of magically connected portals. Not all portals are open at all times; in many ways teleportation on Exlaris is similar to a transport hub in a major city on Earth.

OVERVIEW

Exlaris is home to an interesting mixture of life. All creatures have default darkvision because of the environment. Looking around, the players will find a blend of creatures mingling together, from Dark Elves and Elves to Orcs and Goblins, Halflings, and Tieflings, as well as various mixes of the aforementioned races. The players can quickly surmise that this is a very inclusive society.

The civilization on this planet recognizes academics as their primary leaders. Those who devote themselves to study (such as wizards) are shown a special respect and it is considered their responsibility to help better society with support from law. Within every major city is a major research center specializing in that city's area of focus, as well as a university with a more broad curriculum. Even though societal wellbeing is prized, there is still an underground criminal community. The players will have the opportunity to interact with all of these aspects of society as they play through the game, depending on the paths they choose to take.

The game will open with players entering the city of Aldastron seemingly through a portal. Since Aldastron is a transportation hub, the players will have become 'entangled' with individuals on Exlaris who had been traveling from another

city when a spell was cast. As the players explore the town they will have the opportunity to interact with various NPCs and be introduced to the first plot hook: a string of disappearances. The town is made up of districts, the learning district being in the center and the others spread outward in rings. A handful of businesses are of note, chiefly being the Horsehead Tavern. A tavern situated just outside of the town square in the trade district, the Horsehead Tavern can serve as a jumping-off point for the game and is home to a potential ally: Faelwyn. Here the players have the opportunity to test out their new abilities and learn what's going on in the city, as well as get an assignment from Faelwyn. The Horsehead Tavern acts as a bridge between an underground criminal network and the more approachable parts of society. The players will have the opportunity here to befriend Damien, whether or not they choose to accept work from Faelwyn. Damien can help serve as a guide for the players, pointing them where they may need to go since he is aware of many of the happenings around town. Damien acts as the bartender at the Horsehead Tavern, and is the right hand of Faelwyn.





Also in the trade district the players will find the headquarters of the guard. The guard is made up of a variety of interesting individuals, all cloaked in navy to allow them to slip around the city unnoticed if they choose. The guards are led by Roxanna Treban, a neutral good Half-Orc who wants to see the city thrive. Their primary mission is protecting and supporting the citizens, a mission they take extremely seriously. If the players choose to affiliate with the guard, they will find them trustworthy compatriots and a good source of work. Though guard patrols can be timed throughout the city, there is always a chance of a hidden guard lurking nearby in the shadows, keeping an additional set of eyes on things.

In recent weeks the presence of the guard has increased as some of the leading researchers at the observatory have been going missing. The entire city is on high alert as both Captain Treban and Faelwyn devote their respective energies into finding out what's going on. Both had been aware that what these individuals were researching could have great importance. So far, their efforts have yielded little fruit aside from a direction: something is lurking in the ruins outside of the city, something neither of them have been able to get close to as of yet.

Tensions in the city have been running high as the disappearances stretched on with no answers. Students have begun leaving the university and heading for other cities, and the general townsfolk wonder if the guards have become lax or if there's a greater conspiracy afoot. The longer this goes on the higher tensions have been getting, there's an air of fear and distrust around Aldastron. On a peaceful world, any disappearance within a city is rare, much less multiple ones. Some fights have begun breaking out in the streets, squares, and taverns as people hurl accusations for the disappearances.

The recent disappearances consist of four high-profile academics that research at the observatory: Eirik Hazn, Zyania Hesk, Telten Theredeyn, and Kav Grenner. These individuals have recently been studying The Breaking, looking for other rogue planets and black holes, as well as information about the energy of the vacuum that, though they have been using for centuries, they know very little about, trying to answer the questions of their situation and wondering how unique it is.

As they have been conducting their study they were connecting with Earth, specifically the Hubble Space Telescope, to serve as a basis for what Exlaris could have been, or was once like, and acting as a comparison for the differences between planes. However, as they were going through this research Hubble itself disappeared, and to the people of Earth it seemed as if the telescope had never existed at all.

Fearing their magic as the cause but not knowing where Hubble ended up, the researchers who later went missing cast a spell similar to the one that they had used to copy Hubble data, but this time designed to bring the consciousness of individuals who had worked with the Hubble Space Telescope on Earth to get their help finding and returning the telescope.

Not knowing when these individuals would show up, the researchers sent word to their allies throughout Aldastron, telling them to watch for individuals who may be out of place, individuals they suspected would come through the portal. They made sure it was known that those individuals should be brought to the observatory when they arrived.



Each of these researchers went missing before the individuals they sent for arrived. They were all taken by the dragon Isilias, who had stolen Eirik's spell and instead of copying data, used it to transport Hubble itself then captured the

researchers in order to make it function on Exlaris and keep the information for itself, believing that would make it the most powerful creature on the planet.

NON-PLAYER CHARACTERS (NPCs)

Roxanna Treban

- ~40 year old female Half-Orc. A tall and imposing figure with hair always tied up and numerous visible scars over muscle. Neutral Good.
- Captain Treban has worked for the city guard since she came of age, developing a reputation for getting to the bottom of problems plaguing the city and keeping the good of the citizens at heart. If the players choose to accept the work of solving the disappearances from her she will be a steady and trustworthy ally. However, if the players demonstrate that they are not working for the good of society she will become hostile. If the players associate with Faelwyn, she will keep an eye on them, and if they are forthcoming on their alliance with Faelwyn to her she will warn them to pursue better allies. Though they have a tense truce, neither Faelwyn or Roxanna trust each other, even though they recognize each other's roles in maintaining order. In rare circumstances, they have and will work together.

Morgan Sharey

- ~50 year old non-binary Human. Long brown hair with streaks of silver. Lawful Good.
- Morgan Sharey has been the head researcher at the observatory for about a decade, devoted to providing the best environment for researchers to pursue their interests. They have built the observatory into a creative

powerhouse where research frequently tests conventional ideas. They are driven by the urge to understand, and new information will be met with instant curiosity and scribbling notes in a nearby notebook. Though they rarely leave their office, they pride themselves on an open-door policy and will welcome the characters when they come in search of information, always offering tea and sometimes cookies.

Damien

- <200 year old Dark Elven male. Dark skin and shoulder-length white hair. True Neutral.
- The bartender and right hand of Faelwyn is one of the first NPCs the players are likely to encounter. He is always ready to pour a drink, serve a meal, and listen to what the characters have to say with a smile. The face of the Horsehead Tavern can be rather insightful and is the gateway for the characters to meet his boss, Faelwyn, to whom he is extremely loyal. He's spent the past few decades working at the Horsehead Tavern and working his way up to acting as Faelwyn's right hand. Though friendly, he keeps a pair of daggers on him in case there's trouble. He was once a hopeful young student at the university but after a few tough breaks left that path and eventually found a place working with Faelwyn. He's far more trustworthy than his employer and can easily be befriended.

Faelwyn

- 400+ year old Elven female with long blonde hair. Chaotic Neutral, but can cross into chaotic evil depending on player actions.
- Owner of the Horsehead Tavern, Faelwyn has spent the past century or more in the city of Aldastron, becoming involved in every aspect of what goes on in town. There are few things she isn't aware of, and can be a very valuable, if fickle, ally for the party. Once a lauded researcher herself in the wake of The Breaking, she has first-hand knowledge of some of the more powerful magical workings of the world, but she had no desire to be under a spotlight and held to a high standard of leadership. She is highly analytical and if the party is forthcoming at their first meeting she will be a good source for offering work. She and Roxanna Treban don't trust each other and if the players affiliate with her she will encourage them not to mention their affiliation to Captain Treban. Faelwyn is a shadowy figure, and insight checks on her are at a high DC, revealing only that she works for her own devices. However, if there is need, she will lend the support of her network to the players.

Isilias

- Young green dragon, approximately 70 years old. Chaotic Evil.
- Isilias spent their first four decades traveling around the planet, keeping to the dark and managing to outwit adventurers who came after them. About 30 years ago they settled in the ruins of Mokhsana and began to amass a hoard of knowledge, claiming the ruined city's extensive library. This wasn't enough to satisfy their greed for long so they began making trips to the cities in Elven form, though their magic wasn't powerful enough to completely disguise the green hue of their skin. This desire for knowledge beyond their own eventually drove Isilias to steal the Hubble Space Telescope and kidnap the researchers the players will be trying to recover.

Eirik Hazn

- Approximately 40 year old male purple Tiefling. Lawful Good.
- Eirik has always loved to study, he has seldom been seen without a book in his hand his entire life. Because of this, research was a natural career move and he loves his work at the observatory. He developed a spell that could allow him to connect with another plane and transfer data, allowing the use of knowledge from Earth, specifically the Hubble Space Telescope, to fuel his and others' research to help figure out not only the mysteries of their world but of the universe around them, and extending to other planes. The extensive use of the energy of the vacuum on Exlaris has always made Eirik nervous since they know so little about it; his primary goal for connecting with the Hubble Space Telescope was to learn more about this mysterious substance and work toward making it a safe, sustainable, and reliable source of indefinite energy for their world.

Zyania Hesk

- Mid-20s Human female. Lawful Neutral.
- The youngest of the missing researchers, Zyania acts as Eirik's right hand. She's fascinated by Earth and will most likely ask the players a great deal of questions while taking notes. Her research focuses on ways she could try to restore Exlaris to what it had been like before The Breaking, using Earth as a template. Her goal is to eventually become a head researcher herself, and she's on an excellent trajectory to do so. She's very sharp and insightful, but remains measured. While Eirik is prone to go down rabbit holes in specific areas of research Zyania is more of a big-picture thinker and can more easily see how the different pieces fit together.

Telten Theredeyn

- 60 year old Halfling female. Chaotic Good.
- Telten has been a researcher most of her life but her tendency to chase random ideas has kept her from advancing in her career. Not that she minds – she'd rather have fun with what she's studying and she's happy with her work. When Eirik approached her to add her unique lens of looking at things to his research group she was glad to be involved in something so new and interesting. She can easily be distracted, but is also a keen observer and players would have a hard time getting anything by her.

Kav Grenner

- 35 year old Orc male. Neutral Good.
- Kav is a gentle soul, and prefers the company of books rather than most people. He enjoys being the resident lecturer at the observatory and has no desire to do anything else. Even his involvement in research is sporadic. He usually has to be nudged into it by the head researcher but his fellows appreciate his insights. His true love is fostering young minds, and he's willing to sometimes bend the rules if it helps students. Always soft-spoken and ready to provide players with some soothing tea and conversation, he never fails to be a calming presence.

