

Sawbones 346: Angel's Glow

Published on November 8th, 2020

[Listen here on TheMcElroy.family](#)

Clint: Sawbones is a show about medical history, and nothing the hosts say should be taken as medical advice or opinion. It's for fun. Can't you just have fun for an hour and not try to diagnose your mystery boil? We think you've earned it. Just sit back, relax and enjoy a moment of distraction from that weird growth. You're worth it.

[theme music plays]

Justin: Hello everybody, and welcome to Sawbones, a marital tour of misguided medicine. I'm your cohost, Justin McElroy.

Sydnee: And I'm Sydnee McElroy.

Justin: Normally... let's take you inside the show for a little bit. Normally, Sydnee researches the show, Sawbones, and we have the research sort of done and ready to go by like, Thursday, usually. And I don't know if you— listener, if you can think back to what, uh, this past week was like, it was, um... a lot. And we were trying to decode... [laughs] It's like trying to guess the vibe at a party that is... in Bangladesh. And you're at home, and you're like, "I have absolutely no idea." Like, what do you wear to that party? You have no idea. It's halfway across the globe. You have no clue.

Sydnee: Well, and I mean, moreover, I would say it's not even that. It was sort of like— it wasn't trying to guess the vibe of a party. It was like, you're going to an event. You don't know any details. Prepare.

Justin: Prepare. Prepare what people will want to hear.

Sydnee: It could be anything. It could be a party, it could be a funeral. You don't know what the event is. Prepare your general self for whatever this event is, and just go out and go to it. How do you prepare for that?

Justin: And also, beyond that, uh, we just as human beings were not in a great place to... come up with, uh... creative work to make. But...

Sydnee: No. I felt like we were kind of detached.

Justin: Little bit detached.

Sydnee: From like, the normal course of time. Like, kind of floating outside of time for a while, there.

Justin: Little bit, yeah. So, what we decided, or what sort of... yeah, what we decided. What I, uh, sort of urged Sydnee to do, and I think that we came to a good common ground, is just to pick something completely...

Sydnee: Unrelated. From anything.

Justin: Unrelated to anything happening in the world. Obviously, we're recording this on Sunday. Things are looking up, let's say. But uh... this is just a regular Sawbones. That's what we put out in the world. We put out in the world— we talked last time, in the last episode, about like, "Wouldn't it be nice if we could just go back to classic Sawbones?" And I think, maybe subconsciously, that is what we manife— we decided to manifest. This will be the episode that will feel right by the time we record. So here we are.

Sydnee: And this is a story I had come across a while ago, and it was— it's kind of— it's short-ish. But I think we can— I think we can fill a whole time period with it. But uh, it's just an interesting little kind of medically adjacent, medically sort of... in the realm of medical history. It's definitely historical, um, tale that I had come across, and I thought was really interesting, and maybe would interest our listeners, and really has almost nothing to do with anything else that's happening right now. So, it's just that.

Justin: And listener—

Sydnee: Just a bit of medical history ephemera for you to... ingest.

Justin: Listener, speaking of ingesting, I do want to mention, just a second ago, I was taking a large pull off my water bottle. Normally, I mute myself. I was not taking a giganto bong rip, which people tend to...

Sydnee: Oh, Justin...

Justin: ...uh, think is happening. Which is not part of our recording regime.

Sydnee: We don't own a bong.

Justin: We don't own a bong! P.O. Box 54, Huntington, West Virginia, 25706...

Sydnee: No, no! [laughs] Don't— please don't send us bongs! No!

Justin: Send us all your bongs!

Sydnee: We don't want bongs, please. Thank you.

Justin: We don't need bongs.

Sydnee: No bongs. Thank you.

Justin: How would we explain that to our children?

Sydnee: [laughs] I just don't— we just don't need a bong. So anyway—

Justin: Do you have kids' bongs?

Sydnee: ...No.

Justin: So, let's have it, Syd.

