

Sawbones 277: Paternity Testing

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Intro (Clint McElroy): 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 am your co-host, Justin McElroy.

Sydnee: And I'm Sydnee McElroy.

Justin: And I'm Justin McElroy.

Sydnee: We already did that part.

Justin: Dang.

Sydnee: Justin, I was trying to think as I was sitting down to, uh, come up with a topic for this week's episode. Uh, you know, sometimes I try to think like, "What's timely? What's going on? What's happening? What holidays or events?"

Justin: What's hot, what's new, what's now?

Sydnee: And as I was thinking about it, I was thinking, well, my— the first thought I had was, "Well, my dad's birthday is coming up." And that's not really helpful for a medical history podcast, necessarily.

Justin: Mm-hmm.

Sydnee: Like, the medical history of dads or dads' birthdays isn't really a... thing.

Justin: Yeah.

Sydnee: Not a— not a hot topic.

Justin: Yeah. Hot Topic, now there would be a good one. The shirts. Is that the Joker? I love it.

Sydnee: I don't think that has anything to do—

Justin: Rugrats? On a hoodie?

Sydnee: That has nothing to do with my dad and/or medical history podcasts.

Justin: I love My Chemical Romance!

Sydnee: But... I don't know if this is an insight into the way my brain works that I should share or not, but when I thought, "Well, what— what has to do with my dad that would have to do with medical history?" I thought, "Oh, I wonder if paternity testing has an interesting history?"

Um, I don't doubt that my dad's my dad, uh, we share way too much sports-related aggression—

Justin: [laughs]

Sydnee: To not be genetically related.

Justin: Sounds like a cause of death.

Sydnee: [laughs]

Justin: Cause of death: sports-related aggression.

Sydnee: Uh, but it did make me think about... You know, I bet there's an interesting history when it comes to like, proving parentage, and how did we do that? Nowadays we have DNA, right? I mean, well, we always had DNA. That's not new.

Justin: You could also pretend this is about Game of Thrones. Game of Thrones has just wrapped up, paternity is huge on that show.

Sydnee: Right.

Justin: Lineage. This is our Game of Thrones, Tommy Smirl tie-in episode. It's for both.

Sydnee: Yes. Yes, I—

Justin: If you know Tommy but don't know Game of Thrones, go for that.

Sydnee: There we go.

Justin: If you know Game of Thrones but not Tommy, go for that. If you know Tommy and Game of Thrones, you're probably Mary Smirl, Sydnee's mom.

Sydnee: There's pro— there's probably like, a few other people, though.

Justin: There's probably, uh— the Venn diagram probably has a few other people.

Sydnee: Uh, so humans, as you may imagine, have been trying to prove, for various reasons, conclusively who their parents were for a long time, both to prove that someone is, and on the other end prove that that's not your child necessarily. Uh, there have been great efforts made throughout history to do that before we figured out that like, we have DNA and there's a— there's a good way to do that.

You know, one thing I wanted to cover at the top is, I had heard the myth, maybe even in a classroom but perhaps not. The myth that up to anywhere from 10-30% of people don't know where the sperm that created them, where it actually came from. That the person they think, you know, fathered them, is not.

Justin: Right, is not.

Sydnee: Uh, I have heard that myth. That is— that is not true. It is probably a much, much, much lower number, like on the order of 1-2%. So, just thought I would bust the-

Justin: I had not heard this myth, so I'm assuming it might be a medical school thing, 'cause I have never heard that.

Sydnee: I had— I had heard that myth before. I looked it up, it is considered an—

Justin: You asked me what I thought it would be, and I nailed it in one. I got it in one.

Sydnee: Yeah. You said like, 3, and like, some studies have said perhaps up to 3, but like, probably 1-2. Anyway, uh, the point is, that's not a— that's not as big an issue.

Justin: Do you— do you want to talk about terminology real quick? Just 'cause it gets a little gendered.

Sydnee: It does. It does. The language when it comes to— so like, if you were to look up a paternity test, what they are referencing is trying to figure out, uh, which individual the sperm came from when it came to making the child, 'cause there had to have been a sperm, there had to have been an egg. Uh, and maternity testing refers to figuring out who provided the egg.

So those are generally— like, if you— if you're going to go have these done and you're googling to try to figure out, like, where can I do this and how much would it cost and what services provide them? These are the terms you would use to look up those things. Now, they are gendered terms.

Justin: Yeah. Women can make sperm, men can make sperm, vice versa, everybody can make eggs and sperm, it's, it's— but they're— his is shorthand that we have, and there's not a non-gendered way of talking about parentage right now. You—

Sydnee: We could say parental testing, but I think the problem is is we're looking back through history. As you may imagine, a lot of the testing, "testing," that was done was really focused on who provided the sperm, especially when we are talking about like, royal lineages and, uh, children that were, uh, conceived outside of a marital relationship. That what really kind of decided where in society that child was going to fit.

Justin: Right.