The Stage is Set

The game will not open on the characters, but on the players themselves on planet Earth – at least, one version of Earth – one without the Hubble Space Telescope. As you introduce your players to the story, keep in mind that in a different timeline with Hubble, they were all involved in the mission. This will be revealed to them at the conclusion. Because of this difference, they feel that there is something missing in their world. Use the below text to introduce your players to the story:

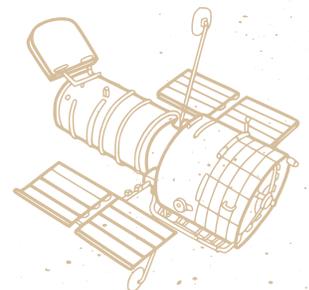
“Back in 1990, NASA launched a revolutionary new observatory called the Hubble Space Telescope into low-Earth orbit. About the size of a school bus, Hubble was destined to change humanity's view of the cosmos with its high-resolution view of the universe.

By placing the telescope above Earth's murky atmosphere, it would be able to observe space without any interference from clouds, light pollution, or atmospheric distortions.

Hubble's vision sees beyond what the human eye can, extending into ultraviolet and near-infrared ranges. The placement and design of this telescope would revolutionize our understanding of the cosmos, launching an era of unparalleled astronomical discovery.

Plus, Hubble's design included the ability to be serviced in space by astronauts, which allowed the telescope to be repaired and upgraded multiple times.

But in this world, it's as if Hubble never even existed. And in a world without Hubble, nobody knows the age of our universe, or that black holes lurk in the centers of galaxies, or just how much beauty the cosmos contains. Without Hubble, there is also no James Webb Space Telescope. Without the critical experience of servicing missions completed by astronauts



in space, the International Space Station also never happened. Technology that detects cancer, tracks endangered species, decodes ancient manuscripts, and more, is also lacking.

You and your friends work at NASA's Goddard Space Flight Center in Greenbelt, Maryland. Your jobs are exciting and fulfilling, and you discover more about your planet and universe every day... but you can never shake the feeling that something big is missing. A subtle ache lives in your mind, insisting that you're forgetting something, but it's always just out of reach. The more you try to remember, the worse the pain gets.

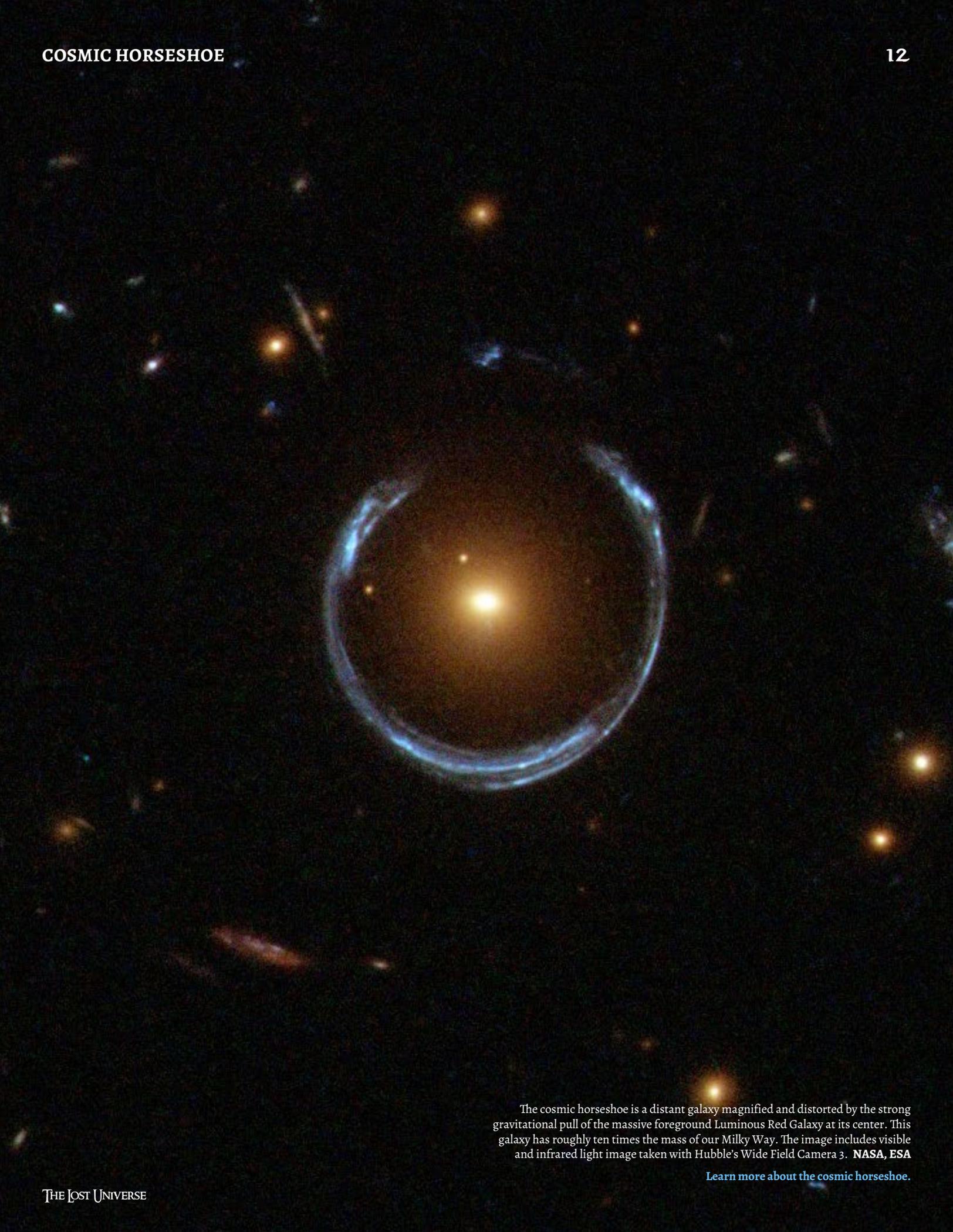
Each of you experience this feeling, but lately, it's impossible to ignore. You suggest a group walk around Goddard's campus to clear your heads, but as you wander around the buildings, your head begins to hurt and the exhaustion becomes overwhelming. It's almost like you're dozing off, but you quickly realize that's not the case. Suddenly, the hair on the back of your neck stands on end and you're pulled into darkness."

The adventure will begin in **part 1, page 13**.



A view of Hubble after its release from the shuttle Atlantis. **NASA**

[Learn more about the Hubble Space Telescope.](#)



The cosmic horseshoe is a distant galaxy magnified and distorted by the strong gravitational pull of the massive foreground Luminous Red Galaxy at its center. This galaxy has roughly ten times the mass of our Milky Way. The image includes visible and infrared light image taken with Hubble's Wide Field Camera 3. **NASA, ESA**

[Learn more about the cosmic horseshoe.](#)

PART 1: THE ADVENTURE BEGINS

The players awaken in the center of the largest city on Exlaris, Aldastron. They retain all memories of their lives on Earth, but are completely unfamiliar with the planet around them. They were transferred into the bodies of the characters they created, each with an intuitive knowledge of how to use either their magic or weapons (this can manifest through the fight at the beginning or other gameplay) but no knowledge of who they are on this world and will not recognize each other. This adventure opens in the equivalent of a bus stop. Use the following text to set the scene for your party:

The darkness fades around you and you find yourselves standing in front of what seems to be a portal, one of several in the bustling space around you. Something about this is familiar, like a bus stop on Earth. Each of the different portals around you has a walkway leading right up to it and a sign hanging above, reading:

- Φ Sarthelios
- Φ Beska-Pereya
- Φ Paleridon
- Φ Arketnum

You can surmise that each of these portals is leading to a different city, and as you take everything in you see a sign high above in large lettering that reads 'Welcome to Aldastron!' The more you take in these strange, yet somewhat familiar surroundings, you hear different languages as people walk and talk, different species you've never seen before, but more immediately you realize you're standing in a group of people that all seem to be taken with the same confusion you're experiencing.

As your fellow players look at you, what do they see?

As the players take in their surroundings people will continue to step around them and they can overhear bits of conversation, including the following exchange:

"We made it just in time for supper. Let's go to the Horsehead Tavern."

"Great idea, I could use a pint and Damien always has some kind of interesting story to tell."

The two individuals walk by, unbothered by your presence as they head toward what you can assume to be the exit.

Looking down the street you see something like a cross between streetlights and lanterns hanging from poles down a bustling street. Further down a broad sign hangs out from a building showing a dark head of a horse on a field of bright red, along with a frothy mug. There appears to be a semi-circle of people surrounding the door, and some loud shouting both from the door and the people looking inside.

If they choose to wander around and look for signs of where they are, ignoring the disturbance around the tavern, or try to tell people their situation, use the first (next page) of the following two sections. If they choose to follow the people into the **Horsehead Tavern**, use the second section. Both of these paths converge in the **third section of part 1**.





If players look around the city:

If the players choose to wander around to get a look at the city they can come across the disturbance in the tavern, or be questioned by guards who approach due to them acting suspicious. Another option is for players to roll a perception check.

The players can roll a perception check, but as long as someone beats an easy DC they can locate a bulletin board that tells about happenings in the city. Use the following text:

You find a bulletin board within this bus stop, there are some fliers posted to it. Some fliers look like they've been there for quite some time, but there are some newer ones as well. One flier appears to be a child looking for a lost pet, another flier mentions an upcoming festival that seems to be an annual celebration of lights put on by the local observatory, and the flier in the middle of the board, pasted on top of some others, is about a reward offered for information about a series of presumed kidnappings.

The flier about the disappearances points the players toward the city guard, saying to get additional information from the captain of the guard, Roxanna Treban. From this point, the players can easily locate a pair of guards on patrol and request to be taken to the Captain to investigate.

If players explore the city they can see a number of buildings, with lamps scattered around the streets to keep everything lit. As they wander they can pass various shops beginning to close for the evening and smell delicious food coming from restaurants. People will be walking up and down the streets talking amongst themselves. The players will hear glimpses of conversation about missing researchers. The players will be approached by a pair of guards asking if they're lost as they

seem to be out of place. Reading into their confusion the guards will take them to see Captain Treban.

