Sawbones 14: Radiation Therapy

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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 and welcome to Sawbones, a marital tour of misguided medicine. I'm your co—host Justin McElroy.

Sydnee:
I'm Sydnee McElroy.

Justin:
Syd, happy anniversary, sweetie!

Sydnee:
Happy anniversary?

Justin:
Happy anniversary. I got this for you going—

Sydnee:
Wait, wait, wait. It's like... It's September.

Justin:
Yeah.

Sydnee:
Our anniversary was July 1st.

Justin:
Correct. Happy anniversary, it's a little late.

Sydnee:

So you're like really freaking late.

Justin:
Go ahead and open it.

Sydnee:
Oh! It's… plates.

Justin:
It's not just any plates, it's Fiesta Ware, Fiesta Red specifically. They're made before 1944. It's a real collector's item.

Sydnee:
Oh, um, what? Like, do you, do you want us to eat off of these?

Justin:
They're more collectors' items than anything, but uh, they're, they're Fiesta Ware.

Sydnee:
Uh, okay. Do you know why Fiesta Ware Red is a collector?

Justin:
No, sweetie. I, I guess 'cause it's rare. There weren't a lot of 'em around. It was really hard to find eBay.

Sydnee:
Yeah. How are you feeling?

Justin:
[laughs] Nauseous.

Sydnee:
Okay. Um, they're kind of rare, because they're also kind of radioactive.

Justin:
Oh. Well, that's not the end of the world. How, ah, how radioactive…?

Sydnee:
I mean, radioactive enough that they stopped making them. The paint that was used for Fiesta, especially the red glaze that were, that was used for Fiesta Dinnerware, has uranium in it.

Justin:
Oh man.

Sydnee:
Yeah.

Justin:
Not again. I can't believe the three years running I've gotten you radioactive gifts.

Sydnee:
[laughs] I know. And the crazy thing is you keep not meaning to. Wait a second…

Justin:
Hey…

Sydnee:
Do you mean to?

Justin:
No, sweetie. You're the light of my life, the son of my sky, the moon of my stars.

Sydnee:
Are you trying to slowly kill me with radiation poisoning?

Justin:
No, but I understand that was a thing that happened for much of history.

Sydnee:
Well, that's true, Justin. [laughs] Uh, you know, other than in dinnerware, people have been using, uh, radioactive substances, um, for everyday use for a long time, specifically for its health benefits.

Justin:
Now a lot of the topics we go into go, you know, way, way, way, way, way, way back, but this is really a manmade problem, right? That, that does not have the long, long history that, that we have, uh, that we've explored in a lot of other topics.

Sydnee:
That, that's very true, because, I mean, the, the r—you know, the origin of radioactive treatments, as, as curious for thinking, and we'll mainly be talking about radium, but other elements, you know, radioactive elements as treatments for various diseases, it, uh, it originates in 1895, when we figured out, uh, what x-rays were,

Justin:
They are super sweet, uh, beams of energy to make things invisible, parts of them.

Sydnee:
Exactly. You nailed it. We knew that, in 1895, we knew that x-rays were a great way to image the human body, um, but we also realized soon after that, if you x-rayed somebody too much, you could actually damage human tissue.

Justin:
How on earth do you think we discovered [laughs] that x-rays could see through people? It's crazy, right? Like, why would you even think of that?

Sydnee:
I mean, I don't know. I mean, it is... it's pretty amazing. I mean, it, it, it's origins are in, like, photography and such, but yeah, the fact that we figured that out, it is pretty in incredible. And I should, I should preface with this. What we led to, with radiation therapy, are some pretty amazing advances in, you know, medical technology. But in the beginning, all we knew is that x-rays could image the human body. We could look at bones, we could diagnose fractures and all kinds of other, you know, bony abnormalities.

Justin:
We could see that, uh, uh, uh, a toy car that a guy put in his, uh, butt, in the Jackass movie.

Sydnee:
That's right. We could see that, we could—

Justin:
Another great use that no one foresaw.

Sydnee:
Exactly. I mean, who could have, who could have foreseen that in 1895?

Justin:
No one, no one.