Sydnee: Was who provided the sperm. And so a lot of it was focused on what is broadly referred to as paternity testing, um, but obviously again that... It's not— it's a defect in our language. We need a non-gendered term for that, other than "the person from whence the sperm came."

Justin: [laughing] That's a very... It's very wordy.

Sydnee: The person from whom—

Justin: This episode'll be three hours long.

Sydnee: The sperm came. Uh, in Ancient Rome proving parentage was really important, because as I said, it would change your standing in the community, depending on who— who— you know, got busy.

Justin: Mm-hmm.

Sydnee: Mm-hmm.

Justin: In the scientific terms.

Sydnee: Yes. Uh, if a child— there was a specific term for children who were born of incestuous relationships. Hey, Game of Thrones! This refer— this is really relevant to that, right?

Justin: Mm-hmm..

Sydnee: There was some of that.

Justin: Sure, yeah.

Sydnee: Uh, they were called the incestuosi.

Justin: Incestuosi.

Sydnee: Incestuosi, incestuosi.

Justin: It sounds like a hot social clique.

Sydnee: It was not. Uh—

Justin: [wheezes]

Sydnee: They actually—

Justin: [strained] No toying Syd?

Sydnee: No, because if— because not only did the father not necessarily have to support that child, the mother actually at the time had no like, legal requirement to support a child that was born of that sort of relationship. Um, so, so disproving that would be very important.

Uh, also if it was, uh, as I mentioned, a child— so, if there is a married couple and then somebody steps out, the child that is conceived in that manner is also regarded, uh, as a lower— lower on the social rung in Ancient Rome.

Justin: Okay.

Sydnee: Um, and so all of these things really mattered. Uh, for potential, uh, fathers, the reason that you wanted to prove or disprove this claim was— it became a financial one. Actually as far back as the 6th century CE, we began to require alimony, child support, some payment to the person who would be raising the child from the other person who was involved in conceiving the child.

Justin: Mm-hmm.

Sydnee: Uh, and so, you know, Justinian said like, "Everybody's gotta be held accountable, no matter how the child was conceived. You're gonna have to pay for it."

So it became an issue, because it became a financial issue. This actually— this held true for a long time. There have been... If you look into the legal history of it, it's really interesting because there was a point in history in the 1800s when... Like, for instance in France, the French civil code actually said that, uh, you can't force any parents to be accountable for a kid just because they had it.

Justin: Why?

Sydnee: I don't know! I'd have to ask French people.

Justin: Seems like a pretty good reason, French people.

Sydnee: I'd have to ask the French people of the 1800s. Um, this didn't last very long. That is obviously not our modern idea of, of your responsibility as a parent to the child that you bore, uh, or helped to create in um, in modern society. In

France or anywhere else, I believe, that you have some accountability for their welfare.

Uh, there were some methods of determining parentage that were based on timing of pregnancy. That was a really common way, uh, was just like, asking about menstrual cycles and how— trying to figure out... You know, this was still a problem back before ultrasounds and such, how, how far along? You know, how long has this person been pregnant?

Justin: I'm sure that was always tastefully handled.

Sydnee: No, never. Uh, there were— there were obvious heritable traits that would be looked for, which is so...

Justin: Like, yeah.

Sydnee: Touch— uh, yeah, so hit and miss. I mean, yeah.

Justin: So dicey. He has— he has your nose, that guy.

Sydnee: I guess, yeah. There were some other stranger kind of concepts, like there was a north Germanic tribe that would have the potential, if it was a— if it was a male child, once they were old enough, I guess, to hold things, they would have them hold a metal— a hot metal rod, and if they were truly the son of whoever they were claiming, they could hold it. Yeah, I don't know.

Justin: If they have it like, as long as their dad, then they're like, as much of a wimp as their dad? Like, if they let it go instantly like, "Oh, that's Phil's kid. Phil couldn't hold a hot metal rod either."

Sydnee: [laughs] Uh, there were— there were easy options for those who were... claimed to be the father of the child. The ones who were in the paternity suit, so to speak. There were some easy ways that they could prove that they were not, in fact, involved in the conception of the child. Uh, the easiest was to prove that you were out of the country.

Justin: Yep. Have a receipt from Dunkin' Donuts in another land. You're set.

Sydnee: You got documentation, you got witnesses. Now again, you said, of course was this handled tactfully? No, because the pregnant person had to

undergo an examination to try to determine the timing of the pregnancy, uh, and so if you could... Basically if you had the receipts, you could— that would be one way of denying, uh, paternity.

The other way, uh, was to prove that you could not impregnate anyone under any circumstances.

Justin: [snorts]

Sydnee: So they had to hold an impotence trial.

Justin: That's so rad. [laughs] Like, what a rad— "Oh, well, ho ho ho, not so fast! I'm taking you to court! Impotence court! [wheezes] To prove that I, Phil, could not have sired that child."

Sydnee: To all of our Phils listening, I'm very sorry.