The pair of guards will take the players to the garrison where they will wait outside until the Captain is ready to see them. On the journey, the players will have the opportunity to speak to each other and the accompanying guard. This is a good time for roleplay among the players if the guards are walking ahead, if they choose to stay alongside the guards and converse with them they have the opportunity to learn the following about happenings in and around the city, depending on how they steer the conversation:

- ⊕ Captain Treban has been sending patrols outside the city, they don't know why but they do know most of the patrols haven't returned. They theorize the bandits who keep to the dark may be getting bold and the Captain wants to avoid panic.
- ⊕ There appears to be activity from the ruins outside the city, remnants of the civilization that existed before The Breaking. The guards argue between themselves whether ghosts have come back to haunt the planet as they approach the anniversary of The Breaking, or if some monster that emerged from the dark has gotten brave enough to approach the city. They're both confident that if the latter is true the guard will make swift work of it.
- ⊕ They've heard a rumor from a tavern called the Horsehead Tavern, the owner there, Faelwyn, has been asking questions around the observatory. They don't say much, but players can quickly tell that they don't trust her or her bartender Damien.
- ⊕ If the players ask about the observatory the guards are quick to praise the research

excellence, and players can tell that the researchers across the planet are more or less in competition, each wanting to produce the highest quality of research and distribute it to the populace.

- ❖ If players ask about disappearances the guards become grim, lamenting that some of the finest researchers are gone without a trace. They each have their own theories, one believing that the criminal network is behind the assumed kidnappings, and the other believing that it has something to do with ‘their reach beyond,’ referring to the rumor that they’ve been borrowing data from another world.

When they are taken in to see the Captain they see a tall, muscled Half-Orc woman with visible scars across her face and arms. She has clearly seen battle. She is grim and serious as she tells them either about the disappearances, including that she has traced the trail to the forest outside of the city, and believes there is something lurking in the ruins there but the guards she has sent to investigate haven’t returned, or inquires about their suspicious behavior around the town. Use the following text to introduce the Captain:

Captain Treban welcomes you into her office, a stern looking Half-Orc woman. She bids you all to sit down before again seating herself behind a large wooden desk, folding her hands together as she leans against it. Before speaking, she looks at each of you closely. “My guards tell me you’re a bit out of sorts. Perhaps I can help.” Taking each of you in, she continues, “I believe it is entirely likely you’re the individuals that were sent for, so I imagine coming here must be a bit of a shock. You’re from Earth, I presume?”

If the players confirm they are from Earth she will set up an immediate escort to the observatory, telling them that while she has

very few details she knows that they were brought here to help find a telescope that was taken from Earth, and she hopes their search for it will take them to the missing researchers as well.

If the players ask about the disappearances she will say:

“They’ve been happening for weeks now. After the first, we assumed Zyania Hesk had simply gone to research in another city without informing anyone, it wouldn’t have been the first time. But then the others began going as well. Now four are missing, they were working together on some project, I don’t know what. I would investigate further, but my guard is already stretched thin with the increased patrols.”

She doesn’t know how or why whatever it is might be getting into the city, but she worries for everyone’s safety and has been keeping a lid on the severity of this in order to prevent mass panic. She will ask the players if she can trust that they are up to the task.

Captain Treban will point the players to the observatory, providing them with the necessary papers to meet with the head researcher, Morgan Sharey. They will be given an escort to the observatory and will be taken directly to Sharey.

→ **Continue the adventure in the third section of part 1.**

If the players choose to visit the Horsehead Tavern and follow the rumors, continue into the next page.





Roleplaying Captain Treban:

Captain Treban is gruff, straightforward, a no-nonsense character. She will make no effort to deceive the players and expects the same in return. As she sizes them up when they first enter her office she is also gauging their trustworthiness, and can tell if they are holding back information. If they withhold the information,

she is wary of them and may not fully trust their motives, but she still desires to see the mystery solved so she will point them to the observatory anyway, just sending her guard with them along with orders to report anything suspicious. If the players ask about the Horsehead Tavern the Captain balks, not wanting to speak about Faelwyn, Damien, or any criminal organization. She will tell them not to listen to rumors

and that speed is paramount to rescuing the researchers if they are still to be saved.

The players can quickly surmise that her rough exterior covers a caring interior, and that personality makes her an excellent guard Captain. She desires at all times to see the city and the citizens under her care to be kept safe.

If players go to the tavern:

Use this excerpt to begin this section:

As you walk along what looks to be the main street, you come upon what appears to be a tavern, the sign hanging above the door reads 'Horsehead Tavern.' The exterior looks well-kept, though it has been there for a while. Within the tavern you hear the sounds of a commotion. People walking by the tavern give it a wide berth as they hear sounds of shouting inside. People who begin to approach often seem to think better of it, but a few still wander inside.

As players walk into the tavern they hear loud shouting, the last statements of an argument headed toward a brawl.

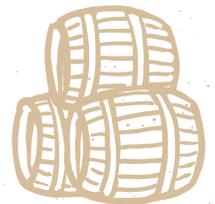
"What are you trying to say?!? No, it's ghosts from Old Mokhsana making our researchers disappear!"

"That's nonsense, what really happened was the criminal underbelly of this city is getting out of control – rampant

kidnappings is what it is! You've seen how ineffective the guard is!"

"No, NO, NO! The captain keeps sending the guard outside the city, THAT's where the trouble is, I'll bet my nose!"

At those words, the Gnomish individual jumps on a table to punch the human who criticized the guard, sparking a brawl that soon includes a total of four combatants. The bartender will yell for the combatants to knock it off, probably not the first time since the fight broke out. Any perception or insight check will pick up that there is a lot of tension in the room, tensions they also saw on the street, and a fight was bound to happen as the tension boiled over. If the players jump into the fray roll a d4 to see how many are hostile toward the players and use a standard guard stat block for them; any characters engaged in the fight that are not hostile automatically flee when the party gets involved. If players choose to join the fray any NPC that falls below 6 HP will flee. If players choose to speak with the bartender





first he will offer them free drinks in exchange for stopping the fighting but express that any combatant should be let go. Any player that joins the fight will have a muscle memory for using their magic or weapons, giving them an opportunity to explore their new abilities.

When the fight has ended the bartender will walk over to the players, if they are questioning any of the combatants he will encourage them to let them go. The bartender is a Dark Elven male named Damien, he has mid-length white hair and a warm smile.

If the players start asking questions about what's happening in the city Damien tells them about the following, depending on the players' line of questioning:

- ⊕ Tensions in the city have been running high since a string of kidnappings. Powerful researchers have been studying the cosmos at the local observatory but one by one they have been going missing. Some believe that the guards have gotten lax in their duties, and others that the researchers were careless. Everyone is reacting out of fear. It's made business slow down at the tavern and he seems displeased about that, and mentions that the researchers may have gotten overzealous in their search for information, but won't elaborate further.
- ⊕ There have been some rumblings from the guard that something may have taken up residence in the ruins of Mokhsana, but he either doesn't know or won't say what he believes it is.

As the players speak to Damien he will thank them for their help with the fight and ask if there's anything he can do for them. If the players want to go to the guard, Damien will encourage them not to worry about the

fight, it happens all the time. If the players allude to their situation he will take them to a back room to meet Faelwyn, the tavern owner, immediately. He knows of Earth mostly through rumor and knowledge that the researchers had been connecting with the planet to get information, information he learned from his work with Faelwyn, but he is also aware that people from Earth were meant to be arriving in Aldastron to help find their missing telescope. If they don't allude to their situation he will offer to set them up with some work since they were helpful in the fight and will still take them to meet Faelwyn.

Use this to introduce your players to the scene:

As you follow Damien to a back area of the tavern he leads you into an office. It's a simple area but houses a large desk, behind which is standing an elven woman with long blonde hair, her back is to you but she turns as you enter. She smiles, but her eyes are guarded and she seems to be sizing each of you up with only a glance. "Thank you Damien. That will be all for now." She dismisses him with a casual wave of the hand, he nods and closes the door behind him on his way out. Faelwyn perches on the edge of her desk, folding her hands in her lap as she makes eye contact with each of you in turn.

Faelwyn's eyes flare briefly as she casts a spell, a small smirk playing on her features as she looks over the players. "Oh, you certainly aren't from around here are you? Jumping planes takes some powerful magic, but transferring consciousness, well, that is something else entirely. I presume you're the ones we've been waiting on from Earth?"



After the players have finished telling Faelwyn their story she sits thoughtfully for a moment before responding. “Those missing researchers have the key to sending you home. They were connecting with your world, getting information from something called the Hubble Space Telescope. A few weeks ago that telescope appeared to be erased from your timeline, which would take significant magic. The researchers were theorizing that it ended up here somehow and to my knowledge summoned you all, people familiar with the telescope, to help find and return it. We tap into a powerful source of energy for our magic here but none of us truly understand it, so they had no idea when you might arrive. Then they started going missing. I’ll make the necessary introductions at the observatory, but I expect you to tell those researchers to pay me a visit when they get back. Of course, if you don’t want to find them I’m sure you’ll enjoy spending the rest of your existence on our little world.”

The delivery of the last line sounds vaguely like a threat. During the conversation her posture – no matter whether or not the characters are forthcoming – indicates a baseline distrust, and if any of the players try to cast a spell she immediately counterspells them. She asks them questions about where they come from and if they know anything about Hubble. She takes notes of their responses, folding a paper and placing it off to the side. At the end of the meeting she writes a brief letter and encourages them to ask to see the head researcher at the observatory, giving them the sealed document.

→ **Proceed to the next section.**

If the players decide to go to the guard at this point they can easily locate a guard and explain their situation, at which point they will be taken to the Captain.

→ **Go to the previous section for this interaction.**

Roleplaying Damien:

Damien is more kind and more trusting than Faelwyn, but there’s a reason they’ve been working together for decades. Having once been a hopeful young student he

still envies the position of the leaders of the world, but he’s content to be at the right hand of Faelwyn – for now. He hopes to one day still complete his study and he has a hunger for any knowledge that comes his way. If something reaches

his ears it’s highly likely that it will be known by Faelwyn as well, but he is far easier for the characters to befriend and will offer a drink in exchange for interesting facts or stories of adventure.

Roleplaying Faelwyn:

Faelwyn is a fickle character. She doesn’t trust anyone except for perhaps Damien, and that isn’t a secret. She has an extensive network across the world, some researchers

she used to work with in the wake of The Breaking, and some that have come to seek her help or advice. She has no desire to be known so she sticks to the comfort of her tavern. Faelwyn trades in favors; if the party asks



something of her she will want something in return, even if that is just a favor she can choose at a later date. Her cold disposition is what players will get from her, but a sharp

mind holds a keen interest in any information she can get her hands on. However, she isn't the most trustworthy of characters. Her mood can shift quickly depending on player

actions – either she is an ally or she can't be bothered. Faelwyn's art is subtlety. This is a character that very rarely shows her hand.