Sydnee: I'm a physician, Justin.

Justin: I am a father.

Sydnee: They don't need a bong.

Justin: First. I'm a father first.

Sydnee: For our children.

Justin: And a bong enthusiast second.

Sydnee: Okay. We don't own any bongs. Anyway... I want to tell you this strange little story, uh, that is set during the American Civil War. Which, again, is not supposed to be connected to anything. [laughs]

Justin: No. No. That part is unintentional. [laughs]

Sydnee: No. Um... it's the story of angel's glow, by the way. Have you ever heard this story?

Justin: Sounds like a, uh, Jack Daniels variant to me. I understand that is not what we are discussing.

Sydnee: No, no, this is not some sort of, uh, whiskey or bourbon or anything. So, during the American Civil War, there was a battle called The Battle of Shiloh, also called the Battle of Pittsburg Landing, I guess, depending on... I don't know. Which... where you get your Civil War history. It was in April of 1862. It took place in southwest Tennessee, so not Pittsburg.

Justin: Oh, I can see why they changed the name, then.

Sydnee: Also Shiloh. Well, I found it called both. I had to read up on a little bit of Civil War history.

Justin: Which Sydnee really doesn't like doing. [laughs] Can you explain this to me? You mentioned this. You don't like reading about the Civil War. [laughs]

Sydnee: I don't— okay, I have never been... I like history a lot. I took quite a few— I was one course short of a minor in history. So, I do like history quite a bit, and I took some classes that focused on various wars throughout history. It's never— I don't like any war history. I find it all very sad. That's probably typical.

Specifically, though, the Civil War, I always feel like when you read about... especially like, specific battles in the Civil War, there's like— they have to tell you like, "Also, by the way, most of the people in this battle weren't like, soldiers in any conventional sense. They just signed up and were kind of sent out there. Like, they didn't have training necessarily." And it just all becomes very sad. Y'know what I mean? It just all gets so like, ugh. Ugh. It's just sad.

Justin: Yeah.

Sydnee: I mean, all war is like that.

Justin: All war is like that. War is a bummer. But especially the Civil War bums you out.

Sydnee: Yeah, and it's set in a time where we had so little, like, medical technology, and like, ways to take care of people. So, there's so much excess morbidity and mortality. It's just— it's a sad— all wars are sad. I don't like reading about them. But you have to know that this took place during a war for the story to make sense.

So anyway, the confederate army surprise attacked the union army on April 6th of 1862.

Justin: Now, that is against the rules.

Sydnee: A surprise attack? [laughs]

Justin: As I, and other war historians will tell you, you're not supposed to really do that.

Sydnee: You're— oh!

Justin: It's kind of agreed that, uh, you shouldn't, uh, surprise other people. You should give them kind of a warning. If you've ever seen the um... they call `em whistle boys, or fife lords.

Sydnee: Whistle boys?

Justin: The whistle boys. If you ever see them tooting around, that's to warn the enemy to like—

Sydnee: Tooting around.

Justin: It's time to do war! Let's go! Or the drummers. Same idea. They also help with the marching, I think.

Sydnee: I— I do understand, like, at this point in history, there were a lot fewer just complete surpris— it was a lot more like, planned out. Like, I see you over on that hill. We're on this hill. Tomorrow, we shall meet.

Justin: Yes.

Sydnee: [laughs] People would like, watch, right? Like, you would have like, a viewing area.

Justin: Uh—

Sydnee: Ladies with umbrellas or whatnot.

Justin: I don't... I don't know anything about war. I'm sorry. That will become incredibly apparent.

Sydnee: I had to read The Killer Angels at one point. [laughs]

Justin: I read that! Yeah, I read that one! Yeah, I read The Killer Angels!

Sydnee: Anyway...

Justin: Okay, maybe I'm a little bit more of an expert than I thought! I should've given myself more credit! I read *The Killer Angels* for fun!