Sydnee:
No one, really. Um, we, we could diagnose, like, cardiac abnormalities, um, but, uh, we figured out that if we x-rayed somebody too much, we would damage their skin and their subcutaneous tissues. And we already, at that point, what's fascinating is that we already knew that there was something we didn't know it was... what cancer was per se, but we knew that there were, like, skin cancers and tumors and, and kind of disordered growth of tissue that we could treat with electricity and burns and that kind of thing, and so when we saw the x-rays could, you know, damage tissue as well, we thought, "Well, hey, that might work."

Justin:
Actually, in its earliest days, cancer was referred to as the, uh, as the forever cold, or the Chicago flu, because they thought it was just like one of those except very bad and permanent.

Sydnee:
This has been a, a totally untrue medical fact brought to you by Justin McElroy.

Justin:
That is one of the things I read in a book.

Sydnee:
What book?

Justin:
Book.

Sydnee:
Book, book?

Justin:
Book, the book.

Sydnee:
Book, the book.

Justin:
By auth—by auth—

Sydnee:
Book, book, the book of fake things

Justin:
By Author P. Writerson.

Sydnee:
[laughs] But I—

Justin:
Talk about the real history.

Sydnee:
I think that's... I think you need to know this, because this is the setting in which Marie Curie of underwear fame—

Justin:
Yes, I did buy Sydnee some Marie Curie underwear on Kickstarter.

Sydnee:
They're adorable.

Justin:
They're very cute. There are, there are wom—there are, there are women superheroes. So Marie Curie is one of them. I think Amelia Earhart's another League of Ladies, I think it's called. Check her out, if you can, but they're, they're super cute.

Sydnee:
And super comfortable, I may add.

Justin:
Thanks, Marie Curie.

Sydnee:
With no panty lines. So in 1898, Marie Curie, uh, isolated radium with another guy, but I'm not gonna mention him, 'cause he's a guy and [laughs] what do we care about men in history, right?

Justin:
Yeah.

Sydnee:
Right. Herstory!

Justin:
There we go.

Sydnee:
Exactly. And then they presented it to the French academy of sciences, uh, that they had isolated this, you know, this thing that emits rays, it glows green and it's cool and it's an element and we don't know what it is or—

Justin:
[in a high-pitched French accent] Hello, my name is Marie Curie.

Sydnee:
And we're gonna—

Justin:
[in a high-pitched French accent] This next thing I'm going to show you is cool.

Sydnee:
[laughs]

Justin:
[in a high-pitched French accent] Stay tuned.

Sydnee:
We're gonna call it radium, because it emits its own light or ray, so ray—dium, radium. Pretty cool.

Justin:
[in a high-pitched French accent] It's cool. Check her out.

Sydnee:
And at first, we had this thing and we didn't know what to do with it and, um, initially, [laughs] the best use for it was to paint things that needed to glow in the dark. [laughs]

Justin:
Oh, humanity.

Sydnee:
"What are we gonna do with this stuff?"
"I don't know, let's paint some watch faces."

Justin:
Paint stuff.

Sydnee:
So clocks would be usef—you know what would be useful is if clocks glowed, so that a night when I looked at 'em, I knew what time it was. Let, let's paint the clocks.

Justin:
A great lie about that is that when it was in olden times, like you ever n—needed to know what time it was, it was dark. There's nothing to do, just—

Sydnee:
The good old days.

Justin:
... just go to sleep.

Sydnee:
Just go to sleep. Nobody wakes you up, nobody tells you to go to work at three AM, to deliver a baby.

Justin:
There's no cock crowing. They didn't have chickens.

Sydnee:
So we, we started using radium for paint, initially, um, on like, like I said on watch faces, and clock dials, and things like that and, uh, that was when we first realized that, uh, radium could actually do damage to people, because, uh, have you heard of the radium girls, Justin?

Justin:
Hey, look, who are you talking to?

Sydnee:
You're... You've never heard of any, any of the things I'm talking about. So in the 1920s, uh, the case of the, the radium, as they were dubbed, the radium girls, five girls who worked in a factory where they painted watch faces and they would... um, because they were doing such detailed work, they would lick the tip of their brushes... of their paint brushes, as they painted the watch faces and the clock dials and such, to bring them to a fine point.

Justin:
Okay. Listen.

Sydnee:
And they were using radium-based paint.

Justin:
I, ladies, I know you didn't know how dangerous this actually was.

Sydnee:
Nobody did.

Justin:
It glowed in the dark! How did we not think?