Visiting the Observatory:

As the players approach the observatory they'll see a group of buildings arranged in a spiral going outward from a central courtyard. A stone sign near the arch marking the entryway reads 'Orion Observatory and Museums' and the letters look like shining stars. Players can surmise this is some form of enchantment. Lamps keep all the walkways well-lit and if they were to see it from above they may think it looks somewhat like a spiral galaxy. All of the buildings are gray stone that matches the walkways in between them, and the courtyard is lush with bushes and a large tree, sustained by powerful lamps. As they look for the head researcher, they'll be directed to the largest building on the other side of the courtyard, a massive dome-shaped building.

Coming from Captain Treban:

If the players approach the observatory with a guard escort the guards speak to someone behind a desk briefly and they are quickly escorted back to the head researcher with very little wait time. They receive a warm welcome and a look of wonder from the individual behind the desk.

Coming from The Horsehead Tavern:

The players will make their way alone through the city to the observatory; it will be easy for them to find. They can catch snippets of conversation as people discuss daily lives such as tasks to be done, and occasionally hearing

about concerns relating to the ruins outside the city, rumor spreading that something dark may have taken up residence there. The players can also hear concern in people's voices relating to the disappearances.

When they get to the observatory they are pointed to the central building and can introduce themselves to a secretary. Presenting the letter Faelwyn gave them, they are eyed with some suspicion and will have to wait several minutes before going to see the head researcher.

Speaking with the head researcher:

The characters are taken through a library to an office where they see a long-haired human climbing a ladder to retrieve a book. Their assistant clears their throat to get their attention and they scurry down the ladder, adjusting their glasses at the bottom.

Use this text to introduce your players:

As you enter the office you can see it's an extension of the library you just walked through, books crowding the shelves on every wall and every other surface in the room.

Amid all of these books you see a single figure, a tall human with long hair, gray streaks running through it,





on top of a ladder retrieving a book from a high shelf. As you approach, you can hear the person muttering quietly, unaware of their surroundings. Their assistant who led you through clears their throat and the person on the ladder turns. “Oh, terribly sorry, I didn’t see you there.” As this figure scurries down the ladder they adjust their glasses. “Unusual to have visitors at this hour. What can I help you with?”

When the players tell them about their arrival from Earth they’re keenly interested, sitting on the edge of their seat and taking in everything the players say, whether or not it is the full story. They will apologize for pulling them from their world and explain that they felt there was no choice if they were going to find and return Hubble to them, hopefully restoring their timeline to what it should be in the process. At this point they will explain that the disappearance of Hubble from their world created a timeline where it never existed at all, and will mumble something about time being complicated. They either don’t notice or don’t care if the players don’t share the full details. Part way through this conversation they will realize that they haven’t offered the players refreshments so they’ll quickly offer them tea and cookies, calling for their assistant to bring them. As soon as this is done they again pick up the thread of conversation.

“Of course, Eirik was mortified when Hubble went missing in your timeline. Such a terrible loss for your world, thought it may be his fault but I no longer think that’s the case. He suspected it ended up somewhere on our world, which is why he sent for you all. I’m sorry it was such a shock for you but you all know – knew – the telescope so well. We thought

you may be able to find it. If it was our fault, you have our sincerest apologies, we want to see this spectacular invention returned to where it belongs. It has been a great benefit to both our worlds, we would never rob yours of that.”

Use this text when your players ask about what the researchers were studying:

They straighten their glasses, “Hmm, I believe I have some papers lying around here.” They spend a moment rummaging through some loose papers on their desk and look pleased when they find the ones they’re looking for here. “Here we are!” They quickly return to their seat and spend a moment thumbing through the papers. “The researchers have been connecting with another world across planes recently, and I’m not certain what you recall of Hubble, but it’s a very powerful and useful telescope from your world or at least a version of the one you know and it makes some rather impressive observations. Not everything applies exactly, of course, being different planes of existence but there are some things that can be rather helpful. Actually, it may be better to show you the researcher’s office. He keeps a great deal of information there.”

The head researcher leads you through a series of stone hallways, some busy with people looking at exhibits, others much quieter.

“Ah, here we are. A great deal of information in here, obvious – and not so,” they say as they unlock and push open a wooden doorway.





Beyond the doorway is a well-lit room with lamps scattered around the room and a large window behind the desk, a heavy velvet-looking curtain hanging beside it. Large wooden bookshelves, all packed with books and loose papers laying on top of them line the walls, but the desk is largely cleared off. The head researcher walks over to the desk and activates a projection with a flare of arcane energy.

“The researcher had been studying how the energy of the vacuum may be the cause behind the quickening expansion of the universe, that’s why he had been connecting with Earth, in hopes that you knew more than we do. He thought that may also shed some light on why our magic doesn’t always go exactly as we would intend, this energy, you see, isn’t always the most stable to tap into. He thought that by looking at this particular phenomenon, globular clusters, he may be able to pick up some information.

“This particular projection has been altered in some way, the coloring is different from when I last saw it. It was more red last I saw it – wait, or was it bluer? This thing changes so often it’s hard to keep track.

“At any rate, there’s an adjustment here,” they indicate a round knob that turns either clockwise or counter clockwise.

They will tell the players that the Hubble Space Telescope observes different wavelengths of light; those wavelengths can tell people a lot about a cosmic object, including information about its age. Often blue light means an object is hotter and younger, while red means it is cooler and therefore older. If the players ask to shift the image more into a blue wavelength

they will see a message written in the stars: ‘Hubble found’ and if they shift the image into red they will see ‘go to Mokhsana.’ As they shift between wavelengths some of the stars seems to get fainter or disappear.

- ⊖ If players inquire about globular clusters Sharey will explain that they are tightly gravitationally bound clusters of tens of thousands, perhaps millions of stars with the largest concentration of those stars being in the center of the cluster.
- ⊖ If the players ask why the researchers are using data from Hubble instead of their own orbiting telescopes they will explain that because of the nature of the shield around their planet they don’t have the atmospheric interference Earth experiences, and therefore, no reason to put telescopes in orbit. They simply find Earth’s knowledge to be useful in their study, and their orbiting telescopes are interesting ideas. They will explain that before The Breaking they had observatories in mountains and deserts, but now they were able to see the cosmos from anywhere. Reference the ‘**Adventure Background**’ section for explanation of The Breaking.
- ⊖ If players ask why the researchers were studying Earth information they will explain that Earth is similar to what Exlaris once was before The Breaking, a life-sustaining planet around an ordinary star’s habitable zone. Humans have a curiosity about the universe that has helped provide the people of Exlaris with a different perspective than their own, giving them more context to the cosmos. In many ways, Sharey considers Earth a study of what Exlaris could have been.



Once the puzzle has been solved and discussed the headmaster will wonder what else may be hiding in the professor's office. If the players choose to investigate the office they can either spend half an hour or make a medium DC investigation check to discover the following:

- ⊕ Notes on the energy of the vacuum (provided in **Appendix A**)
- ⊕ A model of the Hubble Space Telescope. The headmaster will explain that the professor theorized it had a modular construction so it could easily be repaired and upgraded in orbit. The players can take apart this model and look at various components (schematic in **Appendix C**).
- ⊕ A book on historical Earth astronomers and physicists including Nancy Grace Roman, Lyman Spitzer, and Edwin Hubble. Information on each of them as follows:

≈ **Nancy Grace Roman**

Dr. Nancy Grace Roman was NASA's first Chief of Astronomy, and the first woman to hold an executive position in the agency. She planned a program of satellites and rockets, administered grants to the scientific community, and worked to get the Hubble Space Telescope approved by the governing council. Her work on this mission earned her the nickname "the mother of Hubble."

"If you enjoy puzzles, science or engineering may be the field for you, because scientific research and engineering is a continuous series of solving puzzles. It is also a continuous process of learning new things, whether you discover them or study the work of others. Science,

like all jobs, has its share of drudgery and boredom, but basically it is fun."

- Nancy Grace Roman

≈ **Lyman Spitzer**

Dr. Lyman Spitzer made important contributions to the fields of stellar dynamics, plasma physics, thermonuclear fusion, and space astronomy. He pioneered the idea of a telescope above Earth's atmosphere that would allow clearer and further observations than any Earth-based telescope. He worked for over 50 years to make that dream a reality and is known as "the father of Hubble."

≈ **Edwin Hubble**

Dr. Edwin Hubble was the first to confirm the existence of other galaxies beyond the Milky Way, and through his observations created the classification system still used today. Hubble not only reimagined our very place in the universe, but also observed that stars were displaced at the red end of the spectrum, indicating universal expansion.

As the players speak with Sharey they also mention a strange figure that had been visiting the observatory, seemingly an Elf but with something slightly off about them. This figure hadn't been seen around since the last disappearance, but had visited with all of the researchers.

Sharey is suspicious of this character, but mentions that none of their friends or various contacts know anything about them. In a way, it's a comfort that none of the other cities are trying to get the upper hand, but in another sense it's even more troubling that absolutely nothing is known. That is, of course,



if this figure knows anything at all about the disappearances.

- ⊖ If the players ask about the ruins outside the city they will tell them that the ruins are of the former capital city of Exlaris, Mokhsana, which turned to chaos and was ransacked and left to ruin in the wake of The Breaking. It had once been a truly grand city, but it had fully been left behind as the world moved into its new era. They mention that there is still a full library there, though they lament that some of the books are probably no better than dust after so many centuries; the only thing preventing them from trying to get to that knowledge are the creatures that have

made homes in and around the ruins. They say it's a dangerous place to go.

- ⊖ If the players ask for more detail about the research Sharey will explain that the energy of the vacuum powers the magic they see all over the planet, but it isn't always reliable and tends to fluctuate sometimes. They will say that Earth had been studying dark energy with Hubble so the hope was that they could combine their knowledge with that of Earth to figure out how to tap into that energy more sustainably. However, that changed when Hubble disappeared.

Roleplaying Morgan Sharey:

The head researcher is a slightly odd character, a little eccentric, but very nice and is always willing to help the players. Their primary goal in life is to discover

information and get it out to the masses. They consider those at the observatory their family and are saddened by the disappearances. They want everyone to return home safely. This character wears their emotions on their sleeve and is quick to blurt out

ideas as they have them. They always have parchment and a writing implement nearby to keep track of this inspiration. This character will always be ready for a conversation, and will (usually) remember to offer refreshments, especially if the players look weary.