Sydnee: [laughing] On— so, the battle lasted—

Justin: Am I a war buff?!

Sydnee: No. The battle lasted for two days.

Justin: Ugh.

Sydnee: Initially, the confederate army caught the union by surprise, and pushed them back, like, up against the banks of the river. And then, the union army got a bunch of support. Like, a bunch of extra troops arrived, and they pushed the union back to the south. Both sides, in the midst of all of this fighting over the course of two days, suffered... tremendous casualties. Between the two of them, about 23,000 lives were lost in this battle.

Justin: Whew.

Sydnee: I know! This is what I'm saying! This is like... incredibly sad stuff. Um, many of the wounded were sort of left where they fell. It wasn't like you had, um, really sophisticated support, like, medical systems that could rush in at the end of every battle, necessarily. And in this one in particular, they just weren't available to come rescue wounded soldiers and get them to field hospitals right away.

So, many of these young people laid in the field, uh, for a day or two, waiting for someone to come help them. And at night, in this muddy battlefield... I should say, it was a muddy, kind of swamp-like area where they were. It was rainy, it was cool. Cool to cold, even, I would say. Some of the soldiers noticed something odd about their wounds.

At night, they seemed to faintly glow.

Justin: They glowed...?

Sydnee: Yes. Some of the soldiers reportedly noted that their wounds glowed a pale bluish to a bluish greenish kind of color.

Justin: ... That's weird. I didn't know that that was a thing that happened, vis-à-vis wounds.

Sydnee: [laughs] Uh, not all the soldiers noticed it. Not everybody had this phenomenon occur. But once they were rescued, and taken to the field hospitals, and of course, like, told. Y'know, the staff, the doctors, the nurses, everybody there about it, like, "Is this like, a thing? That my wound... glowed?"

Justin: "Is this legit? Did I not hear about this? I'm pretty untrained."

Sydnee: "Is this a thing?" But like, one, they stopped glowing. And two—

Justin: Well, that would— the alternative would be wilder. "Can you help me stop this from glowing?"

Sydnee: The— they began to notice a correlation between soldiers whose wounds glowed, and how well they fared. Because again, this is the pre-antibiotic era. So, infection...

Justin: Bad.

Sydnee: ...meant death for a lot of people. A wound of any kind could get infected, no matter how minor, and that could unfortunately cost you your life. But they began to notice that people who had these glowing wounds seemed to fare better overall than their comrades who did not.

Justin: That's wild.

Sydnee: Yes. Wild little bit of history, little story, connected...

Justin: I guess, then— I've guessed why we're calling it angel's glow, then.

Sydnee: This is exactly why they called it— so, that was what the soldiers came to refer to it, and the doctors. They called it 'angel's glow,' because it seemed to be that some sort of higher power allowed these soldiers to

survive and do better than their fellow soldiers who did not have this glow. So, there you go.

Um, and the legend was handed down. Like, as just this... I mean, I think there's a lot of that kind of oral history surrounding the civil war, the American civil war. I've noticed that. Like, you hear those stories. Especially if you've ever had like, a family member. I had family members who were like, civil war history buffs, and would tell you these strange little stories connected to the war. I'm sure all wars have those, but um, maybe because of... maybe because we live in a state that was formed out of the Civil War. [laughs] We, uh, we hear a particularly large amount of those stories.

But anyway. This tale was handed down, and it was this strange, weird thing. Nobody really knew why, or if it was true. Like, "Eh, I don't know, does this sound... who knows, who knows." And that was all we knew about it. Like, if you toured this battlefield, this is what they would tell you about it.

Justin: What a weird thing to just leave there. "Oh, and by the way, um... we should've told you this earlier. Sometimes, the angels heal their wounds by making them glow. But anyway... back to tour."

Sydnee: Anyway, back to the— here's—

Justin: "Don't forget to get a magnet!"

Sydnee: "Here's an old bullet."

Justin: "Can you believe this?"