Justin: Yeah, I don't know. Sorry, Phil, you're getting a rough go of it this time. I don't know, bud.

Sydnee: So, uh, these were defined as, uh, legal sexual fights.

Justin: Legal sexual fights?

Sydnee: Sexual fights.

Justin: Like foxy boxing?

Sydnee: [laughs quietly] And, uh, basically what you would have to do... There was a *congressus*, so there were some surgeons, some official priests, some matrons, various people who I guess were good at judging these kinds of things.

Justin: Right.

Sydnee: And you would have to go before them, in person, and demonstrate your inability to become erect and ejaculate.

Justin: Boy, that is a... That's a full afternoon, I tell ya. That is a lot to have to deal with, I feel like.

Sydnee: And if you could successfully prove that you were incapable, then that would eliminate you as a potential sperm donor from the equation, because... You couldn't, so... there.

Justin: That's what that scene in A Few Good Men is about. You know that?

Sydnee: [laughs]

Justin: Tom Cruise is like... [snorts] "I want the truth."

Sydnee: I've never seen A Few Good Men, but I'm guessin' it's not.

Justin: No, it's, it's actually absolutely about what you just described, exactly verbatim.

Sydnee: Now, these— these sexual fights were problematic, in that... Justin, would you say it would be difficult, as a— as a—

Justin: [snorts]

Sydnee: I am not a penis-haver.

Justin: [laughs]

Sydnee: As someone who is, Justin, would you say it would be difficult to do this in front of a courtroom full of people?

Justin: It— I— here— here's what I'll say.

Sydnee: Under any circumstances.

Justin: I'll make this blanket statement, okay, Squid? Let me make this blanket statement. For most people with a penis, yes. For a certain segment of people with penises, 100% no. [laughs] Like, here is— I don't want— I can't say unilaterally. I would guess for the majority of people, yes. For a slim minority, "Oh, it's not gonna be a problem whatsoever. This is my whole thing. [laughs] This is my whole jam, I've dreamt of this my entire life. This is my moment to crank it in a courtroom." [laughs]

Sydnee: Uh... If you— if you—

Justin: [high pitched] Did they have lawyer— [wheezes]

Sydnee: Yeah, I mean, it was a legal proceeding.

Justin: [high pitched] It was a legal— [laughs] that is a— [wheezes]

Sydnee: This is how you— this is how, if you wanted to prove that—

Justin: [strained] It is a legal erectio— [wheezes] It is a legally binding erection!
[laughs breathlessly]

Sydnee: If you wanted to prove—

Justin: [squeakily] Did they need a judge?

Sydnee: That that wasn't your child—

Justin: Did they need a judge? To judge— [coughs] if it— [laughs breathlessly]

Sydnee: This is how it went down! And you are not—

Justin: [breathes deeply]

Sydnee: In doubting this, you are not alone. Uh, we've talked about a famous French surgeon, Ambroise Paré before on the show.

Justin: Up in the historic rebuff, right?

Sydnee: Uh— no.

Justin: Oh.

Sydnee: Paré? No, he was— he was—

Justin: He— he published the complete works. That had stuff about, uh, jaw fractures and stuff.

Sydnee: Oh, yes. Okay, yes, he did have stuff. You're right, you're right, you're right. He was— he also— we've talked about him in so many episodes. He was like, instrumental in wound care and amputation.

Uh, important French surgeon, but he also, uh... His comment on this, which he did not publish while he was alive, he wrote it and then it was published after he died, that—

Justin: Put this— put this in a file.

Sydnee: Just to say like, listen. It would be pretty impossible for most people to perform in this arena, and I don't know that this is a great way...

Justin: What a prudish time that you can't even say that while you're alive. Like, "Listen. This is— this is off my blue side, all right? This is uh, this one— uh, uh, send the kids to bed. Let me tell you my opinion about erection court."

Sydnee: There were other medical arguments that um, people could prove a little bit easier. People who were, who were claiming they were not responsible, uh, for the conception of a child.

Um, so there was an Italian physician in 1595, Giovanni Battista Condrionchi— Condrionchi. Dronchi?

Justin: Got it.

Sydnee: Who, uh, talked about that if you had excessive liquid evacuation, then you may not be able to... you know.

Justin: You mean too much...

Sydnee: Yeah.

Justin: Sperm. No, not sperm.

Sydnee: Too much, like—

Justin: Semen.

Sydnee: Yes.

Justin: That's the word.

Sydnee: Yeah, well, also like, if you masturbate a lot.

Justin: Ohh! Okay. I thought you meant like, if it was too... liquidy.

Sydnee: You'll lose sperm quality.

Justin: Oh.

Sydnee: And that if you don't eat enough, you'll lose sperm quality.

Justin: True.

Sydnee: Any deformities of the genitals. Um, he also specifically targeted overweight people, and said that basically there's— there's too much— there's like, fat in the blood. Like, actual adipose tissue. There's fat in the blood, and that it couldn't make good sperm.