If they pursue the Elven figure:

If players decide to pursue a line of questioning about the Elven figure they can ask Sharey's assistant for more details. This proves largely unfruitful, save for some rumors that this figure wandered in and out of the city alone instead of using a portal to reach another city, which is incredibly dangerous given the state of the dark areas of the world. There are some additional rumors if players choose to spend

time investigating or roll a medium DC check. They can hear around the observatory that the figure was seen heading west last, and some say that this was the last individual who Eirik Hazn, one of the missing researchers, was seen with before he disappeared and they may have gone out of the city westward, in the direction of the ruins.





Heading for the ruins:

If the players tell Sharey they intend to make for the ruins they will pale and ask if they're sure they want to undertake such a journey, explaining that few travel there and in recent decades none who have gone have returned. If they are, Sharey will lead them to another room, this one is a relatively small room down one of the quieter hallways, but still within the same building. As they enter they will see three desks, each pushed against a different wall and holding what looks to be a computer. The large square screen connects to a box underneath the desk. These are similar to old computers on Earth, most resembling something from the 1960s, but they run on the same arcane power the players have seen throughout the city.

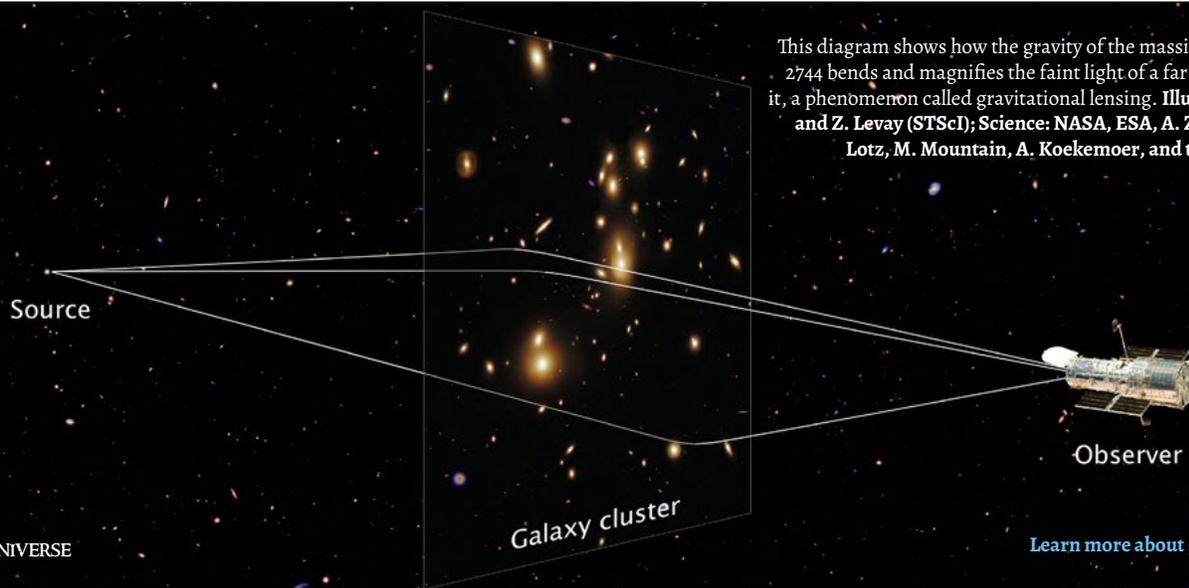
Use or paraphrase this text:

Sharey again uses a spell to activate a projection in the middle of the room. "This particular technology may help. It uses something called gravitational lensing to get a better look at things around us. We usually use it to look at other stars and planets, but it can be turned to our own world as well. Gravitational lensing occurs when the gravity of a massive cosmic object distorts space and time, magnifying and bending the path of light coming from beyond it. It lets us see farther, as

though using a lens. Our magic allows us to simulate this effect." They wave their hands and the projection clears, showing the woods outside the city and the ruins within them.

Information about gravitational lensing is in **Appendix A**. NASA's Hubble Space Telescope data greatly enhanced the science of gravitational lensing. Players can use this science to look at the path ahead. (Use the following section to describe the ruins to them.) This lens can help determine the best path to the ruins, but it cannot reveal much about the ruins themselves or any traps players may find since the ruins appear hazy. Sharey will, upon seeing the ruins, rummage around one of the desks and pull out a small device to give to the players. They explain that it's a miniature version the players can use on their way. If players take this device, it will reveal traps along their route or the answer to a puzzle, depending on the path they take, but Sharey will warn that there is only enough energy to use it once.

Sharey will warily also provide them with a greater healing potion they had been saving 'just in case' and give them a map (in **Appendix D**) before wishing them well on their journey, saying that everyone, even brave adventurers, need luck.



This diagram shows how the gravity of the massive galaxy cluster Abell 2744 bends and magnifies the faint light of a far distant galaxy behind it, a phenomenon called gravitational lensing. **Illustration: NASA, ESA, and Z. Levay (STScI); Science: NASA, ESA, A. Zitrin (Caltech), and J. Lotz, M. Mountain, A. Koekemoer, and the HFF Team (STScI)**

GRAVITATIONAL LENS



This view of galaxy cluster MACS0416 combines infrared observations from Webb with visible-light data from Hubble. The cluster creates a gravitational lens that allowed astronomers to identify magnified supernovae and even very highly magnified individual stars. The bluest galaxies are relatively nearby, often revealing intense star formation best detected by Hubble, while the redder galaxies tend to be more distant or contain large amounts of dust, best detected by Webb. Only by combining the power of both Hubble and Webb can we see such detail. **NASA, ESA, CSA, STScI, Jose M. Diego (IFCA), Jordán C. J. D'Silva (UWA), Anton M. Koekemoer (STScI), Jake Summers (ASU), Rogier Windhorst (ASU), Haojing Yan (University of Missouri)**

PART 2: THE RUINS

The paths your players can take converge at the edge of the city, facing into a dark wood where they know light will be sporadic, known as Redwillow Wood. Their mission is to discover the ruins of Mokhsana, a city that had been destroyed in the chaos following The Breaking and had been left to ruin. Sitting about 30 miles west of Aldastron, it's a place deemed too dangerous to visit. The adventurers who go there haven't returned at all in recent years. It was a large city at its peak, and had once been the capital of Exlaris, but a majority of what's left has been taken over by vegetation and is largely inaccessible, not in small part due to a landslide from the mountain above it a century prior. The road through the dark wood veers off about a mile from the ruins, and travel to this point will be uneventful. There is a pathway your players can find that appears to have been used recently; a survival check at a medium DC can reveal that something large has been there but does not reveal what the creature is.

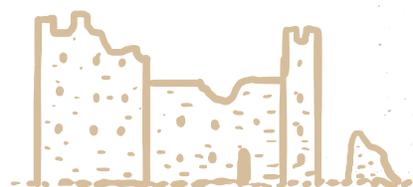
In this section there are different puzzles for the different paths the players may choose. If those puzzles are proving too difficult for the players, one of the researchers can escape and act as a guide to help move the story along. As players go through this section, if they attempt to cast detect magic aboveground in the ruins they will get a similar effect to the one they saw through the gravitational lens at the observatory where the surroundings seem almost hazy – they will know magic is nearby but not where exactly it is.

As the players follow this path they are led to what seems to be the edge of the ruins.

Use this text to set the scene:

In the distance you can see one of the only tall structures that survived the destruction of this city, and time that has passed since. This remnant of a tower was once the prison, now roughly half its original height, poking out like a grave over a sea of shale and rock. Beyond the tower you can see a partially ruined massive building with shattered columns and large stairs leading to long-rotted doors. This was once the library that head researcher Sharey spoke of. Around those buildings are numerous other mostly fallen structures, but those two seem the most complete. These structures are scattered across a large radius, seemingly mostly buried under a landslide from long ago. The tower seems partially buried, marking the boundary of the passable city ruins.

The ruins can be explored by the players but there is little to be found. Everything seems to have withered away or been looted with the passing of time. The players can choose which of the two seemingly intact buildings to begin their search with. See the following sections for beginning their search.





The tower:

The players may climb up the hill towards the prison tower, entering it through a window and descending from there.

Use this text to set the scene:

Once inside the crumbling remains of the prison tower you look around and take in the failing walls around you: long, bent, and rusted bars of a prison cell left open, where you now stand. There's a partially ruined staircase leading down, but it looks passable. You can't tell from this angle exactly how deep it goes.

The staircase, if your players choose to descend, goes down to a tunnel below that is far more easily passable than the area they just came through. As they reach the base of the stairs there is a landing with two arches, one is covered with a wall of blue flame and the other a wall of red flame. Players may remember the wavelengths of light from earlier in the game. If they use that knowledge, the blue wavelength means something is younger and hotter, and red means older and cooler. Red is the correct path, and players will be able to pass through the flame unharmed (as long as they don't linger within the flame). If players use the gravitational lens at this point they will see that red is the correct path and will also be able to see that the researchers are being held but are alive in a chamber at the end of the path. If players attempt to go through the blue flame they will take 1d6 fire damage and be shunted back onto the platform (modify damage based on GM discretion). A short walk down the red path will take them to the **'Paths converge' section**.

The library:

The players approach what was once a library, near the middle of the city. As they enter through the rotted doors all around them are long-ruined remnants of books and the rubble of a collapsed ceiling.

Use this text to set the scene:

You ascend the few large stairs into the library, looking around you see some massive shelves still standing, with books remaining on them though some scatter at their base. Other shelves are toppled over, and still more books are scattered across the floor. There are books all around – this was once a grand library that has been left to time. As you make your way through the shelves there seems to be a path through the rubble, sometimes wide enough only for a person to pass through, sometimes much larger. For some reason, it appears that most of the books this library could have housed are still here.

If the players take a moment to look closely at the books, some of them seem to be newer than others, far too new to have originally been a part of the library. From here, the players can find their way through the library to a large door in the back, this door seems much newer than anything else around them and is closed, but not locked. They can easily continue along this path.





The path they follow leads them to a wall that's been painted with a mural. Though faded, the mural still shows a globular cluster similar to the one that they had seen in the researcher's office, brought into focus with a larger scale gravitational lens than they had seen at the observatory. The characters will be able to draw the connection between the two. If they hold up the lens Sharey gave them to help see more clearly they will discover that this is an illusion blocking a stairway below. This image is the rings of relativity image located in the **Appendix E**. If the players do not use the lens they will still be able to discover that the wall is an illusion if they try to touch it or step through.

If the players step through it they will see stairs the same age as the ruins leading down into a tunnel. There are some fallen stones in the way but it's fairly easily passable terrain. If the players delve into this tunnel they walk for several minutes but don't encounter anything yet.