Sydnee: I feel like that was always part of it. "Here's some old—"

Justin: "Look how rusty these ol' bullets are!"

Sydnee: "Look at these old bullets!" Uh, and that's all we knew about it until the year 2001.

Justin: That's a long time to not know what the heck is going on.

Sydnee: Yes, and I am gonna tell you what happened in the year 2001. But first... let's go to the billing department.

Justin: Let's go!

[theme music plays]

[ad break]

Justin: Sydnee, a lot of things happened in 2001. Of course, uh, the release of They Might Be Giants' Mink Car, Ben Folds' Rockin' the Suburbs, a lot of great albums. Some other worse things in 2001, but uh, you're about to tell me about a completely unrelated event.

Sydnee: Yes. In the year 2001... uh, that's also the year I graduated from high school, so...

Justin: I was gonna say that. That was my next one.

Sydnee: 17-year-old Bill Martin is the key figure in this story.

Justin: You're probably pretty close to Bill.

Sydnee: That what I was just— it was just occurring to me that Bill and I are likely the same age, thereabouts. Anyway, uh, Bill was a Civil War buff, I guess. Young. Young for a Civil War historian.

Justin: Hm. What age do you think is good for a Civil War historian, Syd?

Sydnee: Well, you just don't think that is like, a common teenage interest, y'know?

Justin: That's true. I bet Bill's a cool guy, though. Bill seems cool.

Sydnee: He is cool! Because he's visiting—

Justin: "Bill, what are you doing this weekend?"
"Me? I'm going to a Civil War battlefield with my mom!"

Sydnee: Bill is cool, but I'll tell you who's cooler, is his mom, Phyllis.

Justin: Everybody at school says that.

Sydnee: Sorry, Bill, I think you're cool. Well, Phyllis happened to be a research microbiologist for the USDA. So... [pause] That's a lady I want to hang out with.

Justin: Pretty cool.

Sydnee: That is!

Justin: And she's got a cool son?

Sydnee: You think I'm being sarcastic, but if you know anything about me and this show, I'm not. I think that's awesome.

Justin: No. Sydnee wants to party with Phyllis.

Sydnee: I do. So, Bill was visiting this battlefield, and they heard this story. This legend of angel's glow from the Battle of Shiloh. And uh, you have to imagine that Phyllis had something to do with like, the direction that this story takes, because of her background in microbiology, right? Like, she had to have heard this, and kind of...

Justin: I don't know the story yet, Sydnee. You have to tell me.

Sydnee: Well, put this idea in Bill's head. Could this mysterious glow actually... maybe, just maybe, not have been the result of some sort of supernatural force... but the result of bacteria? Some bacteria have bioluminescence.

Justin: Right. I know this.

Sydnee: What does that mean?

Justin: It means it glows from being alive.

Sydnee: Yeah. Just things that naturally give off light.

Justin: Just glow.

Sydnee: That glow, yes. Some bacteria do that. Phyllis knew this well, because she happened to study, among other bacteria— I imagine she didn't just study one. She probably studied... although, they can get really specialized. Some microbiologists really just focus in on just the one or two.

Justin: Yeah, but if you only focus on one bacteria, what do you do when it dies?

Sydnee: Not— what— ha, ha. Ehhh. So clever.

Justin: [laughs]

Sydnee: Phyllis studied a particular bioluminescent bacteria that she was familiar with. Uh, photorhabdus luminescens, or p. luminescens, we'll call them. And this particular bacteria, p. luminescens, glowed sort of a bluish, pale bluish color.

Justin: Hm.

Sydnee: So... it was suggested, do you think... and I mean, y'know, this was kind of Bill's idea to investigate it further, but you gotta imagine Phyllis had something to do with this. Do you think, maybe, that could've been what was on these wounds of these soldiers? And uh, and this is why they glowed? That doesn't answer all our questions, but it's certainly possible, right?

Justin: Right.

