

Asterism: The Pleiades in Astronomy and Mythology

Intro

Jordan: Hi, I'm Jordan.

Kit: And I'm Kit.

Jordan: Welcome to Starry Time.

Kit: Asterisms Edition,

Jordan: where stars plus lines equal stories

Kit: with an asterisk.

Jordan: In these episodes, we'll explore ideas, concept, or people that didn't make it into the main show, or just things that we'd like to talk about a little bit more.

Kit: And this week, we decided we wanted to focus on the astronomy and mythology of the asterism, the Pleiades.

Astronomy of the Pleiades

Jordan: The Pleiades, also known as the Seven Sisters and Messier 45, are a literal asterism, which is a recognizable collection of stars that isn't itself a constellation. So this extends beyond the IAU definitions of constellations and into a more general view of the night sky.

Kit: Exactly. So the Pleiades are actually located in the constellation Taurus, which you can learn more about in our episode from season one.

Jordan: In fact, we did mention the Pleiades in the cosmic background segment of that episode, but we didn't get that deep into the astronomy or talk about the mythology of this at all.

Kit: Yes, we are far too interested in the crab nebula!

Jordan: We do Love crabs. The carcinization of all myths. Yes.

Kit: Yes, definitely.

Jordan: So, just for review and to show how good I am at remembering and definitely not relying upon prior notes, in our Taurus episode, we mentioned that the Pleiades is an open star cluster, which are a group of stars that formed in the same molecular cloud.

Kit: Yeah. And this particular open cluster, um, is between 75 and 150 million years old, and it's one of the closest star clusters to us at 445 light years away.

Jordan: And I also remember exactly that in 250 million years or so, the sisters will sort

of disperse due to a variety of gravitational interactions.

Kit: Absolutely.

Jordan: All right, great. Well, shout out to me and my great memory and not at all cheating and looking up these facts. So, what else do we want to know about this asterism, Kit?

Kit: So, there's actually a lot of research that's been done about this asterism. So I'm just going to focus on the fun facts about it that I thought were interesting. So, the first fun fact is, even though we call this asterism the seven sisters, this area actually includes many, many, many, many more stars than those bright ones that we can see, about 1000 or so. So that's my first fun fact. My second is that the apparent magnitude of the cluster is 1.6, a positive 1.6. So this means you can see it with the naked eye and just like the constellation Taurus, because it's in the constellation Taurus, it's best seen in the winter and usually in January. And third, the bright stars that we do see are hot blue stars, and they're surrounded by reflection nebulae, which are clouds of interstellar dust that reflect the light of the stars.

Jordan: And this is what gives that sort of ethereal glowing look to astrophotography pictures of this asterism, right?

Kit: Mhm. Something else I learned while I was doing research for this episode is that astronomers previously theorized that this interstellar dust was just leftover from the star formation. So when the open star cluster was formed. But now they think it's actually just a cloud of interstellar dust that the cluster happens to be moving through right now. So it's not like a, uh, permanent fixture of the cluster. Okay. Three other quick

fun facts before we get into the mythology. So, one is that the tidal radius of this star cluster is 43 light years across.

Jordan: And, as everyone knows, of course, the tidal radius is the distance from the center to the point at which galactic gravity influences the stars more than cluster gravity.

Kit: Yeah, as everyone knows! Another fun fact is that nine of the brightest stars in the cluster are named, and seven of them are named for the seven sisters. But the other ones are actually named after the parents of the stars. And the individual brightest stars in the cluster have apparent magnitudes between positive 2.89 and 5.64.

Jordan: So really it's more like the seven sisters and their parents.

Kit: Yep, exactly. And my final fun fact is that this star cluster is actually moving in the direction of the constellation Orion.

Jordan: I sense a revenge coming.

Kit: Mhm.

Jordan: Let's take a quick break before getting into the mythological consequences of this astronomical phenomenon.

Mythology of the Pleiades

Kit: In our myths and retcons episode of Orion, we did briefly mention the Pleiades and Orion, but today we're going to get into this myth a little bit more.

Jordan: But first we have to do a little family tree proper noun time. The Pleiades are themselves seven sister nymphs, and they are the children of the Titan Atlas.

Kit: The very same Atlas who holds the world up on his shoulders.

Jordan: Exactly. And their mother is the Oceanid Pleione.

Kit: And in case you've forgotten, the Oceanids are the 3000, aka infinite, nymph daughters of the Titans, Oceanus and Tethys.

Jordan: The Oceanids are not to be confused with the Nereids, who are the 50 daughters of the old man of the sea Nereus and the Oceanid Doris, who were super mad at Queen Cassiopeia earlier in this season.

Kit: Yes. Feel free to check out that saga on our episodes on Cassiopeia, Cepheus, and Andromeda.