...► *Proceed to the next section.*

Paths converge:

Use this text to set the scene:

As you walk you come to a large metal door, it's new, and beside it is a lit torch – someone has been here, and fairly recently by the look of it. This appears to be what you've been searching for.

If the players do not check for traps or fail a medium DC investigation check the door opens and six arrows shoot out of the wall at the end of the hall, targeting the party members closest to the door.

Roll a d20 to determine how many arrows hit:

- 1-5 none hit
- 6-9 one hits
- 10-12 two hit
- 13-15 three hit
- 16-18 four hit
- 19 five hit
- 20 all six hit

Each arrow will deal 1d6 damage, distributed at GM discretion. If the investigation check is a success the party can easily find and cut the trip wire.

Once the party is through the door, they find themselves in a large chamber.

Use this text:

As you enter the circular stone room you first see stacks of books piled on every surface. The air is chilled and musty. Beyond the books, your eyes are immediately drawn to a telescope the size of a school bus, a telescope you recognize as Hubble from the likeness you found at the observatory. It doesn't seem to be functioning at the moment. The books in this room appear to be much newer than the ruins all around. The room is dimly lit and otherwise largely empty, save one figure. As they turn they appear to be Elven: it could be a trick of the light, but you see a faint tinge of green





to their skin. “You’re not guards.” The figure approaches, their movement almost stalking – predatory. “Brave little adventurers. You’ve made a grave mistake coming here.”

The elven figure will reveal themselves to be called Isilias, and repeatedly reference their “hoard” in a brief conversation with the players, telling them that they can neither have the researchers nor the precious knowledge they hold. Isilias insists they alone will hold the knowledge of the energy of the vacuum, and they will come to hold the very power of this planet through the “mighty machine” in the room, gesturing to Hubble. The researchers are the key to making sure that happens and they will not release them. These adventurers will not stand in their way. Looking around, the players can see what appear to be cells through a doorway at the other side of the room – they can see bars but can’t tell if there are people behind them. The longer the conversation goes

the more irritable Isilias will become until their anger reaches a maximum, their form will begin to shift, and instead of an Elven figure, they become a young green dragon (stats can be found associated with your chosen system). The dragon will immediately attack the party, claiming that it must defend its hoard. During the battle Isilias will target the spellcasters of the party first, perceiving them as the biggest threat because of how they draw on the energy around them. When the battle turns in the players favor, Isilias may destroy some of the books in an attempt to still keep the knowledge for themselves.

If the battle is too easy for the players, Isilias can use an action to animate one book to attack each party member (stats at GM discretion based on chosen system). Additionally, if the battle is going very poorly for the players one of the researchers can escape from their bonds and cast a stun spell on Isilias, effective for one round.

Roleplaying Isilias:

Isilias is a character driven by greed, the thing that this world holds most precious is its knowledge, and therefore knowledge has great value in the eyes of Isilias. They have spent the last three decades in Mokhsana, claiming its vast library as its own, and occasionally taking its Elven form to go

into the cities, amassing more books for its collection. In Mokhsana, Isilias largely stays in their dragon form and makes quick work of those who would wander too close, only contributing to the reputation of the ruins. Some months past, on a visit to Aldastron, Isilias learned of the researchers taking Hubble data for their studies and had to have it,

so orchestrated the theft of Hubble and the kidnappings of the researchers who could understand it. Isilias believed that the researchers had found the secret to harnessing zero-point energy safely, knowledge that would allow them to effectively control the world’s energy supply. Isilias will die trying to hold onto this knowledge and the power that could come along with it.

After the battle, the players can choose to investigate the chamber. If they do, they can find about 1,000 gold pieces and dozens upon dozens of books on a wide variety of topics, though most focus on the energy of the

vacuum, black holes, and studies of other rogue planets. Isilias appeared to value knowledge above gold. When they look at Hubble they find that the telescope is in pristine condition.



When the players go through the doorway where they saw the cells they can find all of the missing researchers. They are all exhausted and battered, but mostly unharmed. Isilias had just been keeping them for their knowledge, trying to get them to reveal all of their secrets. Eirik Hazn is primarily who the players will speak to.

Once Eirik is freed, he will thank the players and ask how they found them. The researchers had heard guards from Aldastron speak to the dragon several days prior but they had not been able to defeat it. If any of the players did not survive the battle Eirik and the other researchers will express their condolences and gratitude, even promising to dedicate their research to the fallen – an extremely high honor. As they all evaluate the scene the players have the opportunity to ask more detailed questions about the research they were conducting. They can find out that while the researchers had learned a great deal about the energy of the vacuum they hadn't been able to discover how to harness it on a large enough scale to safely aid the challenges

of their world's energy problem. They will continue to evaluate what exactly the energy of the vacuum is and how it could be used to help their society, a question they know that the scientists of Earth are also working to discover, something they had hoped they could discover by building on Earth's knowledge [additional information about dark energy and the energy of the vacuum in the **Appendix A**]. Once these conversations have been had, Eirik will be able to cast the spell Isilias used to steal Hubble in order to return it to its proper place around Earth, pinpointing as close to the time it was taken as possible (close enough that those on Earth would only notice a glitch in their data).

When the players have finished checking over the area and asking questions of the researchers they can begin to make their way back to Aldastron. If the players choose to take a rest first they can get a full, uninterrupted, rest. Travel back to Aldastron is uneventful and they arrive in the city unharmed. Upon arriving back in Aldastron the researchers request that they deliver them to the observatory.

Roleplaying Eirik:

Eirik is strongly motivated to study and research for the benefit of all. He believes that through study everyone is united, and he works tirelessly

to make sure that his findings are easy for anyone to access. He's never traveled in the areas between cities, the dark scares him, but he will do his best to put on a brave face. This is a character that will

help the players in any way he can, as often as he can, and is an excellent source of information about this world and others.

Their return causes a bit of a stir and they are immediately ushered in to speak to the very excited head researcher Sharey.

As they sit down in Sharey's office they encourage the researchers to discuss what happened while they give everyone tea and various pastries.

The researchers' tale will go as follows: They were each visited by Isilias who presented as a fellow researcher wanting to know what they were working on. As they told Isilias about their work they had enticed them to make a journey to one of the other cities, each of them to somewhere else, telling them that there was relevant new research there they should take a



look at. However, as soon as they got out of the city Isilias took their true form and flew them to Mokhsana where they were held captive and Isilias questioned them, trying to get all of the information they could about Hubble and how to make it functional on Exlaris. Though the length of time they had spent with Isilias varied, they all had the same experience.

When the players discuss their situation, Eirik will speak up. Use the following text:

“I am terribly sorry for the turmoil this has put you through. We believed our only hope for both of our worlds would be by bringing you here. Each of you, in your proper timeline, played a large role in Hubble’s mission. I did my best to return it to exactly when it was taken, hopefully restoring Earth to what it should be. We are eternally grateful for your help, I am without doubt that both of our worlds will benefit. Whenever you’re ready I can send you home as well, to the lives you were meant to live and all the benefits of this great telescope.”

Eirik will begin casting the spell as soon as the players signal that they’re ready.

If the players discuss staying on Exlaris instead of returning to Earth, Sharey and Eirik will encourage them to reconsider, but a persuasion check with an easy DC will convince them to let them stay and they’ll help them adapt to Exlaris as best they can, perhaps even with a job at the observatory.

If the players decide to return to the tavern:

If the players decide to return to the tavern they can choose whether or not to invite the researchers and Sharey; if they do only Telten and Zyania will join them while the others

either return home or go to their offices. The players can also easily rally other NPCs to join them at the tavern if they choose, and many students will gladly accept.

Upon their return to the tavern Damien will welcome them back, pour them drinks, and either take them back to see Faelwyn or have her come out depending on what the players request. If she comes out to the main area she will remain behind the bar while she speaks to them and invite the researchers back to her office to talk without the players.

If any players attempt to convince her to let them stay and work for her she will permit it with a medium DC persuasion check and invite them to come to her office without the rest of the party after she’s spoken with the researchers. That character will be assigned to assist Damien at the bar and gather information for Faelwyn.

Any players who decide to return to Earth at this point can easily locate Eirik in his office at the observatory and he will gladly return them home with more thanks from himself, his fellows, and the whole of Exlaris.



CONCLUSION

As the players come to once again, they wake to find themselves back at the Goddard Space Flight Center in Greenbelt, Maryland. Except this time, they stand outside of a building labeled “Mission Operations”. Players will retain that they had lived in a world without Hubble and now recognize the differences to their actual reality, and they will also remember the adventures they had on Exlaris as they worked to restore this timeline. If any of the players chose to remain on Exlaris, the individual that wakes up in Greenbelt is the character they created that is from Exlaris.

Use the following text. The GM can incorporate their knowledge of the players in order to choose how each of them were tied to Hubble. These jobs could include: scientist, researcher, mission controller, communicator, engineers, or astronaut who participated in a Hubble servicing mission. Alternately, they could also be citizen scientist who uses Hubble’s open data to conduct research and make discoveries:

“Wordlessly, you all decide to walk inside the building. You go down a long hallway, until you reach a lobby area with a large model of the Hubble Space Telescope. On the walls, you see photos of astronauts servicing the telescope and of a beautiful star-forming region known as the Pillars of Creation. A sign proclaims that there have been over three decades of discovery – and counting.

You keep exploring, and go down a hallway lined with breathtaking images

of the cosmos. You recognize each one. Some show planets in your solar system, while others peer billions of light-years away to capture gorgeous galaxies. At the end of the hallway, you find Hubble’s operations control center. Rows of monitors and a whole team of engineers are dedicated to tracking and pointing Hubble, allowing the observatory to continue making important breakthroughs in astronomy.

The more you all look around, the more memories start clicking into place. You all excitedly share these facts with each other. You now remember that there are billions and billions of galaxies beyond our own, thanks to Hubble’s deep field observations. You know that there are countless planets that orbit stars beyond our Sun. You understand that dark matter and dark energy make up most of our universe, even if we don’t fully understand how it works yet.