Sydnee: Well, in order to prove that, first, you would have to prove that that bacteria could have been in that soil, right?

Justin: Right.

Sydnee: Like, it's gotta be there. Do we know that it exists there? So, Bill decided to embark on this, uh... mystery to solve this case, crack this case, with his friend, Jonathan Curtis. They set it up as like a science project, basically.

Justin: So, you're telling me, 17-year-old Bill Martin... you're telling me, 17-year-old Bill Martin, on the weekends, he's at the Civil War battlefield with his cool mom, Phyllis, and during the week, he's studying microbiology with his pal, uh, I'm gonna call him Jack Curtis? Jonathan—

Sydnee: John.

Justin: Jack to his friends, like me. And they're studying microbiology to solve Civil War mysteries? This is the coolest 17-year-old I have ever, ever heard of.

Sydnee: That's what I'm saying! He's like Holmes and Watson, cracking historical microbiology mysteries.

Justin: If Jonathan Curtis is on Twitter, I'd love for him to get at us. Wild, man.

Sydnee: Well, you just combined Bill Ma— well, what about Bill Martin?

Justin: What? What? I made— Bill Martin, Jonathan Curtis, either one. Get at me.

Sydnee: Either one. Okay. Alright.

Justin: Us.

Sydnee: So anyway, first they determined that this did— this bacteria could, in fact, have been present in the soil at the time, where the battle took place in 1862. They did this by establishing that there was a certain nematode, which is a little worm...

Justin: Yeah, gross.

Sydnee: ... that was common in the soil in this part of the country. So, the nematode is there. Well, what does that have to do with anything? Just because we know a nematode's there, why do we know the bacteria is there?

Justin: I don't know.

Sydnee: This information that I'm gonna give you about this bacteria, *p. luminescens* and the nematode, is stuff that really only a scientist could love, I think.

Justin: Okay. I'll just stare at the wall for a bit.

Sydnee: The bacteria lives inside these nematodes. Okay? They're nematodes from a family, a certain family of nematodes. *Heterorhabditus* family. Uh, and these— these worms are actually, interestingly enough, you can like, buy them to put in your garden and your crops. They're used for pest control, very commonly.

Justin: Mm-hmm.

Sydnee: Kind of interesting. I was Googling to like, learn more about these nematodes, and I came across all these like, "Here's where you can buy some!"

Justin: Do they glow?

Sydnee: I was like, "Well, I don't wanna..."

Justin: Do they glow?

Sydnee: No, they don't glow. I'm gonna get to that.

Justin: Oh.

Sydnee: But it was like, it was funny, 'cause it was like, "Well, I don't want to buy any. Why would I want to buy— ohh, okay! That's why I might want to buy any."

Justin: Right.

Sydnee: I digress. The little worms are parasites, these nematodes. And the nematodes will get inside the larvae of an insect. Okay?

Justin: Okay.

Sydnee: So, you've got the larva from an insect. These tiny little nematodes will burrow inside it. And once they're inside the larva, the nematode will regurgitate the *p. luminescens* that lives in its gut. So, it pukes up all this bacteria inside the larva.

Justin: [pained] This is good. I'm lovin' this.

Sydnee: Okay? And once the bacteria are out there, they can release toxins that will kill the larva.

Justin: Nice. Cool.

Sydnee: Okay? The stuff that the bacteria release, that the *p. luminescens* releases inside the larva, includes a couple different things. There's a substance that kills the larva. Okay?

Justin: Okay.

Sydnee: Which, by the way, the— they've decoded like, the genes that create, like, that are responsible for making— that encode the sequence for this toxic substance, and it's the MCF gene, which stands for "Makes Caterpillars Floppy."

Justin: [laughs]

Sydnee: Sorry, I just really enjoy that.

Justin: Yeah, you guys are...

Sydnee: Makes Caterpillars Floppy gene.

Justin: You guys are too much.