Justin: True, true.

Sydnee: So that could be a defense you could use, like, "I am too overweight to have... to have pre— to have provided good sperm, and so I could not have possibly been involved in the conception of this child."

Justin: And that's true, too, right? About being overweight, fat in the blood?

Sydnee: No, none of that is true. No, none of that is true.

Justin: None of that is true.

Sydnee: That is not true. Um, so if you could prove any of that, you could claim, "I couldn't— not me! Couldn't be!"

Justin: "Couldn't be!"

Sydnee: "Couldn't be me."

Justin: "Couldn't be me! No overweight person has ever gotten anybody pregnant."

Sydnee: [laughs] There was a—

Justin: That doesn't even stand up to basic, like—

Sydnee: Mm-mm.

Justin: That's threadbare, Ambroise. I gotta say.

Sydnee: They get called out on this eventually, don't worry. There's a lot of—

Justin: Oh, Giovanni, not Ambroise, sorry.

Sydnee: No, that was Giovanni. But there was a lot of kind of ridiculous claims that— that I have not— I don't have historical proof for this, but they speak of kind of like a, "Hey, I got your back buddy. Hey, don't worry, bro."

Justin: Actually, Der— all Derricks are impotent, so my friend Derrick could not have done this. All Derricks are impotent.

Sydnee: That is not true. All Derricks are not. I'm sorry, Derricks. I am sorry to all of the Derricks. Uh, so there was also the, uh, Fortunatus Fidelis from Italy—

Justin: That was a character, Sydnee.

Sydnee: Right.

Justin: That was a lawyer character I was playing. Not a real...

Sydnee: No, I know. I just am apologizing to all the Derricks and Phils who you've offended with our podcast.

Justin: Fair enough.

Sydnee: Uh, he also stated that uh, if you had a crooked penis—

Justin: Mm! Hold on. Let me listen more intently to this part for no reason in particular. Go ahead.

[pauses]

Sydnee: What now?

Justin: I said, let me listen to this part...

Sydnee: Oh, the next— okay.

Justin: Very intently for no reason in particular.

Sydnee: Okay, okay. Also, uh, he described a penis of such large size...

Justin: All right, I'm gonna tune out.

Sydnee: That... [laughs] any sort of sexual intercourse would be of mortal danger—

Justin: [chokes]

Sydnee: To the woman.

Justin: 38 years old...

Sydnee: And so, it is impossible that this person could actually have vaginal intercourse.

Justin: That is— and this is actually verbatim the title of the first porno tape ever made. Was "A Penis of Such Large Size that Sexual Intercourse Must Be of Mortal Danger to the Woman," uh, is the name of the first ever pornography video cassette, from the 1600s.

Sydnee: So fertilization and paternity would be impossible.

Justin: That is the second— that's the sequel.

Sydnee: If you had all these options that you had to claim in front of a judge—

Justin: [wheezes]

Sydnee: Why didn't everybody claim that one? Why were some people in there and they were like—

Justin: I can't... [laughs]

Sydnee: "My doctor says I'm too overweight," when another option would have been, "My doctor says my penis is too big."

Justin: [laughing] My penis is too big... I had what most men... What does he say in, um... I had penis reduction surgery.

Sydnee: Uh-huh, uh-huh.

Justin: Uh, Sydnee, I have to know more. I don't— I don't even care what about, I just have to keep going.

Sydnee: Obviously in this, uh, in the— so the patriarchy is running amok on this topic.

Justin: Oh, boy. They're havin' a lot of fun here.

Sydnee: They're just all over it.

Justin: Patriarchy's getting a little buckwild.

Sydnee: And science is gonna have to call 'em into question, but before, before we get there, let's go to the billing department.

Justin: Let's go!

[theme music plays]

Justin: Sometimes...

Sydnee: Some crimes. [laughs]

Justin: You— crimes. I knew, I knew if I waited long enough you would just slip in there. Uh, sometimes you get a craving for something. The one I get a lot is pho.

Sydnee: Yeah.

Justin: That pho craving, or beans, or cookies, or whatever. Ice cream, choco-taco, whatever. And you don't wanna leave your house to go get that one thing, 'cause [groans]. And when you have that feeling, that [groans] feeling, there's only one thing to do: and that's, uh, connect with Postmates, your personal food delivery, grocery deliver, whatever you can think of delivery service 24/7.

You don't have to go to the store to get one stinkin' thing! You just get the Postmates app, uh, you look at local restaurants and businesses, track your delivery, and uh, get what you need that way.

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We end up traveling a lot, here at the McElroy household, for uh, work and play, I would say. Mostly work.

Sydnee: Work and play.

Justin: Mostly work. Work, and also we go to an aquarium while we're there, 'cause we go on tours a lot. Uh, and it has been a lot easier since we got turned on to Away Luggage. Uh, this company was founded by two friends from New York who found themselves at JFK with dead phones, delayed flights, and a bright idea: luggage with power. Thus, the Away carry-on was born. Think of it: a bag that can charge your phone.