Plus, you realize with relief that even more missions are in operation that were made possible by Hubble’s legacy. The **James Webb Space Telescope** is now in operations too, observing deeper into the infrared region of





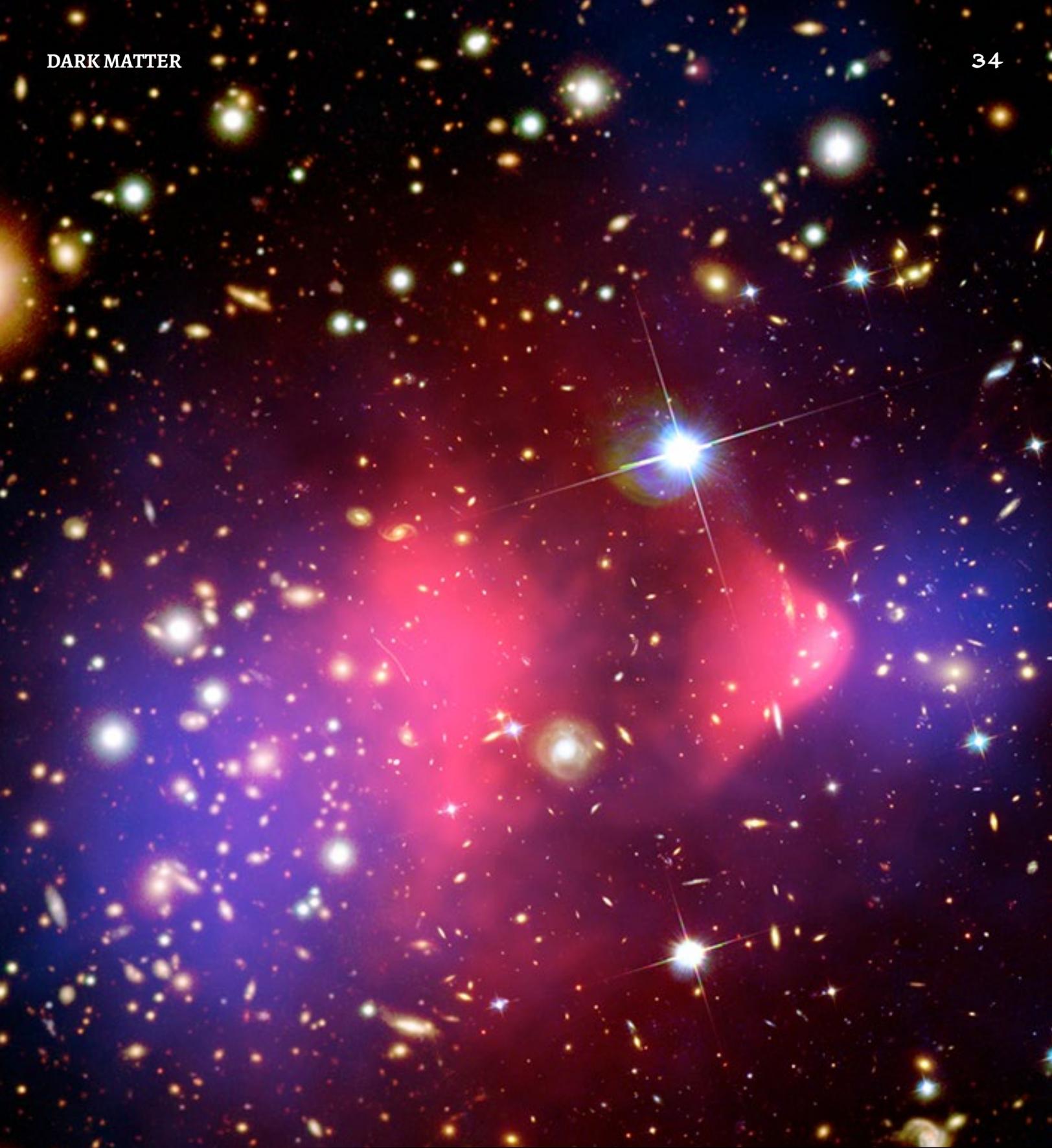
light. Soon, the **Nancy Grace Roman Space Telescope** will make incredible observations that will continue to develop our understanding of the cosmos. Even spacewalking is more advanced, thanks to Hubble's servicing missions, and is completed often by astronauts staying in the International Space Station.

Earth utilizes technology that was originally developed for Hubble in order to help identify signs of cancer, improve computer chips, decipher ancient manuscripts, track endangered species, and more.

You all grin at each other. Part of the reason why all this seems so familiar is because each of you have used Hubble to complete your own research about our universe, advancing our understanding of the cosmos and our place within it. Even better – all that data is made available to the public, so everyone's understanding can be improved and furthered.

More discovery awaits, thanks to Hubble – and to your new friends on Exlaris who helped return it to your timeline.”





This composite image of galaxy cluster 1E 0657-556, the “bullet cluster,” uses visible light data from Hubble and the twin, ground-based Magellan telescopes along with X-ray data from NASA’s Chandra Observatory. X-rays reveal two pink clumps of hot gas which contain most of the “normal” matter. The blue areas map most of the mass, as determined by analyzing the effects of gravitational lensing. Most of the matter (blue) is clearly separate from the normal matter (pink), giving direct evidence that nearly all of the bullet cluster’s matter is dark. **X-ray:** NASA/CXC/M. Markevitch et al.; **Optical:** NASA/STScI; Magellan/U. Arizona/D. Clowe et al.; **Lensing Map:** NASA/STScI; ESO WFI; Magellan/U. Arizona/D. Clowe et al.

[Learn more about dark matter.](#)

APPENDIX A

In this section you will find a full explanation of the scientific concepts used throughout the game.

Energy of the vacuum

- ϕ Energy of the vacuum (an example of the “zero-point energy” of open space) is a candidate for the source of dark energy. In this game it is what the magical characters on Exlaris tap into to power their magic as they move through the cosmos. Much like on Earth, there is very little known about this source of power. This is what the researchers were trying to connect to Earth to learn more about.
- ϕ When it comes to dark energy, more is unknown than known. We know how much dark energy there is because we know how it affects the universe’s expansion. Other than that, it is a complete mystery. But it is an important mystery. It turns out that roughly 68% of the universe is dark energy. Dark matter makes up about 27%. The rest – everything on Earth, everything ever observed with all of our instruments, all normal matter – adds up to less than 5% of the universe. Come to think of it, maybe it shouldn’t be called “normal” matter at all, since it is such a small fraction of the universe.

One explanation for dark energy is that it is a property of space. Albert Einstein was the first person to realize that empty space isn’t nothingness, but instead is something with properties of its own. He discovered that additional space can come into existence and reasoned that “empty space” can possess its own energy (a.k.a. “vacuum energy”). Because this energy is a property of space itself, it wouldn’t

weaken as space expands. As more space comes into existence, additional energy-of-space would appear. As a result, the universe would expand faster and faster.

Another explanation for how space acquires energy comes from the quantum theory of matter. In this theory, “empty space” is actually full of temporary (“virtual”) particles that continually form and then disappear. But when physicists tried to calculate how much energy this would give empty space, the answer came out wrong - wrong by a lot. The number came out 10^{120} times too big. That’s a 1 with 120 zeros after it!

Yet another potential explanation for dark energy speculates that it is a new kind of dynamical energy fluid or field, something that fills all of space but has an effect on the expansion of the universe that is opposite of the effect that matter and normal energy have. Some theorists have named this “quintessence,” after the fifth element of the Greek philosophers. But if quintessence is the answer, we still don’t know what it is like, what it interacts with, or why it exists.

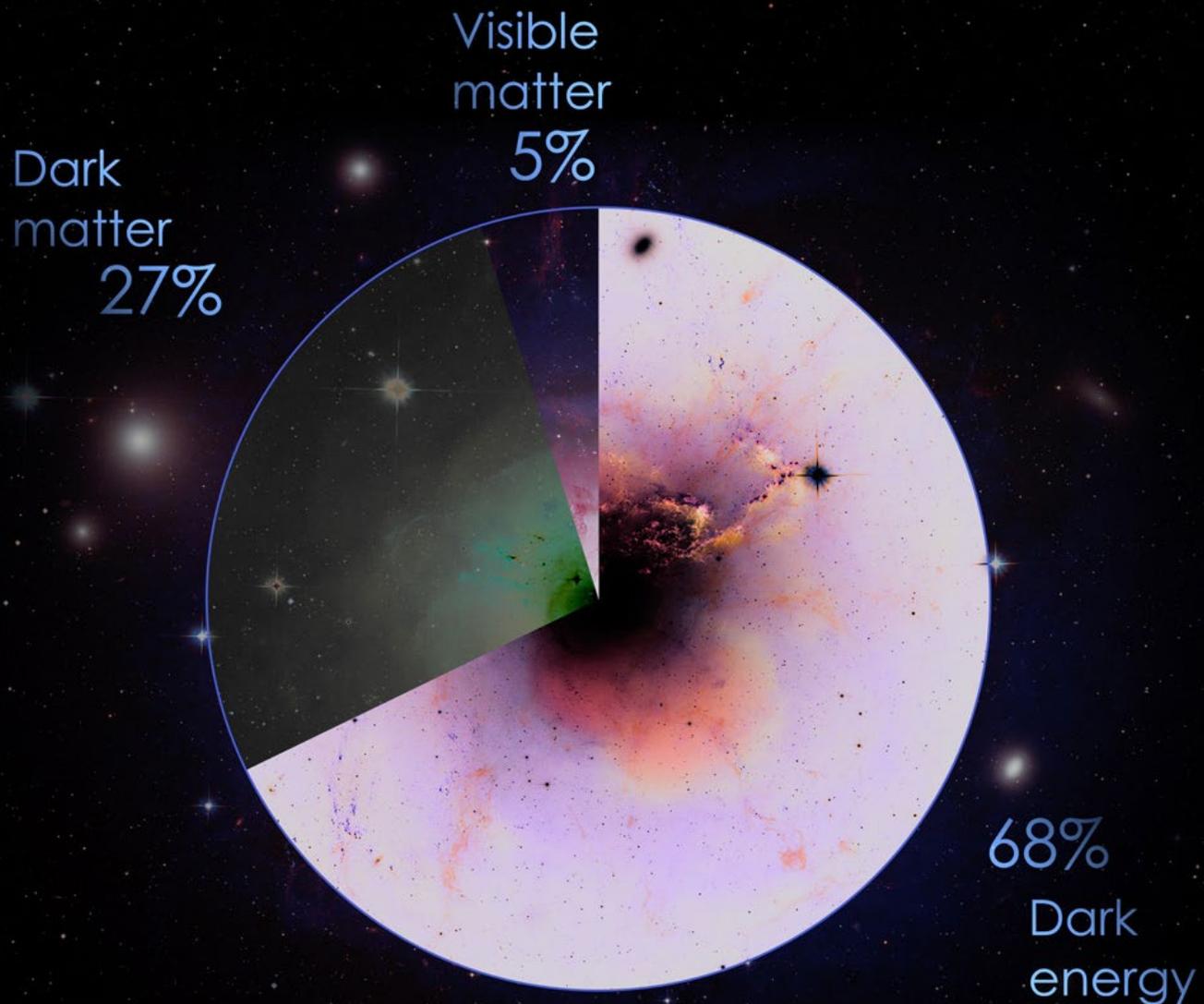
A last possibility is that Einstein’s theory of gravity is incorrect or there is something he overlooked. This view of dark energy may require a new theory of gravity or a modification of it. Any changes would affect our ideas of the expansion of the universe as well as our understanding of how normal matter behaves. By studying



how clusters of galaxies form, we could discover if the solution to the dark energy problem is a new theory of gravity or not. If we do need a new theory, how could it correctly describe the motion of objects in our solar system, as Einstein's theory already does, while giving us a way to describe dark energy's role in the universe?

