[music]

[00:00:22] Jordan: . I'm Jordan.

[00:00:24] Kit: And I'm Kit.

[00:00:25] Jordan: Welcome to *Starry Time,* where stars plus lines-

[00:00:29] Kit: -equals stories.

[00:00:31] Jordan: In season two-

[00:00:32] Kit: Quests and Curses.

[00:00:35] Jordan: -Quests and Curses, we're going to try out shorter weekly episodes for the next three weeks. Together we will be discussing the constellation Corona Australis or the Southern Crown.

[00:00:51] Kit: This week's episode is going to be all about the astronomy or the cosmic background.

[00:00:56] Jordan: No, I see what you did here. Excellent work.

[00:00:59] Kit: Week two will be focused on the mythology and our ret constellations of the myth. Week three will be our silliest segment, Pop Culture Superstar, and the final week will kind of be a wild card.

[00:01:11] Jordan: Yeah, I'm excited for the wildcard. It might be an asterism on a topic that we said we'd get to before or might be a Creature Corner or Archaeology Attic segment. We'll play it by ear depending on the constellation.

[00:01:23] Kit: Yeah, I think it's going to be fun. Before we get to our constellation today though, I want to make sure that folks remember to subscribe or follow us on your favorite podcast platform. You can check out our social media profiles. We've got a Mastodon, a Twitter, and a Tumblr. They're all @starrytimepod, so feel free to give us a follow there.

[00:01:42] Jordan: Yeah, give us a follow there. Stay up to date with our podcast. We have daily or every other daily updates about space, mythology, and all sorts of miscellaneous content that Kit discovers.

[00:01:55] Kit: So, Corona Australis is one of the 88 IAU recognized constellations. It also appears in the *Almagest* from the second century astronomer, making it one of Ptolemy's great-

[00:02:07] Jordan: Great, great, great, great, great, great, great, great, great, great, great, great, great, great.

[00:02:10] Kit: -48 constellations.

[00:02:12] Jordan: Ptolemy, welcome to season two of the pod.

[00:02:16] Kit: And as you mentioned at the top, Corona Australis is Latin for the Southern Crown. Though, during Ptolemy's time, it was actually thought of as a wreath worn by Sagittarius or Centaurus.

[00:02:26] Jordan: As far as astronomy is concerned, Corona Australis is the smallest constellation we've covered area-wise. It only comes in at about 128 square degrees, which makes it 80th in size out of the IAU's 88 recognized constellations.

[00:02:43] Kit: It's just a little constellation. [chuckles]

[00:02:45] Jordan: Now that we've got a little background, let's talk about what this constellation looks like. What were your first impressions of this one, Kit?

[00:02:52] Kit: Well, there's really not a lot, [laughing] not a lot to look at. Um-

[00:02:56] Jordan: Yeah.

[00:02:56] Kit: -so, uh, I-I was like, Maybe it's a sled or like a sideways sickle. Uh, what did- what did you see when you looked at this one?

[00:03:04] Jordan: No, those are both great. I hadn't thought of either of them, but it's got some toboggan energy.

[00:03:09] Kit: Mm-hmm.

[00:03:10] Jordan: For me, it looked like almost like a dinosaur tail or-

[00:03:15] Kit: Mm.

[00:03:15] Jordan: -a fish hook or a boomerang. Something like that.

[00:03:19] Kit: Yeah, something sort of like slightly curved [laughs] like-- Well, I think maybe we need to get technical because there's really not much to this constellation. It's really really small as we mentioned before. So, this constellation has a right ascension of 19 hours and a declination of -40 degrees.

[00:03:37] Jordan: And it is located below the Teapot Asterism of Sagittarius-

[00:03:42] Kit: Mm-hmm.

[00:03:43] Jordan: -and next to the tail of Scorpius.

[00:03:45] Kit: It's visible between latitudes 40 and -90 degrees. In other words, it's visible in some parts of the US and Europe, but it's more of a southern constellation than the zodiac constellations we talked about last season, which were by definition visible in both hemispheres.

[00:04:00] Jordan: All right, now you know where to find the constellation, let's talk stars. Overall, not only is this constellation pretty small, it's also relatively dim too. It's comprised of only six main stars with the brightest star being what, Kit?

[00:04:18] Kit: Well, I-I know you're not go going to believe this. Uh, you'll think that I've made this up for season two, but it is Alpha Coronae Australis.

[00:04:27] Jordan: Bayer is back, baby, coming in strong. Our guy Johann, who we spent all of season one dunking on actually got this one right.

[00:04:37] Kit: [giggles] Alpha Coronae Australis is the only star in the constellation with an IAU-recognized name and it is Meridiana. It is located 125 light years from Earth and it has a visible magnitude of only 4.1.

[00:04:52] Jordan: That we've learned from season one is pretty dim,-

[00:04:55] Kit: Mm.

