

Sawbones 317: Ignaz Semmelweis

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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. Hey, Justin.

Justin: Hey, Sydster.

Sydnee: How's it goin'?

Justin: Good, good.

Sydnee: You had a good so far? What—what's it been like?

Justin: Um, you know, it's a little bit, uhhh, you know, unusual still. But, you know, I—I'm working into a routine. I wake up, uh, and I wash my hands, and then I brush my teeth, and then I wash my hands, and I take a shower, and then I wash my hands, which that actually—that one feels...

Sydnee: Maybe excessive?

Justin: That one felt excessive.

Sydnee: Maybe a little excessive there.

Justin: Yeah. So, a lot of hand washing, I would say. I like it. I don't know why I never tried it before honestly, 'cause I'm—I kind of find it soothing.

Sydnee: You moisturizing in there?

Justin: Ohh, you know me.

Sydnee: If you're gonna wash your hands a lot you gotta moisturize.

Justin: I can't keep—well, it's hard, 'cause I can't—I'm not allowed to keep moisturizer next to the bed anymore like I used to for my dry, cracked hands, 'cause you make fun of me for having moisturizer next to the bed, and you say it's for, um, uh, ill use. I will say no more than that.

Sydnee: I—I do not say "ill use." That is not—

Justin: Yes, you have a very—

Sydnee: I would not call that ill use. I would just say that that's a private time.

Justin: It's not, though! It's just for my dry, cracked hands, and you know that, it's been 15 years.

Sydnee: Well, there's no shaming here. It's not ill use. It's [crosstalk]—

Justin: You do! You shame me—

Sydnee: —it's private time.

Justin: So there's shaming upstairs.

Sydnee: No, it's private time. I say—I say maybe put it *inside* your nightstand if it's—

Justin: But it's not—I'm not embarrassed of it!

Sydnee: —a private time thing.

Justin: It's just for my dry, cracked hands!

Sydnee: But it looks like a private time thing.

Justin: Okay. Well... okay.

Sydnee: Justin, do you know why we know how important washing our hands is?

Justin: No S—I—

Sydnee: Do you know who told us that? [laughs quietly]

Justin: It feels right. It feels good, I will say.

Sydnee: It does feel good. It is weird to think there was a time when we didn't, because it feels so right.

Justin: I think it would be fun to be one of the first people who was like, "Well, this is fun. This is nice. This is like a little bath for my hands. I get it. This is hilarious."

Sydnee: Well, that was not the impetus behind our—

Justin: How did—that must've been awkward, though, for them to put their hands—like, turn on the shower and then put their hands into the shower. Uh, to—to wash them. 'Cause they—why would they have sinks, you know?

Sydnee: You're assu—[laughs] I gue—[laughs] I mean, you—we washed other things.

Justin: Well, of course, but we used the bathtub for that. We would have the help bring in hot buckets of water—

Sydnee: No, no—

Justin: —warmed over the fire, and then we would take a bath, and this is like—

Sydnee: No, like dishes and stuff.

Justin: Dish—we washed dishes?

Sydnee: Yeah. Well, you had to get the food particles. There were things—like, there's been dirt in grime that we *could* see—

Justin: [simultaneously] In the river. In the river.

Sydnee: —for a long time.

Justin: Hey, you wash 'em in the river.

Sydnee: Before we knew that there was also stuff we *couldn't* see on there.

Justin: That's true. That's true. That's a fair point.

Sydnee: Anyway, I want to tell you about the guy who is responsible for all the hand washing. I mean, indirectly I guess. He's—he didn't warn us about coronavirus necessarily. Or at all. I shouldn't say necessarily. He did not. But—

Justin: Thanks for the heads up!

Sydnee: [laughs]

Justin: Whoever we're talking about.

Sydnee: Ignaz Semmelweis is who I want to talk about. We have mentioned him on the show.

Justin: [singing] Semmelweis—

Sydnee: Yeah, I figured that was comin'.

Justin: —[singing] Semmelweis.

Sydnee: Get it out of your system.

Justin: You—you said I could have one, so that—I burned it early.

Sydnee: Alright. We have mentioned him on the show before, and I actually—in my head, we'd done an episode completely devoted to him, and then as we were—he was the Google Doodle recently.

Justin: Hmm.

Sydnee: Was Semmelweis. And so I started thinking, did we actually? Or did I just—do I just feel like I know him that well? Do I just feel a kinship with him—

Justin: Sure.

Sydnee: —and I assumed I had? And I looked back, and we have not devoted an episode to this very important, uh, historical, medical, medical historical, whichever you prefer, figure. So I wanted to, like, tell his story.

Justin: Okay.

Sydnee: I think we all know that he's—well, if you listen to this show you probably know, he's the reason we wash our hands. But how exactly did he go about figuring that out, and who was he?