Sydnee:
So do lightning bugs, have you ever eaten one of them? Totally fine.

Justin:
[laughs] I have not eaten a lightning bug.

Sydnee:
I… haven't either…?

Justin:
Uh, so they became exposed to radium, I guess.

Sydnee:
Yes.

Justin:
Which is not ideal.

Sydnee:
And uh, your body uses radium kind of like it does calcium. It's, it's close that we can compare the two. So you will deposit it into your bones, um, which is, you know, bad on several levels. You need calcium in your bones, not radium. And it also kills the marrow cells. You know, your bone marrow?

Justin:
Mm-hmm.

Sydnee:
Inside your bones that produces all of your white and red blood cells and, and such? It'll kill those cells. So you can develop this kind of aplastic anemia, where you basically stop making the kind of blood cells your body needs.

Justin:
Yeah.

Sydnee:
It can also damage your skin and eventually it can lead to, to a kind of bone cancer, essentially. Um, so they took legal action. Uh, the company, uh, tried to cover it up by claiming the girls just had syphilis and they were lying.

Justin:
Which, okay. Let's be honest. They did have syphilis, but—

Sydnee:
Why do you think they had syphilis?

Justin:
They all had syphilis.

Sydnee:
'Cause everyone in the 1920s had syphilis?

Justin:
Everyone had syph—the pop had syphilis in the 1920.

Sydnee:
You... The, oh my gosh, the Illuminati is gonna be all over you for that.

Justin:
God, they know where I live.

Sydnee:
You can't say things like that on the air!

Justin:
Let them come for me. That... The Illuminati don't listen to podcasts, anyway, everybody knows that.

Sydnee:
They didn't, [laughs] they're in our, they right now are in our backyard right now. They, they didn't have syphilis, they had radiation poisoning and it, it actually brought a lot of attention to radium as well as occupational health issues.

Justin:
Uh, that's good. 'Cause they were licking radium.

Sydnee:
And it wasn't until the '60s that they stopped using, uh, radium-based paint, which is why we have this Fiesta Dinnerware in our possession, that's glowing in the corner and killing us slowly.

Justin:
Although, to be fair Fiesta Red was discontinued in 1944. So they were a little bit ahead of the curve there.

Sydnee:
Absolutely. And, and the thing is that we, like I said, we already knew that x-rays were useful. And so when we first discovered this radioactive isotope, radium, um, we, we began to, um, isolate it and use it for things and Henri Becquerel, in 1901 was the first one who realized that it also could be used to damage, like, skin cancers or tumors, to basically to hurt tissue in the same way the x-rays could. Uh, he did this by putting a tube of radium in his waist coast pocket, uh—

Justin:
[laughs] A little waiting.

Sydnee:

... to, you know, to carry with him... to take with him on his daily rounds, of whatever he did with radium, and, uh, he noticed that a skin ulcer developed—

Justin:
Yeah.

Sydnee:
... at that same side, like a week later.

Justin:
And that is how Tamagotchis were invented.

Sydnee:
[laughs] I hated those things.

Justin:
I hated those things 'cause they were radioactive.

Sydnee:
They were always dead. Uh, all—

Justin:
They keep burning your tissue.

Sydnee:
I always killed mine. I, I tried so hard and I would, I would forget, and I'd come back, it was a week later and the whole screen is filled with little piles of poop and it's dead.

Justin:
It's dead.

Sydnee:
It's dead.

Justin:
There's poop, there's poop everywhere and he's dead. Um, so—

Sydnee:
So they figured out that radium could cause a skin ulcer. Marie Curie, was actually, I think this is kind of cool, she was so excited by this prospect that

she also held some radium against her skin for like 14 hours, so that she could also form an ulcer.

Justin:
Thrilling. Well, you know, they were really hard up for entertainment back in the early 20th century. Huh.

Sydnee:
And the great thing about it [laughs] is that it didn't happen instantly. It's not like the ulcer formed as you were holding the radium there, you just held it there for like 14 hours. And then the rad—then the ulcer formed later.

Justin:
[in an old-timey radio voice] A new craze is sweeping the early 20th century. It's holding radium until it burns it ulcer in your skin. We don't have radios yet, so we do the best we can.

Sydnee:
[laughs] When did all that hysteria treatment come along?

Justin:
So Marie Curie held radium to her skin, uh, to... which is sort of like the gang burn that, uh, me and my friends gave ourselves in college, if you think about it.