Sydnee: Makes a toxic substance. Anyway. Uh, also, some enzymes that will break down the larva, the bacteria release that as well, so it can be digested from the inside out.

Justin: Mm. Yum.

Sydnee: I know. It's a brutal world out there.

Justin: Yeah. Out there in the...

Sydnee: In microbiology. Um, and then, also, one other thing that the p. luminescens bacteria release is an antibiotic substance that will kill other microorganisms around it.

Justin: Mmm!

Sydnee: We're getting closer to the answer to this.

Justin: I sense that, yeah.

Sydnee: Yeah. To cracking this case. So, the ne—

Justin: I'm right on the trail! I can feel it nipping at the heels of this mystery! I've almost got it myself, but I don't want to rob you of the joy of the uh, the big reveal.

Sydnee: The nematode will continue to live inside this hollowed out larva that it has now killed, and used enzymes to begin to digest, um, until basically, there's nothing left to eat. Basically, it has destroyed it from the inside out.

Justin: You know what? Like, I really hate rats. Obviously, mice, rodentia, base word.

Sydnee: Uh-huh. Yeah.

Justin: I'm realizing that like, I don't do great with like, burrowing.

Sydnee: Burrowing? [laughs]

Justin: Like, when we get into burrowing, pretty much any sort, I don't enjoy it. When you're talking about hookworms and stuff, I don't like it. Y'know? I don't like the burrowing.

Sydnee: Burrowing is rough.

Justin: Burrowing is tough, Syd. I don't like it, really.

Sydnee: Well, we tend to think of our skin— and like, this doesn't really apply to this specific situation, 'cause the nematodes are burrowing into larva, not humans. But like, we tend to think of our skin as this impenetrable barrier, and it's... it's super not impenetrable.

Justin: Yeah. It's not impenetrable.

Sydnee: I mean, it's pretty good, though. But it's not that—

Justin: It's good, as far as skin goes. Go ahead. Anyway...

Sydnee: Anyway. So, these nematodes live inside these hollowed out larva until there's nothing left to eat.

Justin: Yeah, you actually don't need to keep saying it! You did cover it!

Sydnee: And then— then the bacteria— and while they're doing that, by the way, the bacteria are still outside the nematode. Like, it's puked up all this bacteria, and it's just there, hanging out with it.

Justin: [laughing]

Sydnee: Like its little buddy. Its little p. luminescens buddy. And as the p. luminescens is hanging out, it's multiplying. That's what bacteria do. They just like, keep multiplying. And as it's multiplying, it's glowing. Right? And as there's more and more of it, it glows more and more.

Justin: Okay.

Sydnee: Why would it glow? Our best guess as to why would this bacteria, why would it have— y'know, why would evolution have selected for this? Well, insects tend to be attracted to light sources. So eventually, there's not gonna be anything left of this larva to eat, and you're gonna need new insects to burrow inside and eat from the inside out. So, the p. luminescens

attracts new insects to that area to provide the nematode with its next victim.

Justin: Ohh! Kind of like little runway lights for murderers!

Sydnee: Mm-hmm, mm-hmm. Isn't that interesting? So, once the nematode has a new victim, and has eaten all it can from its current victim, it will actually eat all that *p. luminescens* bacteria back up. It's like, now, get back inside me.

Justin: [laughs] Get in my belly.

Sydnee: Get in my belly, if you will, because it needs— it's gonna take it along with it, as it travels onto the next... thing it will infect.

Justin: Like the cat bus in Totoro.

Sydnee: [laughs] It's not a bad thing. It's taking it along for the ride, so that it can— it's a, y'know, symbiotic relationship. So anyway, and then it will go on and infect a new larva, and puke up the *p. luminescens* all over again, and so on and so forth. Okay? So, if you prove this nematode is in this soil, it could certainly... then, certainly, this *p. luminescens* would've been in the soil as well, and could've gotten in these wounds.