And then I think it's interesting to talk about why it didn't catch on then. Because this is not the story of when people first started washing their hands to prevent infection. It is the story of when people *almost* [through laughter] started washing their hands to prevent infection, but then didn't, but then did later.

Justin: Yeah.

Sydnee: And, uh—and so I thought that would be worth exploring a little bit further.

Justin: Let's dive in.

Sydnee: So, Semmelweis was born in 1818 in Hungary. He was the fifth of ten kids, and he initially set out on a course to—I know, you always shake your head when we talk about people who have lots of kids, because—

Justin: [sighs]

Sydnee: —you were very done at two. *I* was very done at two.

Justin: That's rough.

Sydnee: I shouldn't blame it on you. We—two is all we can handle.

Justin: Yeah.

Sydnee: If you can handle more than that, more power to you.

Justin: God love you, yeah.

Sydnee: Uh, he started out studying law, but then for some reason he decided after a year, medicine's better. I mean... [pauses] can't say I blame him.

Justin: There we go.

Sydnee: [laughs]

Justin: There she goes. She always has to tear me down.

Sydnee: [through laughter] You don't—you're not a lawyer!

Justin: [snorts] I'm as much a lawyer as I am a doctor.

Sydnee: No, law's great, but he preferred medicine. So, uh—

Justin: I also have a free membership to Rocket Lawyer, I will let you know, so.

Sydnee: What is that?

Justin: It's, like, a online, you know—where they, like, prepare legal documents for you. I made a bet with our friend Micheal Beck, uh, and, uh, it was a wager, and we needed a legal document for the—

Sydnee: And that's how you—

Justin: —for the bet, yeah.

Sydnee: Right, okay. I gotcha.

Justin: Yeah. Free account.

Sydnee: Okay. 'Cause the way you said it, I thought you meant you would—you could become a lawyer very quickly through something called Rocket Lawyer, and I thought—

Justin: No—[wheezes-laugh]

Sydnee: —that does not seem... [laughs]

Justin: That seems a little sketchy.

Sydnee: That does not—[laughs]

Justin: That is how I would do it, but...

Sydnee: [laughs] This does not feel right.

Justin: Yeah.

Sydnee: So he could not find—he initially sought an appointment in internal medicine. Uh, he couldn't find one, so he decided to switch to obstetrics and study that instead. And he rose to a position that was essentially Chief Resident. That was basically—he was, like, first assistant, um, which would be akin to the position we now call like, First Resident, which—or Chief Resident, which, having been a Chief Resident, I would define as having to do a lot of extra work and having a lot of extra responsibility, and in return, getting no money. [laughs]

Justin: Yeah.

Sydnee: For it.

Justin: Looks great on your—

Sydnee: Or no *more* money than anyone else. Um—

Justin: Looks great on your Seev though. On your CV.

Sydnee: That's true.

Justin: Your Curriculum Veritae, as you all say.

Sydnee: Mm-hmm. Yeah. I don't know—I was just—I stayed where I trained, and I don't think it made a difference. So, sometimes I worry I got tricked into—like, "You got voted Chief Resident! Yay! You get to do all this extra work! Yay!"

Justin: Yay!

Sydnee: I don't know. Anyway—it's an honor. It's—I'm not—it's an honor. It was a great honor for all you Chief Residents out there.

Justin: That's like bein'—bein' the—

Sydnee: It's a wonderful thing.

Justin: —the main resident in Animal Crossing, 'cause you have to go around and build everybody house and pay a bunch of Bells for the bridges and stuff. And while—meanwhile, uh, uh, uh, Sparrow and Diva and Charlie all get to live there and just enjoy their lives, and I'm making the big decisions without, you know, anything to show for it.

Sydnee: That's right. It's—it's just like that.

Justin: It's exactly like that.

Sydnee: You needed—you needed a Co-Chief Resident like I had, like Adrian. Adrian was—she loved all the scheduling. She's very Leslie Knope. Loved all the scheduling stuff, and I just got to, like, comfort people and, like, talk 'em through the hard times. I was the inspirational leader. [laughs quietly]

Justin: Sure.

Sydnee: Not the organizational leader. [laughs]

Justin: More of a—a lead from the front, "Go get 'em, y'all" kind of leader.

Sydnee: I was good at—

Justin: I'm patting your back.

Sydnee: —mm-hmm. I was good at giving speeches.

Justin: Got it.

Sydnee: So at the—at the time that Semmelweis was practicing, obstetrics was really a shifting field. It was really a—a newer field, in the sense—like, as a medicinal specialty, as a medical specialty. Not medicinal, medical.

Because it had previously been dominated by midwives, right? It—that's who delivered babies, for the most part. Uh, surgeons were always somewhat affiliated with obstetrics, because if problems were encountered, then you needed a surgeon to help solve them.

Uh, but they were there traditionally for a standard, uncomplicated delivery. Uh, but in this time period we began to see deliveries shift to the hospital slowly, and under the care of surgeons who eventually became obstetricians, some of them.