[00:04:56] Jordan: -especially since the naked eye limit can see around 6 or 6.5 visible magnitude.

[00:05:02] Kit: Yeah, so you're going to need to be someplace pretty dark to see it. It is a white main-sequence star that has a radius of 2.3 times that of our Sun.

[00:05:11] Jordan: So it's the same type of star as our sun, white main-sequence star, but it's just a little bigger than twice as big as ours.

[00:05:19] Kit: Mm-hmm. And probably the most interesting thing about this star is that just like the star Vega, it has an excess of infrared radiation, which basically means it might have a ring of dust or some kind of planetary system around it. There's something different about what it's doing, uh, but we don't know exactly what or why.

[00:05:39] Jordan: Interesting. Well, that'll be up to future astronomers to figure out. So that's the brightest star of the constellation. How about we move to our next segment, Bayer's variable star. And this is where we follow the Greek alphabet to learn more about the stars our favorite 17th century astronomer Johann Bayer designated in the sky. I'm assuming that we're gonna pick up from the Greek alphabet from Ophiuchus.

[00:06:07] Kit: Yep, absolutely. So we are gonna look at Epsilon Coronae Australis.

[00:06:11] Jordan: All right. So what's up with Epsilon Coronae Australis, Kit?

[00:06:15] Kit: All right. So this is exciting. So, Epsilon Coronae Australis was discovered and given the Bayer designation not by Johann Bayer.

[00:06:24] Jordan: Mm-hmm.

[00:06:25] Kit: Mm-hmm, but by Nicolas-Louis de Lacaille, who we'll talk about some point later, I'm pretty sure. So, Epsilon Coronae Australis has this variable magnitude because it's actually two stars that are orbiting very very closely. And it results in what's called an eclipsing binary, meaning that one of them sort of cuts in front of the other as we're observing it. And not only are they binary stars, which we've talked about before, they're actually what are called contact binaries. And it's basically a star system where the stars are orbiting so closely that they are touching.

It also has something that's called the contact binary paradox, which is basically the finding that the lower mass, smaller stars that are orbiting the bigger star and they're sort of touching, are actually hot and they're the same temperature as the larger star that they're sort of in contact with.

[00:07:25] Jordan: Let's take a quick break and then we'll wrap up here with our last segment of Cosmic Background, which is of course Gold Star.

[music]

[00:07:43] Jordan: Welcome back. This segment is called Gold Star. In this segment, we alternate picking the star or space object in our constellation of the month that captures our mind, our heart,-

[00:07:55] Kit: Mm.

[00:07:55] Jordan: -and our soul.

[00:07:56] Kit: Mm.

[00:07:57] Jordan: Where'd you decide to go with this one, Kit?

[00:08:00] Kit: W ell, as we discussed, this is a pretty small part of the sky. It doesn't have any Messier objects, but it does have a planetary nebula with a Wolf–Rayet star, which we'll talk about in an upcoming asterism. It also has some beautiful globular clusters.

[00:08:16] Jordan: Gosh, you know, I do love some globular clusters.

[00:08:20] Kit: Everybody should. They are dazzling. Um, there's also some reflection and dark nebulae which were both appealing and interesting to learn about but ultimately, I wanted to talk about the molecular cloud in the constellation and more specifically the star-forming region right in the middle of that molecular called-- cloud [chuckles] called the Coronet Cluster.

[00:08:42] Jordan: The Coronet Cluster. Alliterative. I like it. Tell me more.

[00:08:46] Kit: So basically, just north of Beta Coronae Australis is a molecular cloud, which is a dense and cold area of space where stars are able to form.

[00:08:55] Jordan: Basically where all the components are there, ready to go.

[00:08:59] Kit: Exactly. So this molecular cloud is one of the closest star-forming areas to us. It's about 425 light years away and it's actually on the surface of our local bubble.

[00:09:12] Jordan: You can see episode 13 from our first season on Ophiuchus for more about the local bubble.

[00:09:18] Kit: Good old bubble talk. So, in the center of this molecular cloud is the Coronet Cluster, which is also called the R CrA Cluster. It is an open cluster that has a few dozen young stars. And this is a really interesting area for astronomers who want to understand how stars evolve. Um, some of these young stars also have protoplanetary discs around them, which could also give us some insight into how solar systems like ours were formed.

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[00:09:55] Jordan: The Coronet Cluster, a great addition to the Gold Star Club. And we hope all you listeners will join us next week when we retell and ret-c onstellation the m yths of Corona Corona Australis.

[00:10:09] Kit: This has been Kit-

[00:10:11] Jordan: -And Jordan.

[00:10:13] Kit: Sisters. L overs of stars and stories.

[00:10:15] Jordan: And we'll see you next time-

[00:10:17] Kit: -on *Starry Time.*

[music]

[00:10:46] [END OF AUDIO]