Sydnee: Brilliant.

Justin: Brilliant! Uh, Away designed a bag that solved a few old problems also, like sticky wheels, uh, and like we said, dead cell phones. All their suitcases are made with premium German poly-carbonate. They come in nine colors and four sizes.

Sydnee: There's a pink one, which Charlie loves.

Justin: She does. If anything breaks, Away will fix or replace it for you for life. There's a 100 day trial. You live with it, travel with it, and if at any point you decide it's not for you, you return it for a full refund, no questions asked.

Uh, it is a— it is a fantastic bag. Uh, nigh-indestructible. I mean, we have— and we have, uh, a four year old and a one year old, so like, they put it through its paces. It has been walked on. It has been dropped down stairs. It has been stamped on. It has been sat on. Uh, it has been—

Sydnee: The four year old put the one year old inside it. Don't worry, we were there, we didn't let anything happen.

Justin: Uh, it's a wonderful bag. For \$20 off a suitcase, visit awaytravel.com/sawbones and use promo code "sawbones" during checkout. That's \$20 off a suitcase by going to awaytravel.com/sawbones and use the promo code "sawbones" at checkout.

So, Syd. You were saying?

Sydnee: So we— in the 1600s we began to develop some pathways to, uh, figuring out like, what... The problem is, we didn't really understand fertility well, right? Like, before we can start figuring out like, who, who are the parents of this child, we have to figure out like, how are babies made? [laughs]

Justin: Right, we're— yeah. We're a long way away from that.

Sydnee: And we're still— like, there's still a lot of debate. A lot of people had the idea that it was really just the sexual act, and not necessarily any sort of exchange of fluids or anything.

Justin: Right, right, right. Right.

Sydnee: So like, you didn't— so ejaculation was removed from the idea of fertility for a while. Um, this started to change in the 1600s, when we found sperm. First we had to have a microscope, and then we could look, look at some semen and go, "Whoa!"

Justin: "Oh, hello."

Sydnee: "What are these animalcules?"

Justin: You think that that word just came to them, unbidden?

Sydnee: Well, they— that was a common term for tiny little things that move and we don't know what they are. Animalcules.

Justin: That must have buck w— that must have been buck wild, the first time they were like, "Uh, hey. You guys better get over here. Uh, there have been tadpoles in here the entire time. There have— in— in the stuff. You know the stuff? There've been tadpoles in it. I kid you not. Come look, come look, quick!"

Sydnee: People were pretty freaked out, and it really— it challenged the idea that if there is a penis and there is a vagina, a baby can happen, nothing else is needed. All the sudden, we begin to get the idea that, "Well, some— there's something else happening."

As, uh— I like— there was a Swiss anatomy professor, Albrecht von Haller, in the 1700s who said, "Anyway, sexual intercourse requires a perfect instrument, but to father a child a little bit more is needed."

Justin: [snorts] All right.

Sydnee: Uh, so throughout the next 200 years, there would be a lot more study on, what are sperm? What do they do? What about ova? How 'bout that? What about the other part of the equation? We need an egg, as well. Uh, to try to figure out how everything worked.

But all of this doesn't really tell you who the parent is. It just— it helps you figure out who the parent isn't, right?

Justin: Right.

Sydnee: Because—

Justin: Which is a slow and inefficient of determining parentage.

Sydnee: Exac— exactly! If the only thing we're focusing on are— I mean, let's be honest, um, people with penises who want to say, "Not it!"

Justin: "Not it, not me!"

Sydnee: I mean, that— "I can't! Look, there's no— there are no sperm in there, so it wasn't me." Um, that's pretty much all this so far we were able to figure out. Uh, and as a result, even into the 20th century, if you asked a doctor testify with expert medical opinion as to, could this individual be, you know, responsible for this child? Do you think that this is the person who was involved in the conception of this child?

It was really just their opinion and their experience. There was no scientific grounding for this. A lot of it still had to do with proximity and timing. Did these two people have sex around the time that we think this child probably was conceived? Um, but there were other—

Uh, as in 1909, there was R. Gottschalk who published an outline of forensic medicine, 'cause that's what we're starting to get into, right? Forensics, trying to figure out what happened here. Not necessarily diagnose or treat anything.

Uh, there were— he wrote that, "In no other area have so many unbelievable lies and impudent claims been put before the forensic task as in this: accounts of infertility," uh, because doctors would go before judges and say, "Nah, he was too sick to have had a kid, so it wasn't him." Or, "He was— his, his penis is deformed," or "He has a tumor there that will stop it," whether or not this was true. Uh, "The genitals were an unusual size." Um, "There were, uh—"

Justin: Genitals of unusual size? I don't believe they exist.