Um, and that—because as you enter the realm of doctors, your care gets taken over by doctors. And eventually, as we would see, midwives were kind of forced out of the—at least in this country, forced out of that equation. Um, unfortunately, because there's certainly a place for everybody in the field of obstetrics, midwives and doctors and nurses and doulas and everyone.

But at the time, it was really kind of a struggle where it was being taken over slowly by the field of obstetrics as a medical specialty, and mainly by male physicians, 'cause most physicians were male, and less and less by midwives.

Uh, Semmelweis was one of these early obstetricians, and he worked at the first obstetrical clinic at Vienna General Hospital. There was also a second obstetrical clinic—

Justin: Ugh. But we don't talk about them.

Sydnee: [laughs] 'Cause otherwise why would there have been a first, I guess. Um, and these patients—or these clinics were basically free.

Justin: Hmm.

Sydnee: Patients could come—it was a way to encourage—honestly, at the time, these clinics were developed throughout Europe as a way to encourage patients to come there and deliver, and provide some way to provide care for the child and the pregnant person. Uh, because so many people would get into a situation where they were maybe having a child out of wedlock or didn't have the means to support them, and it would result in disastrous outcomes for both the pregnant person and the—and the child.

And so these clinics were free, and you could come, you could deliver, you could get care and get access to services that way.

So, uh, the two clinics were run by different groups. The first obstetrical clinic was run by doctors and doctors-in-training and students, and the second obstetrical clinic was run by midwives, and midwives in training and whatnot.

And that was kind of the deal. If you were gonna deliver at one of these clinics, it was all free, but in return, they were still in training.

Justin: Sure.

Sydnee: You know, the—these were still people who were not practicing necessarily on their own yet, so that was kind of the trade off. Um, soon after starting there, Semmelweis began to notice a difference between the two clinics. Uh, specifically he noticed a difference in the rate of something called Puerperal Fever.

Justin: Puerperal Fever. That sounds bad.

Sydnee: Yes. Now, Puerperal refers to the time period after birth, the postpartum period.

Justin: Oh, okay.

Sydnee: Okay? So a fever that's occurring in people who have just given birth. Uh, it was a common—

Justin: In the babies or in the—

Sydnee: In the pregnant person.

Justin: Okay.

Sydnee: The person who has just delivered, not in the baby. Uh, and this was a common scourge back then. Basically, after delivery, because people didn't quite understand what was happening yet, the patient would seem okay for maybe a couple days and then they would begin to develop very high fevers and chills. Most of them had a lot of stomach pain, abdominal pain. They could have some vaginal discharge.

There were a variety of symptoms. There were different ways it could manifest. But one way or another, it was seen as a really bad sign, because many of the patients who developed this complication would die.

Justin: Mm.

Sydnee: So it was definitely something that you wanted to avoid.

Justin: Is it—is it—is what they understood it at that time—was this a symptom of something? Or was it, like, this is the—I guess they wouldn't have any idea, right?

Sydnee: At this point in history—so, a lot of people still were believing in the miasma form of disease.

Justin: Sure. Bad air.

Sydnee: Yeah. Bad air somehow caused sickness. And they still—there were many who still clung to this kind of humeral understanding of medicine that each specific illness had to do with a very individual imbalance within you.

So idea that everyone who develops this same thing has the same problem, like that the same ideology is responsible, actually was kind of revolutionary. As opposed to the idea that, "Well, you got sick because of this, this, and this, and it looked like that. You may have looked the same, but actually the reason you got sick was this, this, and this."

Justin: Right.

Sydnee: And it could be anything from, like, "Well, you got very emotional so obviously you developed Puerperal Fever."

Or "You, uh, were wearing a dirty dress, so you did." Or "You had some constipation, so you did."

I mean, it could—like, it was weird how you could see the same sort of end result and come up with, "Well, but there's—"

Justin: A hundred different reasons why.

Sydnee: —yes, exactly. Exactly. Um, and this was something that has been—this phenomenon had been observed all the way back to Hippocrates. The idea that after delivery was a vulnerable time period for the patient, and that there was some sort of sickness that could follow sometimes that was—that was very bad.

Um, it was not called Puerperal Fever, or also Childbed Fever was the other name for it, until the 1800's really. And it's interesting, 'cause you can see this kind of perfect storm develop.

So, we have patients moving into the hospitals and clinics slowly. Like, out of home births and into medical facilities to give birth. At the same time, we see people, um, being delivered by doctors and students of medicine, as opposed to midwives. And at this exact same time, we're beginning to understand the value of autopsy as a tool to be used to understand not just anatomy but, like, pathology and disease process and, like, what—what was responsible for this person's death. Can I now understand it better and treat it and prevent it?

All of this was happening around this same period of time, which is gonna create this perfect storm. That—that we see.