Jordan: So these seven sisters are the daughters of a Titan and Oceanid, sort of like the Nereids, but many fewer.

Kit: The fecundity is dropping, I suppose.

Jordan: Indeed, the Pleiades are the sisters of the Hyades, who will have to cover another time.

Kit: Yeah. So often the Pleiades are cast as either divine parents of different kings by various gods, including Zeus, Poseidon, Ares. But at least one of the sisters is said to have faded away, either because she became mortal in order to marry a human man or and or I guess she had sex with a mortal man and was so ashamed, she became invisible.

Jordan: Don't blame her. Huh? Huh? I mean, how about that?

Kit: I'm not gonna try to analyze that one too much. So there are a few different myths related to how the Pleiades became stars in the night sky.

Jordan: The first myth is the one we mentioned in the Orion story. In this version of the myth, the Pleiades and their mother are the companions of Artemis. And the story goes that Orion came across the sisters and their mother out on a hunt. And Orion, as he does a bit of an obsessive, becomes completely enamored and entranced with them and begins to pursue them.

Kit: Uh, this guy is exhausting.

Jordan: As for the Pleiades, they are recognizably distressed by having to be on the run from Orion, pursuing them constantly, and they pray for help. And Zeus, being the friendly patriarch that he is, decides to, quote unquote, help by turning them into doves.

Kit: Yeah. And it's like, at this point, why doesn't he just kill Orion? Like, Zeus is out here being fine, killing mortal women by just showing himself to them, being a jerk otherwise. But, like, when Orion's out there behaving badly, he's like, let's just turn the nymphs into doves. That'll solve the problem.

Jordan: Unfortunately, that isn't even enough, because Orion, he still keeps pursuing them

Kit: As if we didn't need any more evidence that Orion is not really a hero.

Jordan: And so eventually, Zeus turns all the Pleiades into stars as the only way they could possibly finally escape from Orion.

Kit: Which, again, really doesn't work out that well, because Orion ends up also in the sky. And I have a lot of other questions. Like, these are Artemis's companions, and she's just like, that's cool. And then, like, becomes friends with this guy? Why isn't she protecting her nymph friends? There are other versions of this Greco- Roman myth that explain that these sisters became stars because they ended their own lives after their father Atlas was punished to hold up the sky, or after the deaths of their sisters, the Hyades, who are the nymphs of the rain. So the alternative version of these myths is that they died and were put into the sky sort of in tribute.

Jordan: It's clear that they're trying to explain how we ended up with this asterism, but the stories themselves often situate them as weak or damsels in need of saving, or worse, being pursued without their consent.

Kit: Yeah, exactly like the saving is, even in the story with Zeus is more like killing.

Jordan: Yeah, when the saving is much more like killing, kind of goes to show that Zeus is definitely not the leader that people should be voting for.

Kit: Well, but you know that it is based on a voting system, per Hercules animated

series pilot, as discussed. So that's how it works.

Jordan: Canon. Yes. In Hercules the animated series, it is a democracy, which is one of the boldest leaps that Disney ever took with Greco- Roman myths.

Kit: Amazing. I think it's really important to note here that other cultures also have myths about this asterism, and there's even an alternative version in Greco- Roman myth that says the Pleiades were the daughters of an Amazonian

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Kit: Queen. So we'll talk a little bit about some of these other myths as we get into the retcons, but there's a ton of other ones out there.

Jordan: And, almost all of them, I can confirm, are better than just Orion relentlessly pursuing these poor women.

Kit: We'll post some links to others that we don't get to on our socials so that you can learn more.

Retconstellations

Jordan: So, obviously, there's a lot of room for ret- constellations of these myths. So where did you decide to go for your retcon?

Kit: So I kind of kept it simple here. I wanted to connect this to, uh, you know, my

podcast, extended universe. And so in my version, in the retcon of Orion, I recast Orion as an archer vigilante who is protecting animals, a la, um, Hawkeye, Kate Bishop, etcetera. So in my version of the myth, I want to sort of put the Pleiades into that universe, but they are going to be X- Men kind of like Storm or I also learned about Lin Lee, who is called nature girl.

Jordan: What?

Kit: Yeah, a real comic book character called Nature Girl. And basically, you know, uh, the Pleiades become superheroes who have control of weather or animal connections, like being able to talk to animals, and they're out there protecting nature. And so in my version of the myth, you know, maybe Orion makes a particularly good save of an animal. And then the Pleiades sort of drop in to be like, hey, good job on this. Keep up the work, uh, of protecting nature. And then they're just kind of on their way. And so that's my sort of retcon, is we bring them into the universe. There's no sort of conflict there. And Orion recognizes that the Pleiades are kind of like the big time heroes, and he's just sort of, uh, doing the local labor.