Sydnee: [laughs] There— there were doctors who would actually claim that, "While yes, I— through my examinations, I have concluded that the two individuals in question did have sex at the appropriate time to have conceived this child, I do not believe that it is possible for the man to have ejaculated, because the woman is not attractive enough." This was an actual legal defense.

Justin: [strained] I'm sorry! I'm— all of us— your—

Sydnee: Thank you for your apology.

Justin: Sorry, I'm sorry again. For the— everything. The whole thing.

Sydnee: So, even as these claims began to be seen as ridiculous, even as, you know, obviously there were other scientists and doctors saying like, "You can't just go into a courtroom and say like, 'Nope! Couldn't have happened,' because of something that you have no scientific grounding for. That's just your opinion."

Our one tool that we could actually use to determine if, if— You know, because the common thing was, "Well, I've never been responsible for parenting a child before." You know, like— especially if it was like, an extramarital affair. Then, usually— it was usually man, would say, "Well, I have no children with my wife, so obviously I can't have children, so I couldn't have been the parent of this child." Um, an easy thing to do would be to examine for sperm, examine the semen for sperm.

In order to do that, though, you gotta get a sample, right? Which requires masturbation, and at the time, in the early part of the 20th century, there were a lot of doctors who believed that it was detrimental to one's health to masturbate.

Justin: Oh.

Sydnee: So they could not ask a patient to do so, in order for them to examine it under a microscope, because it would violate our primary tenet of "Do no harm," because they'd be asking them to harm themselves.

Justin: Yes.

Sydnee: So, it all seems rather convenient to me.

Justin: Mm.

Sydnee: But anyway, so there was no— there was no proof there. Uh, there was also— even when you would do that, if you would see that the sperm weren't moving, the idea, "Are these sperm not capable of motility?" which could be a cause of infertility.

Um, there was a common belief that the sperm don't come to life until they're inside the vaginal cavity.

Justin: So you put a special plaid hat on them, and every night they...

Sydnee: So, so they would just say, "Well, the sperm aren't moving 'cause they're not inside the vaginal canal. That's when they really get movin', so. Doesn't prove anything."

Uh, the real breakthrough when it came to this kind of testing came with the discovery of blood types, by Karl Landsteiner. Uh, basically we can use... Do you remember Punnett squares?

Justin: Yes.

Sydnee: From science class? Gregor Mendel and his pea plants?

Justin: Gregor Mendel, yeah.

Sydnee: So, basic Mendelian genetics helped in this case. So, we could use the blood types of the two people in question and the blood type of the child to figure out if it is possible at all that this person may have been one of the parents of the child, right?

Justin: Mm, right.

Sydnee: For both, really. Because there were certain— if you do the Punnett square, there are certain blood types that could not have produced a child with this blood type, basically, without getting into all of the specifics.

Now, of course this isn't perfect. It was still, like— you could definitely rule people out like, maybe 30% of the time, but that was it.

Justin: Can't prove anything.

Sydnee: You can't prove anything for sure, because people have the same blood type. Uh, later they— we figured out Rh groups, that's the positive/negative, A+ or A-, that part of it, and that helped even a little bit more, but it's still an imperfect, uh, test. A good example of this was Charlie Chaplin.

Justin: Uh— what?

Sydnee: Uh, he was claimed to have fathered a child of Joan Barry in 1946. They did blood group testing, and it ruled him out as a possible parent, but the judge didn't buy it, because at the time it was considered unreliable.

Justin: Oh.

Sydnee: So he had to pay child support anyway. Uh, this— so, like I said. This led to a lot of inconclusive results. We looked for better tests throughout the 1930s. Um, we did like, protein marker testing. Like, there were different blood tests that were developed. Uh, there was— in the 1960s, we did this HLA typing, which has to do with certain genetic markers that we can find on white blood cells, so you could take a sample of the blood, look at the white blood cells, look for these certain markers, and that could help up to 80% accuracy.

Justin: Okay!

Sydnee: But it had a lot of trouble with close relatives, so if you're not sure—

Justin: Which of the—

Sydnee: Like, brothers or whatever, you know. That would— that would get problematic.

Justin: Mm-hmm. I think it's— you know what? It already sounds problematic.

Sydnee: It does, it does. That sounds very problematic. Uh, so finally, as we started to get— as we started to understand DNA and our genes and how to do genetic testing, that was really the breakthrough, and that didn't happen until the 70s and then into the 80s, when we found ways... We found that, you know, we all have unique genetic codes, and they are made up of the two people who parented us, and we can take some of the DNA out of our cells and replicate it.

That was a big breakthrough, with polymerase chain reaction, meaning we can make many, many copies of a piece of DNA. And then we can either cut it into little pieces and look for certain pieces that match, or we can look for repeating fragments of DNA that we all ha— or that are all different among us, but we would have gotten from one parent or the other.

So, they found all these ways to do this throughout the 70s and the 80s, and now with DNA, all we have to do now is either take a blood sample, or even easier, a cheek swab. Swab the inside of your cheek, get some cells, open 'em up, crack open that DNA, compare it, and with 99.99% accuracy, we can predict if somebody is a parent or not.