Um, but nobody could, except Semmelweis was looking. And he began to investigate, why does the first clinic have a rate of Puerperal Fever anywhere from 10 to sometimes 18% of patients, so a pretty high rate—

Justin: Right, yeah.

Sydnee: —while the second clinic had a rate of around 4%, sometimes even lower. So a significant difference between these two clinics. And this was—this was very well known, um, by patients. So the way that they would admit pregnant people who were about to deliver to the two clinics is they just alternated, right? They'd go one place, and then when the ambulance was called they'd go to the other place, back and forth.

It was so well known around Vienna, this difference between these two clinics, that patients would beg, "Please take me to second clinic. Don't take me to first clinic."

'Cause they knew about how many more patients died there. Um, they actually sometimes—if they thought they would be taken to first clinic, that there was nothing they could do and they were gonna be taken there, they would give birth

in the street instead, which was something Semmelweis notes that even these patients who were having these street births... tended to fare better [through laughter] on average than the patients at first clinic.

Uh, so he really wanted to know. What—what is happening? What are the midwives doing that the doctors aren't, or what are the doctors doing that the midwives aren't? What is happening between these two clinics?

So he began to investigate. The first thing he started doing was, uh, observing, the laboring process and the birthing process between the two facilities. And, uh, one obvious difference is that the midwives tended to place the patient on their side when they gave birth at this point, whereas the doctors tended to place the patient on their back.

Justin: Right.

Sydnee: And so he thought "Well, maybe we need to switch over at first clinic to only giving birth on our sides."

So he switched it around so that all the doctors and students were delivering patients on their sides. This did not help. This did not change anything.

So then he thought, "Well—" because again, we did not understand what caused disease well. He began to think that perhaps this condition was born of fear, and these patients were becoming so afraid that they got a fever and got sick.

Justin: Mm-hmm.

Sydnee: So—and—and the main reason that he thought this fear was manifesting was because that when one would become sick and die, they would, just routinely, have a priest walk through the unit ringing a bell to, you know, say a prayer for the rest of the patients in the unit. And Semmelweis's theory was that the sight of this priest and the sound of that bell ringing would elicit so much fear in all of the other patients, because they knew now that someone has died, that they would then also become sick out of fear, and develop Puerperal Fever and die.

Justin: Okay.

Sydnee: So he had the priest, like, walk a different path and not ring the bell.
[laughs quietly]

Justin: And that fixed it!

Sydnee: And—no. [laughs]

Justin: Thanks so much for listening to *Sawbones*. You gotta be careful with bells, folks. It's what I keep saying. You know, it's just like Animal Crossing. You gotta be careful with your bells.

Sydnee: Right. This has nothing to do with Animal Crossing—

Justin: Fair.

Sydnee: —and also, this did not help.

Justin: Fair.

Sydnee: So, he did what anybody would do in this situation. He was stymied. He was exhausted. He was upset. So he took a vacation.

Justin: Oh. Okay, good! Chill!

Sydnee: So around March 2nd of 1847, Semmelweis heads off to Venice to clear his head, to admire beautiful works of art, and think about things while, I guess, drifting down a canal in a gondola.

Justin: You know—and I—this is the time that we will do ads, and I think it's so—

Sydnee: [laughs]

Justin: —it's so nice—no, I just wanna hang a hat on it, 'cause it's so nice that people so rarely take TLC breaks in their own biographies. You know what I mean?

Sydnee: [laughs]

Justin: It's ni—it's nice that someone has a natural—"And then he stopped for a while, and you can too."

Sydnee: [laughs] Take a break.

Justin: [laughs] Take a break. Buy something.

Sydnee: Don't go to Venice right now. Or anywhere. But do take a break.

Justin: Do take a break.

Sydnee: In your home.

Justin: And let's go to the billing department.

Sydnee: Go—yeah. Let's go.

[theme music plays]

[ad break]

Justin: Alright, Semmelweis is all rested up, Syd. He's feelin' good, lookin' good. How is that relevant?

Sydnee: Well, he returned on March 20th—I don't know if the vacation is relevant. I just thought it was kind of a nice moment in the story. Because he—while he was gone, unfortunately one of his fellow physicians, a friend, a pathologist named, uh, Jakob Kolletschka had died. And when he came back, he was very upset by this news, and he—he wanted to find out, like, what exactly happened. You know, "This was my—my dear friend, what had—what had happened?"

Uh, and so what he found out is that Kolletschka was doing an autopsy, and during the autopsy a student... blamin' it on those students. You know, having been a medical student, everything gets blamed on us. [laughs]

Uh, but a student, during the autopsy, accidentally nicked the professor with a knife. Uh, the same knife that he had been using to cut into the cadaver.

Justin: Sounds fair to blame the student in this one.

Sydnee: [laughs] Well—

Justin: Ah, he didn't know. You know, it's the first time holdin' a knife.