There are candidate theories, but none are compelling. So, the mystery continues. What we need to resolve the dark energy puzzle – a property of space, a new dynamic fluid, or a new theory of gravity – is more data.

More information about dark energy



The universe is made up of three components: normal or visible matter (5%), dark matter (27%), and dark energy (68%). **NASA**

[Learn more about dark matter and dark energy.](#)



Gravitational lensing

Φ Gravitational lensing occurs when a massive celestial object (such as a black hole) or collection of celestial objects (such as a galaxy cluster) distorts spacetime enough to bend, magnify, and intensify light from more distant objects. The intervening mass causing the light to curve is called a gravitational lens.

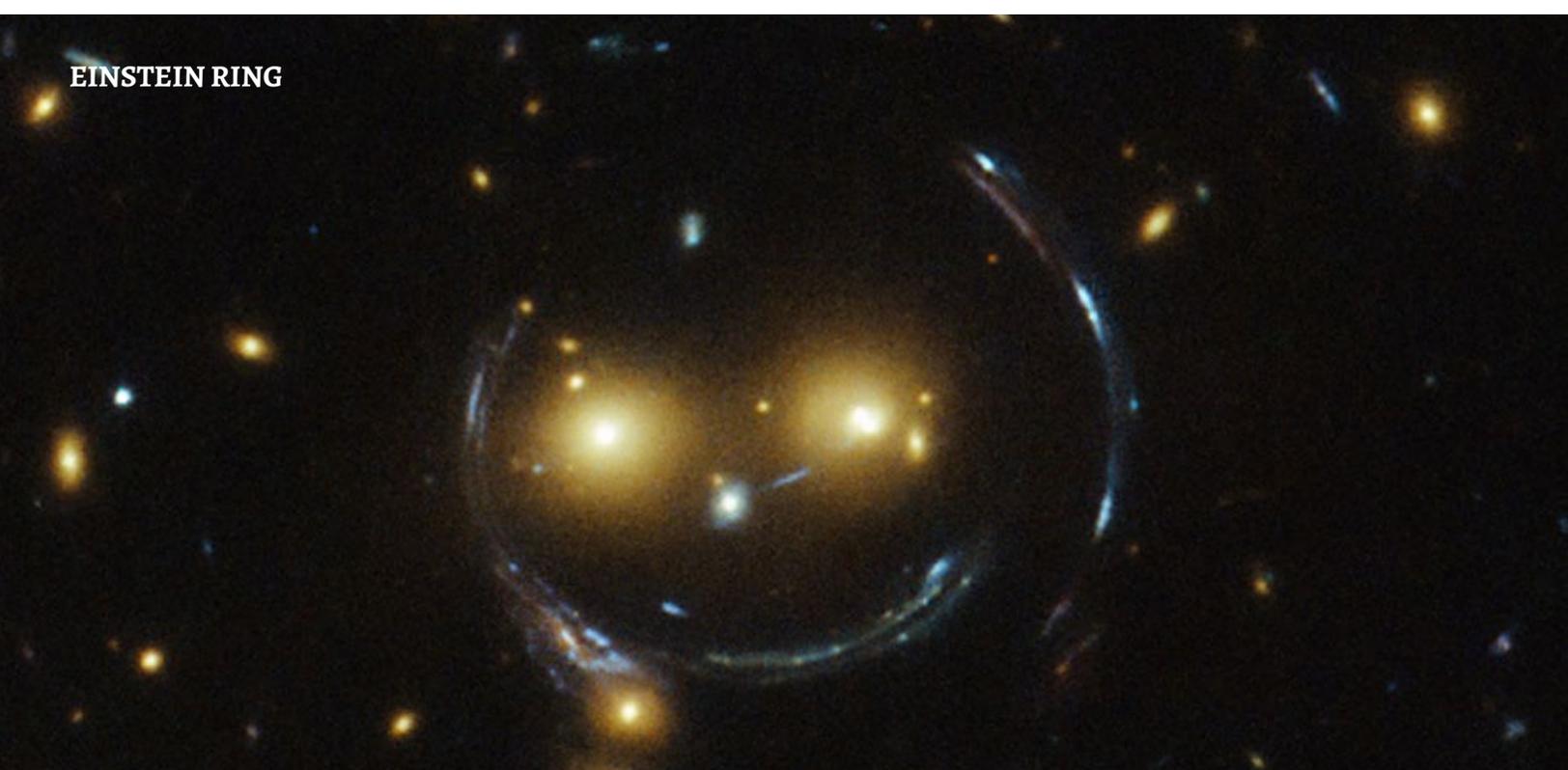
Because gravitational lenses magnify the light of distant objects, Hubble and other observatories use them to discover and study targets that would otherwise be too faint and distant to detect. With the help of gravitational lenses, astronomers have observed the most distant individual stars, supernovae, and galaxies ever seen.

With its high resolution and extreme sensitivity, Hubble can observe even very faint and distant objects that are magnified and brightened by gravitational lenses. Some of these can't be observed by ground-based observatories, because of distortion from our Earth's murky atmosphere. This is another example of why Hubble was placed in low-Earth orbit!

More information about gravitational lensing [here](#).

Φ Within this game, the lens that players are given by the headmaster creates the effect of gravitational lensing through magic, allowing the players to see further ahead or detect traps. This magic creates a warped field around the lens to simulate the effect of a large cosmic object warping spacetime.

EINSTEIN RING



The Einstein Ring around galaxy cluster SDSS J1038+4849 makes it look like it's smiling. An Einstein Ring forms when a distant light source is perfectly aligned with a powerful gravitational lens and the observer. Under these circumstances, the light source can curve symmetrically around the gravitational lens, causing a ring-like structure. **NASA, ESA, Michael Gladders (University of Chicago); Acknowledgement: Judy Schmidt**

[Learn more about this Einstein Ring.](#)

Red shifts / blue shifts

Φ As the universe expands, objects like stars and galaxies maintain their size while the space between them increases, making them appear to recede from each other. This stretches light waves traveling between an observer and the light's source. The recessional motion increases the light's wavelength, shifting it toward the red end of the spectrum, something astronomers call "redshift." The velocity of recession is proportional to the distance, so more distant objects, that likely formed earlier in the life of the universe, appear to move away at higher speeds. Very distant objects can have most of their visible light redshifted into wavelengths (colors) redder than human eyes can see, called infrared light. This is why our search for

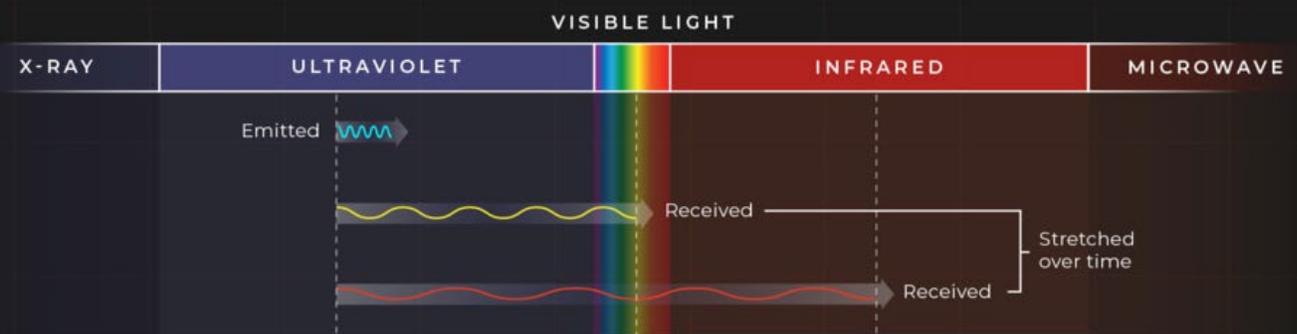
the most distant, earliest-forming, first galaxies uses telescopes and detectors that are sensitive to infrared light.

Looking closer to home, at our "local universe," the expansion rate is comparatively slow and individual motions of stars and galaxies determine whether objects are moving apart, lengthening their light waves (redshifted), or moving closer, compressing their light waves (blueshifted), from each observer's viewpoint.

More information found here.

REDDER THAN RED

The longest visible wavelength is red. Beyond red are longer wavelengths that we can't see, starting with infrared. When light is stretched by the expansion of space, we say that it is **redshifted**—from its originally emitted wavelength to a longer, redder one.



Emitted light is stretched to longer wavelengths over time.



Appendix B

In this section you will find a series of images to show the players as they walk through the Hubble control center at the end of the game. These are here for ease of use, the GM is encouraged to use their own favorite Hubble images.

Φ Hubble's Universe on Flickr



Bubble Nebula (NGC 7635)



Mystic Mountain



Omega Nebula (M17)

Φ For a 360-degree view of the Control Center



Hubble Pioneers



Nancy Grace Roman

Astronomer who started NASA's space astronomy program



Lyman Spitzer

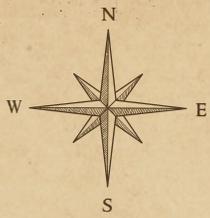
Astronomer who first proposed a space-based observatory



Edwin Hubble

Astronomer for whom the telescope is named

Learn more about Hubble and its pioneers.



Map of ALDASTRON



SARHELIOS

Ruins of Mohksana

Redwillow Wood

ALDASTRON

ARKETNUM

PALERIDON

Beska-Pereya

Appendix E

Gravitational lensing puzzle image in the library. The goal is to have players line up the lens provided by the headmaster with the gravitational lens in the image.

Nicknamed the “Molten Ring,” GAL-CLUS-022058s is one of the largest and most complete Einstein rings in our universe. **NASA, ESA, Anastasio Díaz-Sánchez (Universidad Politécnica de Cartagena), Saurabh Jha (Rutgers, The State University of New Jersey); Acknowledgement: Leo Shatz**

[Learn more about Rings of Relativity.](#)

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NP-2024-2-234-GSFC

Version 1 - March 2024