Justin: There's some part of you that thinks that this would have been a fun line of work to go into, doesn't it?

Sydnee: It sounds very cool.

Justin: It seems— there's a— what— there's an animation I'm seeing from you that makes you... makes me think that you wish you had gotten into...

Sydnee: I— we do a little bit of this like, throughout like, labs. Well, I mean I did, in my college like, chemistry labs and stuff, and bio-chem and things. And it's just fascinating to think about. We would do these like, gel electrophoresis, separate out the different pieces of DNA that we broke apart with restriction enzymes. It's really interesting. I don't know. I just think it's very cool.

But it's the same idea as— we've done an episode on genetic testing before. We can do that, and we can figure out who your parents are. Um, you can do that— a lot of people ask, can you do that while like, a person is pregnant? Can you figure out who the, who the other parent is while the person is still pregnant?

You can. There's one sample that's— there's one way of doing it that's invasive, a chorionic villus sampling, where you actually have to stick a needle in and get a—

Justin: [hisses] Ugh.

Sydnee: Yeah. Sample from inside the uterus during the pregnancy, and there are some... I mean, they're slight risks, but there are some risks to that.

Justin: Right.

Sydnee: There's another way to do it now where we can just look for uh, fetal cells. Cells from the fetus in the blood, like, by getting a peripheral blood draw from the parent, which is pretty cool.

So, you can do that, or you can just wait until after the baby's born, too. Um, it's still a problem with identical twins.

Justin: Oh, yeah.

Sydnee: They have the exact same genetic code.

Justin: So you couldn't prove...

Sydnee: You couldn't prove which one is the parent.

Justin: Oh, interesting.

Sydnee: There was a case in Brazil this year where two men were ordered to pay child support for the same child, because they could not conclusively prove which one was the dad.

Justin: Wow, weird.

Sydnee: I know, I thought that was interesting. Another interesting exception are, uh, chimeras.

Justin: The mythological beast?

Sydnee: No.

Justin: Ah.

Sydnee: That is a different thing, isn't it?

Justin: Chimera?

Sydnee: Is that a chi— let me tell you— while you're looking, I see you're googling, while you're googling, let me tell you what a chimera is. So—

Justin: Fire-breathing monster with a lion's head, a goat's body, and a serpent's tail.

Sydnee: Well, this— that is not what I'm referencing.

Justin: Okay.

Sydnee: Animals can be chimera, and humans, uh, are animals, so we can too. So basically, every cell in your body has the same DNA inside the nucleus, right? We have the same genetic code inside the nucleus for every body cell, no matter where it is in your body, it's all the same. Except for genetic chimeras. They have two different cell lineages in their body.

The most common way this happens... I think this is the easiest way to understand what I'm saying. If you imagine that there are two eggs inside the uterus, and two different sperm fertilize those two eggs, and then very early in the zygote process, in the formation process, the two fuse into one, they are like two— two— two people in one.

Justin: Wow.

Sydnee: And so there are two completely different genetic codes scattered throughout their body. Most of the time, you don't know. Like, this wouldn't be something that would be readily... You wouldn't see anything. Everything would look fine.

Justin: There wouldn't be like... Super strength or anything...

Sydnee: No. Occasionally you'll see like, different color eyes or patches of different colored skin, um, that might indicate that this is true. Um, but you wouldn't necessarily ever know that this was true.

A calico cat is a great example of this. Calico cats are chimeras. That's why they got the different colors of fur. Now, what's interesting is there's—

Justin: Why aren't calico cats more rare, then? It seems like there's a lot of those.

Sydnee: I think they are more rare than other types, aren't they?

Justin: Well, maybe. I don't know.

Sydnee: Well, I mean, here's the question. Like, are chimeras less rare— there are other reasons that a person can be a chimera. This is just the most—

Justin: Oh.

Sydnee: Most common. But um, are they less rare than we know? We all have a little bit of, of uh, other cells in us, typically. There's exchange over the placenta. Anyway, it— this doesn't matter.

Justin: [laughs quietly]

Sydnee: The point is, in 2002, Lydia Fairchild was a case where... She was getting divorced. She was pregnant with her third child, and uh, she was trying to um, get child support for her other two children and the one that was on the way, and that was— it was standard at the time to do a proof of paternity, to prove that who she was saying was the dad was the dad of her children. And they also got, um, blood from her, and what they found is that while yes, this indeed was the father of the children, she could not possibly be the mother of her two children.

Now, initially prosecutors jumped on this and tried to take her children away from her, thought she was running some sort of scam. Nobody knew exactly what the nature of the scam— why—

Justin: What a scam that would be.

Sydnee: Yeah, that's a— as someone who's raising two children right now, I don't know why that would be the scam.

Justin: Yeah.