Sydnee: It was an accident. You know, I didn't get mad that one time when that resident... jammed a needle into the side of my finger while we were puttin' in a chest tube.

Justin: Yeah.

Sydnee: I was not mad at him.

Justin: Well, I was.

Sydnee: It was scary.

Justin: Yeah.

Sydnee: But I'm—I'm not mad. It was an accident. He apologized. Uh, so anyway, Kolletschka, after this happened, after he got this cut, a couple days later he got very sick, and basically he developed a presentation very similar...

Justin: Puerperal Fever.

Sydnee: ... to Puerperal Fever.

Justin: Huh.

Sydnee: Yes. And when he read this account of exactly what had happened, of how he got these fevers and all this inflammation, and he developed a—a meningitis, an inflammation of the meninges that cover the brain and spinal cord, and he developed a pericarditis of the sack that surrounds the heart. Like, all this inflammation all over his body, and it was kind of random, and he seemed to be very sick in many different places at once.

Um, and he—he began to—Sommelweis began to put it all together. This is like Puerperal Fever. But why? 'Cause he obviously had not just given birth.

Justin: Right.

Sydnee: So... what is causing it?

Justin: What is that—what's the connective tissue?

Sydnee: Yeah, what is the connection between this professor of pathology who has died, and all of these patients who have recently given birth who have died?

And, uh, he began to theorize. He began to come up with this idea. What if... there were some sort of—what he called "cadaverous particles."

Justin: Hmm.

Sydnee: That were on that knife that cut and then infected his friend and led to his death, that were also... making their way into these patients who were giving birth?

Justin: Hmm.

Sydnee: And how would those cadaverous particles get from the autopsy room to the delivery room? Well, there's a very obvious answer: via the doctors and students who were performing the autopsies and performing the deliveries.

Justin: Right. I was about to say that. Like, just [mumbling] wanted to let you know.

Sydnee: Well, and it made sense if you consider that at the second clinic, there were no doctors and students. That's where the midwives did the deliveries, and midwives did not do autopsies. Only the doctors and students did.

Justin: It's the midwives were washing their hands.

Sydnee: No.

Justin: It's just that they—they weren't doing autopsies.

Sydnee: They weren't doing autopsies.

Justin: Okay.

Sydnee: So his idea—and see, and that's why—the idea isn't exactly right, but the—

Justin: It gets you there, right?

Sydnee: It gets you there. [laughs]

Justin: I mean, it gets you there. [laughs]

Sydnee: It gets you to a good idea. So... this—so basically these doctors would go perform these autopsies—'cause, like I said, this was a point in history where there were many more of these being done. They would go perform these autopsies and then when they would be called to, like, "Hey, it's time for a delivery. A patient's come in."

They would just come straight from the morgue, dirty, bloody hands, dirty, bloody clothes—'cause even at this point, like, the idea that you would be covered in some sort of, like, visible gore was not a bad thing.

Justin: It shows you're workin', right?

Sydnee: Yes.

Justin: It's like you want your mechanic to have—have oil on their hands, 'cause that means they're gettin' in there and doin' carburetor stuff.

Sydnee: That's exactly it. It was—it was a mark of your professional status, of your skill, of the—that this is just what—this is what a doctor looks like. We are bloody and gory and heroic, and this is how we look. And so they would come in that way to do the deliveries.

So, in order to test this idea, Semmelweis said, "Okay. Well, if we think there's some sort of particle—" and again, if you pushed him on it, and when he eventually wrote about this stuff, he was kind of thinking it had something to do with the smell coming from these cadaver's particles. So again, we're sort of talking about miasma theory.

Justin: [simultaneously] Miasma, yeah.

Sydnee: It—this is not a germ that he necessarily understands, but something related to these particles on the hands are making people sick, so if we just wash our hands... before we do a delivery... perhaps we could reduce the rate of Puerperal Fever.

And, uh, soap wasn't enough. He decided chlorine, which was known to be something that could clean things. So—but it was a solution of chlorine. It wasn't just pure chlorine.

Justin: Right.

Sydnee: Chlorine in water. So this solution of chlorine in water, you had to wash your hands in before you did a delivery. And he just instituted that, since he was running the first clinic, he instituted it in all of the clinic and said, "Okay. Everybody start washing their hands."

And after he did this, the rate of death from Puerperal Fever dropped dramatically. In two months, he reported a zero death rate from Puerperal Fever.

Justin: Wow.

Sydnee: Uh, which was incredible at the time. You know, he was—he—they had really made a huge difference, a very obvious, clear cut, visible difference from these changes. Um, and at this point he started pushing, too, if this—you know, if this is working great with our hands, why don't we start—maybe we could start cleaning our surgical instruments, too.

Justin: Sure, why not?

Sydnee: Why not? [laughs]

Justin: Let's clean whatever has blood on it, pretty much.