Now, one issue that was immediately apparent with this whole theory that uh, that Bill and John have come up with, with Phyllis' tutelage, is that the nematode lives at cooler temperatures, typically. So, it would be very strange to imagine that the worms would have tried to inhabit a 98.6 degree, or thereabouts, human body. Right?

Justin: Okay.

Sydnee: Like, that is not the right temperature for these nematodes. So, you start to go, "Well, yeah, but how would the bacteria have gotten there? 'Cause the nematodes would never have come to these wounds to begin with."

Well... what they had to do next was investigate the weather conditions.

Justin: Okay.

Sydnee: On this battlefield in April of 1862. And what they found was, it was pretty chilly. So cold and rainy and muddy were these poor soldiers,

that it is perfectly possible that hypothermia could have been induced in some of these soldiers. Some or all of these men waiting on the battlefield.

Justin: Huh.

Sydnee: Uh, and... also, their wounds were probably open, which means that they were not necessarily as warm.

Justin: Right.

Sydnee: So because of that, it is conceivable that, if there are like... bugs in the wounds... sorry.

Justin: Ugh.

Sydnee: Insects in the wounds... that the nematodes would've been, then, attracted to these bugs and larva.

Justin: Uh-huh.

Sydnee: And it would've been cool enough, because of the hypothermia induced by the weather conditions, for them to get inside these wounds... puke up their *p. luminescens*... and the wounds would glow blue.

Justin: Is that— does that make them get better?

Sydnee: Well, that's the last question.

Justin: Mm.

Sydnee: If this is, indeed, what happened, does it help explain why there seemed to be a correlation between a glowing wound and a patient that got better faster, or got better at all? The chemical that I mentioned, the antibiotic chemical, uh, which... I don't know if you want to know the name of this. 3,5-Dihydroxy-4-isopropyl-trans-stilbene...

Justin: Trans-stilbene! Yes! That's what I was actually thinking. Yeah.

Sydnee: ... kills surrounding microbes. So...

Justin: Okay!

Sydnee: When the bacteria was puked up... and it released its substances into the wound, it is possible that it killed other pathogens that may have

been around it. Other bacteria that could've caused infection. Thereby preventing infection in the wounds of these soldiers. Which is— could be why they seemed to fare better in the hospital than soldiers who didn't. And why did they stop glowing when they got to the hospital? Well, very simply, they were probably washed. Right?

Justin: Yeah.

Sydnee: Like, one of the first things you would've done is wash the wound out. So, you would've cleaned all this stuff out of there. Plus, it was warmer. The hypothermia would've been resolved. That would've killed them off, too. So, between washing wounds out, and then bringing the body back up to a normal temperature, the uh... you wouldn't have seen the glowing anymore.

So, that could have... that could have— instead of an angel that caused these soldiers, if this is all true, to get better, it was a bacterial stilbenoid, released by photorhabdus luminescens, after it was regurgitated from the gut of an entomopathogenic nematode of the family... [struggles with pronunciation] heterorhabditidae.

Justin: Or... it was an angel!

Sydnee: Or it was the thing I just said.

Justin: Or... it was an angel! Is yours certain? 'Cause mine... I mean, my heart tells me it's true.

Sydnee: I kind of think that the idea that these conditions were just right for this parasitic nematode to infect these wound— well, I say infect, shouldn't say infect. Just kind of like, live in. Just inhabit these wounds. And release this bacteria that released an antibiotic which may have prevented infection, and saved some of these soldiers' lives, and they just also happened to glow... I think that, for me, personally, just for me, for this little audience of one, is more awe-inspiring at the end of the day, than the idea that a supernatural force or a higher power did it.

Justin: Or... Roma Downey and Michael Landon walked around the battlefield and kissed all the boobos. One of the two definitely, definitely happened.

Sydnee: [laughs] I'm just saying, I think it's— I think it's really fascinating and awe-inspiring. And as a result of their study, Bill and Jonathan won first place at the 2001 Intel international science and engineering fair.