Jordan: Love it. The whole podcast extended universe, which I call the K I E U Kit Irving extended universe, is amazing, and I'm very grateful to see that Orion does have, you know, some oversight here.

Kit: Uh, how about you? Where did you go with the retcon of this myth?

Jordan: This one was a little bit difficult for me to make a ret constellation for, just because it had already been interpreted so many times through so many different cultures and civilizations for thousands of years. I didn't really feel like I had that much

to offer. But I did spend a significant amount of time exploring how people all over the world have seen this asterism. So, in Ukrainian folklore, the Pleiades have a few names. One of them is a granary or a storehouse for hay and crops. Another one is also one whose hair is glowing. And those are both great. But the recurring myth and my ret constellation refer to female tribal deities. And according to the Ukrainian legend, seven maids lived long ago, and they used to dance traditional round dances and sing glorious songs to honor the gods. And after their death, the gods turned them into water nymphs, and having taken them to the heavens, settled them upon the seven stars, where they dance their round dances to this day. It was interesting to see this dancing myth recur in Ojibwe, Canadian and North American Indigenous people. Their myth of this star system describes seven children who danced and played all day rather than helping around the camp until they dance into the sky, where they can still be seen to this day. So the idea of a round dance, way better than this Orion myth to me. So that's the ret constellation I'm going to go with that the Pleiades are a group of teachers, kind of like your galactic overseers, who come down from the star world to teach us ceremonial dances.

Kit: Those myths are just, yeah, a lot more inspiring and a lot more creative, I would say. They're just, yeah, more beautiful, right. Than this myth of, like, oh, these people turn, these nymphs turned into stars because of this one guy being really lustful and gross.

Jordan: That was my retelling of some of these myths from around the world about the Pleiades. Let's see if our modern myth maker, the AI Oracle, can do any better.

Oracle AI

Kit: So when we were talking with, uh, the Oracle, we were told that the most popular myth of Orion was related to the Pleiades. So, as I mentioned on our Orion myths and retcons, I was going to save that for this episode. And so, as usual, we asked for an analysis of the Pleiades Orion myth and for a retconstellation.

Jordan: So the Oracle

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Jordan: offered the following problematic elements. One, stalking and pursuit. Two, lack of consent. Three, gender dynamics. And four, resolution through divine intervention.

Kit: Much better than the last analysis actually makes somewhat sense here. So here is the oracle's retelling of the myth. In a time long ago, when gods and mortals coexisted, there lived a skilled hunter named Orion. One day, Orion encountered the enchanting Pleiades, a group of seven sisters known for their celestial beauty. Struck by their radiance, Orion felt an intense desire to be close to them.

Jordan: That's one way of putting it, AI Oracle.

Kit: However, rather than pursuing the Pleiades relentlessly, the story takes a different turn. Sensing Orion's admiration, the eldest sister, Maia, approached him with a kind and assertive demeanor. She expressed her discomfort with his advances, emphasizing the importance of mutual respect and consent. Surprised by Maia's honesty, Orion reflected on his actions and acknowledged the inappropriateness of his pursuit. Rather than persisting, he chose to listen and learn from the encounter.

Jordan: Mmhmm.

Kit: Realizing the value of respecting others boundaries, Orion transformed his approach, developing genuine friendships with the Pleiades based on mutual understanding and consent. The Pleiades, appreciating Orion's newfound respect, felt empowered to share their celestial radiance with him willingly. Together, they created a harmonious constellation of the night sky, symbolizing the beauty that emerges when individuals treat each other with kindness, respect, and consent.

Jordan: And the oracle's analysis was as follows. In this retelling, the focus shifts from an aggressive pursuit to a narrative that values communication, consent, and personal growth. It promotes healthier relationship dynamics and emphasizes the importance of respecting boundaries, aligning more closely with contemporary values.

Kit: Yeah, uh, hmm.

Jordan: That's true.

Kit: Yeah. But there's this, like, undercurrent of this myth that still really does not work for me. Definitely, um, not as good as ours. Definitely not as good as the other cultures that we've heard from. I guess, like, slightly less icky. Well, definitely less icky than the original myth, but definitely not the oracle's best work.

Jordan: At least this myth got the moral right. AI Oracle, we are making progress. Your storytelling leaves a lot to be desired, but your ability to recognize what is problematic about some of these myths is a good omen for future Oracle predictions to come.

Outro

Let's wrap up our asterism on the astronomy and mythology of this beautiful asterism, the Pleiades.

Kit: This has been Kit.

Jordan: And Jordan.

Kit: Sisters. Lovers of stars and stories.

Jordan: And we'll see you next time

Kit: On Starry Time. [Music]

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