Sydnee: Let's go wild, here! Yeah.

Justin: Yeah. Chlorine's cheap!

Sydnee: And word started to spread. Uh, in France and in London he would have—basically, Semmelweis did not like to go do lectures abroad. He didn't really like to do the public speaking thing. Um, he was totally happy with, like, his

students or his colleagues, other people that he worked with, going and giving lectures sort of on his behalf, and explaining what he did and talking them through the process and why they thought it worked and everything, um, throughout Europe.

And some of them—some people very quickly started to say, like, "Well, this is groundbreaking" Comparing him to, like, Edward Jenner. Like, this is going to be one of the greatest discoveries of—of history, of medical history. You know, this is amazing.

Um, but again, Semmelweis wasn't there to speak for himself. And he also, I think it's worth noting, didn't *publish*. So exactly what he thought was happening and the conclusions he was drawing—it was really left up to the interpretation of the people who were going and speaking on his behalf, because he did not formally publish any results from this. He just didn't put it to paper.

And through—it's almost like a game of telephone. Through people just repeating what they heard he'd done and not having a definitive work to refer to, there began to get some misunderstanding. People had doubts, they had questions, and Semmelweis wasn't there to answer them. There wasn't even a document there to answer them.

And so this doubt began to spread. And I think on *Sawbones* we have shown many times that just because somebody figures out a new truth about something, especially a new scientific truth, doesn't mean that everyone else is ready to hear that truth. And this, unfortunately, is what happened with Semmelweis's groundbreaking hand washing idea, is that a lot of doctors and scientists began to push back against it.

Um, for one, there was some misin—there was some misunderstanding of it. By the time it got to the UK, they thought all Semmelweis was saying was, "This seems to be something contagious." And they said "Well, we already know that it's something contagious, because we'll see multiple patients in the same obstetrical ward get it. Like, we already knew that. What are—what is this groundbreaking work? What are you even talking about? What don't even know what he's trying to tell us to do. Why does he think—maybe he should come up here and study for a bit, and then he'll see what we're already on to."

Um, and then the other thing is that if it—if you did understand it and the implications of it, it made doctors look really bad!

Justin: Yeah. Well, and—and... [clears throat] not just bad, but, like—from an optics perspective but, like, literally—who wants to accept the truth that they've been responsible for all these deaths over the years? Unintentionally, but still. I mean, nobody wants to think that that's the case.

Sydnee: And that's exactly what they said. They—"We don't want to accept that we're responsible for the deaths of all these patients. We were trying to do good. We were trying to learn, as we are tasked in doing. Learn about humans and save their lives. And also, we're doctors! We're clean!"

A lot of them took, like, uh, personal offense. Like, "I am a—I am a gentleman. [laughs] How dare you suggest that I would not be clean?"

Justin: Right.

Sydnee: Uh, and also all the stuff about looking cool and bloody and all that stuff.

Justin: Sure, the whole bit.

Sydnee: Um, so at this point there was a lot of political turmoil in Vienna, and by 1849 he actually was let go from his position. His contract wasn't renewed, so to speak. And in part it was probably because of these ideas that he was pushing, and his superiors really weren't necessarily buying into. In part there were just other political things happening.

Um, but one way or another, he returned to his home in Budapest and worked a hospital there, and when he arrived, again, similarly the rate of Puerperal Fever was very high. There was a lot of death due to that. He employed the same methods at this hospital and again saw an amazing reduction in the rate of—of, you know, Childbed Fever. However, it was in basically obscurity at this point, because nobody was paying attention to him. He had—he had sort of been discredited on—on large stage.

The, uh, doctor who took his position Vienna who would kind of be his, like, lifetime... like... enemy—his, um, nemesis, so to speak, Carl Braun, uh, basically took over in Vienna at the obstetrical clinic and said, "Uh, all of this is ridiculous. Um, there—no, there are no cadaverous particles. There is no similar infection. All

of these patients have different things going on." And he came up with a different reason for every person who got sick.

[holding back laughter] Um, but he also continued the chlorine washings.

Justin: Yeahh, just go ahead. Hey, we already bought all this chlorine. Let's just go ahead and—yeah, you never know.

Sydnee: Which was—what it ended up doing is he said—

Justin: I like the smell.

Sydnee: —everything he thought was wrong, and here's what's really right, and just believe me. But the mortality rate stayed very low, because he was continuing with the washings, so everybody just thought—but people didn't know that part.

Justin: Right.

Sydnee: So they thought "Oh, well, Semmelweis was wrong. Braun's right." Um, eventually Semmelweis did publish, but it was so far after all of these conversations had been happening. He published a couple smaller works in 1856 and 1858, and it wasn't until 1861 that he finally published, like, his masterwork describing everything that he did and why it worked and all of his numbers. Here were the stats before, here were the stats after. I mean, all of this probably would've been a lot more impactful if it had been published at the time, but by the time he did, it was kind of like everybody had already made their minds up about him.