Sydnee: But um, anyway. So she, she was taken to court over this and she kept insisting, "No, they're my kids!" And like, nobody was— like, we have no evidence that they're not her kids, like, we don't know what's going on with this testing. So what the judge had was someone present in the delivery room when she gave birth to her third child, and then very shortly after they took blood samples from both that child and Lydia Fairchild, and they found that she could not possibly be the mother of that child, but they had witnessed her giving birth to it.

Justin: Yeah.

Sydnee: So, uh, one of the defense lawyers read an article in the New England Journal of Medicine about a different woman from Boston named Karen

Keegan who was a chimera, who had chimerism. Uh, so they theorized, perhaps this could be the same.

So, for their client, they took DNA samples from different places in her body, and they found that even though her skin and her hair did not match her children's DNA, they uh, did a cervical smear, like a pap smear test. The cells from there had the same DNA, and proved that she was the mother of the children, because they're just cells from the two different cell lines in her body.

Justin: Wow.

Sydnee: Interesting case, right?

Justin: Yeah, that's fascinating. But anyway, it's easy now, right? We fixed it. We solved this one.

Sydnee: Yeah. We're really— we ca— we're really good at— I mean, I guess if you ever watch the Maury Povich show—

Justin: And I do.

Sydnee: I think that's all it is these days...

Justin: I never miss one.

Sydnee: Is, is that. But yeah, with 99.99% certainty, we can figure out who the parents are, or vice versa. Even like, if a parent isn't present, you can like, backwards construct... If you're got like, one parent's DNA and the child's DNA, you can figure out the genetic code of the other parent, even without having them present.

Justin: Wild time.

Sydnee: Yes.

Justin: Uh, folks, thank you so much for listening to Sawbones. We hope you've enjoyed yourself.

Sydnee: Happy birthday, Dad.

Justin: Happy birthday, Tommy.

Sydnee: Um, he should do a Court Appointed on this.

Justin: Yes.

Sydnee: There's a great legal history.

Justin: Listen to Tommy's podcast. It's a legal podcast. If you like Sawbones, uh, listen to Court Appointed.

Sydnee: He does it with my uncle Michael, who's a real lawyer.

Justin: He's an actual lawyer, in the same way that Sydnee's an actual doctor. Um, if you remember to renew your license. [quietly] Your license. I'm reminding you here on the podcast.

Sydnee: I will!

Justin: [quietly] Okay, I just remember [unintelligible]

Sydnee: It's just like money. Everybody out there, it's just mo— they just have to pay. It's such a racket.

Justin: It is a racket. Uh, thank you to the Max Fun network for having us as part of their extended podcasting family. Uh, we are gonna be on the road pretty soon. If you want to come see us live... I don't know if we've even mentioned this. Uh, you can come see us real soon.

We're going to be at uh, the Ryman Auditorium in Nashville on June 15th, and the Clowes Memorial Hall in Indianapolis on June 16th, appearing before My Brother, My Brother, and Me. If you go to bit.ly/becomethemonster I think is the address that'll work? Uh, you can also go to uh, mcelroy.family and click on tours, and you can see links to buy tickets for those. Uh, come see us and Shmanners and um, My Brother, My Brother, and Me, in Nashville and Indianapolis.

Sydnee: Can I— can I give a shout-out to the authors of this paper that I used for a lot of this?

Justin: Oh, of course.

Sydnee: Uh, Albrecht and Schultheiss wrote, uh, Proof of paternity: historical reflections on an andrological forensic challenge. It was instrumental in the construction of this podcast. Just an excellent article. I usually don't find so much info in one article, and there it was, so. If you're interested, shout-out. There you go.

Justin: Uh, I think that'll do it for us, folks, for this week. 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]

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Speaker One: Ladies and gentlemen, welcome to the match game! Our contestants, Nnekay and James from the hit podcast Minority Korner.

Together: Hey!

Speaker One: I'll ask you questions in a rapid fire round. Favorite character in a Shonda Rhimes show?

Nnekay: Olivia Pope.

James: Ooh, I said Olivia Pope's wig!

[buzzer]

Speaker One: Oh, so close! How do you feel about Disney?

Nnekay: They need to pay reparations to Black people, because Mickey Mouse was based off of blackface.

James: I said, get rid of the racist rides, Jungle Cruise, Splash Mountain.

[buzzer]

Speaker One: Who are you voting for in the primaries?

Nnekay: It's too damn early.

James: I'm just gettin' to know these fools!

[buzzer]

Speaker One: No dice! What celebrity do you side-eye the most?

James: Kevin Hart. Can we get a real apology for your homophobia?

Nnekay: Justin Timberlake.

James: Nipplegate...

[buzzer]

Speaker One: Favorite superhero movie?

Together: Black Panther! Wakanda forever!

[winning bell]

Speaker One: Congratulations! But you still lose.

Together: Now I'm side-eyeing you.

Speaker One: Catch Nnekay and James, the wonder twins of podcasts, on Minority Korner, every Friday at Maximum Fun.