Justin: That's cool, Syd. That's usually the part where you would've been like, "And 60 years later, they died." So, it's cool— I'm glad that we're just catching up with them now, where they won the science fair. I think that's great.

Sydnee: They're like, my age. I hope they're both doing fine. I hope they have gone on to solve more historical microbiological mysteries!

Justin: We need them now, more than ever.

Sydnee: Proved the power of science. Science, miracles that work. But uh, and I mean, I should say... and I think, um, Bill and John and Phyllis would all echo this. We can't conclusively prove this, right? We don't have like, some sort of tissue sample or something that proves this.

It has been called into question as to like, where did this legend even come from? Was there this correlation? Is this really true? 'Cause like I said, when you're getting into some of these stories that were handed down through oral tradition, y'know, like...

Justin: Right. It's not like you have— yes. Concrete proof.

Sydnee: Do we have definitive proof? So, when you're talking about like, from a story perspective, I think it's fine. But if you want the hard science, I don't think we can definitively say that this is what happened.

Justin: It's just kind of like, fun party science for kicks.

Sydnee: Well, it's popular science, I believe, is what you call this.

Justin: I think popular— yeah, I mean, either way. I guess it just goes to prove that Bill Martin knows how to party. I mean, I've been saying it from the beginning. This guy's doing party science? Are you kidding me?

Sydnee: It's totally reasonable. I mean, like, everything that— it all fits. It makes sense, and it's completely feasible that this really did happen, they really did see this glow, and that the soldiers who had the glow really did seem to get better. And certainly, at the time, you would've had no way of explaining this. Like, the scientists, doctors, soldiers... none— nobody involved would've had any clue why this could've happened.

And so, to guess that it may have been an angel... y'know, would've been a reasonable guess for them to make.

But anyway, I think it is a fascinating little story from medical history. And I applaud Bill and John and Phyllis for taking something— I mean, imagine how many people had visited that battlefield and probably like, heard this story and gone, “Huh. That’s cool.”

Justin: “Huh. Weird. They glowed? Huh. Can I see the bullet again? God, that’s old!”

Sydnee: [laughs] We talk about this—

Justin: [laughs] “That is an old, round bullet!”

Sydnee: We talk about this a lot on the show, that it’s important to follow the facts where they lead us, no matter what that— where that is. Like, science is about empiric evidence, and about, y’know, finding truth. But before you can go on that quest, you have to ask questions.

And to ask questions means having an open mind, means having the imagination and the creativity to say, like, “Well, maybe there’s a reason for that that we just don’t know yet, and maybe I could help us figure out what that truth is,” and that’s what Bill and John and Phyllis did. They said, “I bet there’s a truth here we just don’t know yet.” And then they used science to... to find what, y’know, is our best guess of what it is. So...

Justin: Well, maybe your best guess. I'm sticking with angels. Thanks so much for listening to our program, Sawbones. We hope you enjoyed yourself! We got a new piece of merchandise over at McElroyMerch.com. Sydnee, if people want to support the great work being done by the Immunization Action Coalition, we got a new pro-vaxx bumper sticker! Show your support for the incredible power of vaccines! It’s finally legal again to like science! “Vaccines, safe and effective since 1796” is what it says!

You can go to McElroyMerch.com, and uh, stock up on vaccines, and spread the word that they are choice.

Sydnee: Yes. And if you haven't gotten your flu shot yet, please do. Please do so.

Justin: Do so right now. Um, thank you to The Taxpayers for the use of their song “Medicines” as the intro and outro of our program. Thanks to the Max Fun network for having us on as a part of their extended podcasting family, and thanks to you for listening to this program. We will be with you again very soon, but until next time, my name is Justin McElroy.

Sydnee: I'm Sydnee McElroy.

Justin: And as always, don't drill a hole in your head!

[theme music plays]

MaximumFun.org

Comedy and culture.

Artist owned.

Audience supported.