Um, there were a lot more works denouncing him by that point. [laughs quietly] Than—than he could publish to fight back against it. Um, and he spent his last few years becoming increasingly erratic at this point. Uh, after 1861 when he published this. And even when he published this, it should be noted that a lot of, like, rigorous scientists read it and said, like, "Well, this is not exactly written like a scientist." Like, it seems kind of... angry and combative and emotional, and it's not just purely like, "Here's what I did and here are the numbers, and here are my very, you know, scientific conclusions."

Um, it was less academic and a lot more emotional at this point, 'cause he was so frustrated, um, from not being believed. And he began to—I have a quote. He

began to write these letters to obstetricians who were practicing in different places to try to get them to do what he was doing. It was with this very, you know, good, benevolent motivation, but he wrote letters to people with things like... [laughs quietly]

"You, Herr Professor, have been a partner in this massacre."

Justin: [snorts]

Sydnee: And he wrote to somebody else, uh:

"Should you, without having disproved my doctor and continue to train your pupils against it, I declare before God and the world that you are a murderer."

Justin: [laughs loudly]

Sydnee: "And the history of Childbed Fever would not be unjust to you if it memorialized you as a medical Nero."

Justin: Well, Jeez!

Sydnee: [through laughter] So he wrote a letters like this.

Justin: A little more maybe—perhaps, Semmelweis, a little bit more honey instead of the vinegar, if we wanna catch some flies.

Sydnee: Uh, furious letters. He—his—and like I said, the—his—his wife noted that his behavior became very different. Uh, he was noted to be out, seen out on the town, uh, with—with other women who were not his wife. He began drinking a lot more. Um, and there's been a lot of debate as to exactly what was going on. Was it just complete overwrought frustration? You know, stress? "I tried to save the world and the world is too stupid to see it and I just can't anymore."

Was it some form of dementia? It's been deba—it would've been early onset. It would've been, like, 47, so maybe early onset, but was it some form of dementia? Was it a psychiatric condition? Nobody's really sure what exactly—clearly things started to take a turn at this point in his life. And, as a result, he was—actually another physician committed him to a psychiatric facility. Um, and when he—after he arrived there, from the mistreatment that he received, he died two weeks later,

probably from a bacteremia—a blood infection, an infection of his blood, very similar to the Puerperal Fever that he had been working so hard to eradicate.

Um, and the doctor that took over for him in Budapest at that hospital stopped all the hand washing, and the mortality rate from Puerperal Fever climbed again.

[pauses]

Which you would've thought would've showed people.

Justin: Somethin'.

Sydnee: Um, but it really—it wasn't—it wasn't until—and we've talked about them on the show before, but Pasteur came along with the germ theory of disease and Lister introduced the idea of—of antiseptic technique, um, that reinforced all of these principles and basically proved that Semmelweis was right. He didn't know he was ri—he didn't know *why* he was right. But he was right.

Um, and his legacy, you know, stands today, in the sense that he has a University, hospitals, a museum named after him. He has—there was a coin, there was a stamp. Uh, this recent Google Doodle. There's a planet, a minor planet named after Semmelweis. There have been plays, there have been books, there have been movies. There have been lots written and—and said and celebrated about Semmelweis as an important, uh, historical figure. Of course it is unfortunate that he was not given that due in his time. And all the lives that could've been saved had his work been recognized when he first did it, you know? How many people suffered, and didn't need to if everybody had started washing their hands back then?

Justin: You know, I'm kind of struggling with this one, Syd. Is there—is there more to the—before I go off on a tangent?

Sydnee: I was just gonna say, our resi—the—there's also something called the Semmelweis Reflex, and I think it's important—maybe not so much in the context of this exact moment in medical history and everything that's going on, but just for our show, we tend to be very resistant to new ideas, especially new scientific ideas that challenge a deeply held, like, societal or cultural norm. Something that—that really pushes against the status quo. No matter how much truth, evidence, anything. No matter how much proof is behind it, when it's introduced,

we tend to immediately discredit, discount, refute it. Um, and that is called the Semmelweis Reflex, in his—in his honor.

Justin: I'm struggling with this one, Syd. 'Cause, I mean, obviously I—I—I have—I don't have all the facts. I—I have 35 minutes of history of Semmelweis, so I don't want to make any broad, sweeping judgments, but it seems to me that... most of the figures that we talk about who have had a massive impact and have made big changes, once they have that breakthrough, they are singularly focused on that, and they are sort of singularly focused on changing minds and spreading the word about that and, like, letting people know.

And I—there's a part of me that's really struggling with this, because I feel like if you make a discovery like he made, you owe it to humanity, in a sense, to make that your primary... like, spreading the word about that, changing minds about that—like, you owe it to the species to, like, make that your focus. To, like, document and get the word out and get facts out and publish and, you know, all that stuff you said he held off on doing 'cause he didn't like—you know, that wasn't his thing.

Sydnee: It's hard to say. I mean, you—it's hard to reach back into history and really understand someone's, like, character and motivations, why they did or didn't do anything. Uh, I would say that, you know, sometimes people who make these groundbreaking discoveries aren't, like, naturally suited to be the spokesperson for them. I would say—we see that throughout history. They're just not—they're not public speakers. Not everybody likes to speak in public. Not everybody likes to—I hate write—I hate publishing. [laughs] I—I hate having to, like, do case reports and studies and stuff. That's just never been my interest or skill set. It would be—I would hope that I would be able to rise to the occasion, were I ever to uncover something so groundbreaking as this, but it would be—it's not something I—I seek out.

Um, so I—I mean, that's part of it. But I mean, even if he had done it all—I think that we see all that now and it's important to understand all that, but even if he had done it all quote, unquote "perfectly—"

Justin: Yeah.

Sydnee: —even if he had published it all at that moment, even if he had been an amazing public speaker who had traveled all over Europe and done all the big talks and presented all of his numbers for everyone to see—even if he had, I

don't know if everybody was ready for it. I mean, the implications were really—there were people who did accept his work. It was actually more accepted in Germany. That was one place where they—they started to believe that long before other places throughout Europe would—would adopt these principles. Um, and as some professors began to understand what it meant and really, like, ascribe to that way of looking at things, uh, one in particular even actually died by suicide because they felt so horrible after they realized what they had been responsible for earlier in their career.

I mean, it's a huge thing, and I think that's part of it, that we're not—part of it is, like, you don't like to change your idea of "I know how things work, and it's scary if I didn't."

But the other part is, "How many people have I harmed?"

Justin: Sure.

Sydnee: And not just people, like, someone who's just given birth.

Justin: Right, right, right.

Sydnee: I mean, that's just such a—it's such a vulnerable, raw time to—

Justin: It's not what you get in the biz for.

Sydnee: No, and—

Justin: In fact, quite the opposite.

Sydnee: So, I mean, I think it's easy to sit back and say "Well, if he'd have published, you know, maybe." But would he? Would we? I don't know! I don't—

Justin: All I'm saying is that—

Sydnee: —humans are—we don't like... when ideas challenge us like this, and hand washing challenged us in a way that we weren't ready for.

Justin: All I'm saying is that—I'm making a simple statement that if I had made this discovery, everyone would've started washing their hands instantly and I

wouldn't have shut up about it, and I would've fixed—I would've saved a lot of lives. I guess it would've been me. I would've saved a lot of lives.

Sydnee: 'Cause you would've done 30 or 40 podcasts about it. [laughs]

Justin: Planet—Planet Justin would be out there. You'd have Justin on a stamp, Justin on a coin, it'd be something else.

Sydnee: So—so we wash our hands now, thanks to Ignaz Semmelweis.

Justin: And Justin McElroy—

Sydnee: Thank you—

Justin: —in a sense.

Sydnee: —Dr. Semmelweis. We—

Justin: When you think about it.

Sydnee: —we all know to wash our hands. I hope you're all washing your hands a lot. 20 seconds. Uh, do you have a favorite song to wash your hands to, Justin?

Justin: No, Sydnee, but I'd like you to share yours. We already talked about mine. It's "All Star."

Sydnee: Yes. That's true.

Justin: I still do that one every time.

Sydnee: Is that what you do every time?

Justin: Every time. What's yours?

Sydnee: [sighs] I made up a song for Charlie and Cooper. [laughs]

Justin: Sing your song!

Sydnee: Are—are you really—

Justin: You do it with them all the time. You can—

Sydnee: I know.

Justin: —just sing your song!

[pauses]

Sydnee: [sighs] Okay.

[to the tune of "I Wanna Hold Your Hand" by The Beatles] All my daughters,
Charlie and Cooper—

Justin: [humming melodically]

Sydnee: —[singing] you gotta understand, right now, more than ever, you gotta
wash your hands! Come on and wash your hands, you gotta wash your hands.

Justin: [laughs]

Sydnee: That's about 20 seconds. It's, like, 22, give or take, but it's close
enough. It's close enough.

Justin: A couple extra for the Lord.

Sydnee: It's a couple extra.

Justin: Couple extra for the Lord.

Sydnee: To make it work.

Justin: Uh, thank you so much for listening to our program. We hope you've
enjoyed yourself. Thanks to The Taxpayers for the use of their song "Medicines"
as the intro and outro of our program. Hey! Uh, you know what? There's a lot of
local bookstores that are doing, like, shipping stuff. What better—what better
time when y'all have free time to call them, see if they can get you a copy of *The
Sawbones Book*.

Sydnee: You can curl up in the safety of your own home with a good book.

Justin: Uh, that is gonna do it for us for this week, so 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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