Sydnee:
Right? Where is that gang burn, Justin?

Justin:
I didn't get one. I was a little scared.

Sydnee:
I know.

Justin:
But my friends did.

Sydnee:
I know honey.

Justin:
So I have, like, a half a gang burn 'cause I had to watch someone do it.

Sydnee:
I know.

Justin:
So did we discover any, like, useful applications?

Sydnee:
Well, at the time, not really. Um, we, we got the idea—

Justin:
I bet we gave it a shot, though.

Sydnee:
Oh, of course we did. So we knew that x-rays could burn tissue and we thought, "Well, now we know radium can burn tissue, so maybe radium can do what x-rays can do." So then we just started, like, using it, like we always do. We've got something that's interesting, let's put it everywhere.

So we can put it on skin lesions, you know, for cancer. Uh, lupus was a big treatment that we used radium for. Just rub radium on your lupus rash. Um, eat it. Uh, keep it in... A lot of the times they would wanna reuse it, 'cause radium, radium was really hard to isolate, so you didn't wanna use it up. So you would put it in these glass tubes and then you could just, like, tape it to various surfaces of your body and then give it back to the doctor later.

Justin:
I feel way better. I don't.

Sydnee:
After I tape that glass tube to my face.

Justin:
You were so right. You know, I was hesitant 'cause it's dumb, but, uh, you're right. It really did cure up m— uh, my... I, I don't know. What, what... how do they think that that... It's not really a super directed approach?

Sydnee:
No.

Justin:

You know, it's not like the ma— laser like efficiency of some of our modern treatment.

Sydnee:
No. And I mean, it really, like... they thought it would, it would cure a lot of pain kind of symptoms, arthritis and gout and like, you know, muscle aches and cramps and headaches. Um, they thought it would help with lupus. Of course that was the, that was the big, um, disease that they were trying to fight.

Uh, they also thought if you inhaled, it inhaled radium, you could treat your tuberculosis. Um, if you... You know, like I said, it could fight cancer. Um, you could inject it, you could insert it or insert the tubes in various orifices. They made it into a salve, you know, radium, salt together with the ointment that you could put on your body.

Um, they also... That was also the time when they thought, "You know what, uh, we found low levels of radiation that was being..." whe— when we began in to become like aware that radiation existed in water sources.

Justin:
Mm.

Sydnee:
Which probably is from, like, like ground sources, like, uh, radon gas that existed in certain areas of the soil.

Justin:
Right.

Sydnee:
Um, we found it in well water and in springs, natural Springs, so we thought that these, um, water sources were especially therapeutic, so they began to add radium salts to bath water.

Justin:
Just a complete guess.

Sydnee:
Yeah. Oh, just a totally a complete guess. Like, "Here, put this in your bath water. It'll make you feel great."

Justin:
Maybe, I don't know.

Sydnee:
Well, tuberculosis, I mean, at some point they mixed it... they mixed radium with iodine and called it dioradon.

Justin:
[laughs]

Sydnee:
... and then injected it intramuscularly. So like a, like a flu shot or a, or a tetanus shot in, in the muscle there, they just injected in you, because they noticed that for at least one patient, it... they thought their fever and their coughing up blood disappeared after they started getting this shot. Now, my guess is it was coincidence. Um, but I don't know, I don't know how the human body reacts to radium and iodine being injected, so...

Justin:
Bad, I would guess. Makes you sad, makes your body sad.

Sydnee:
Maybe, maybe at that point, tuberculosis is the least of your worries?

Justin:
Right? Well, at least now I have this radium burn to distract me, this radium ulcer on my skin.

Sydnee:
Yeah. I have this giant ulcer in my—

Justin:
I don't... You're right.

Sydnee:
... waist coast pocket area.

Justin:
I don't notice my lupus so much—

Sydnee:

[laughs]

Justin:
... 'cause I'm thinking about the radium.

Sydnee:
No. Uh, it should be noted that in the same time period, um, very, very sadly, Marie Curie did die of aplastic anemia, probably because of the radium.

Justin:
Poor Marie Curie.

Sydnee:
Uh, would you want... Do you wanna know about some quacks?

Justin:
Yeah. Cheer me up, 'cause I'm kind of bummed about Marie Curie right now.

Sydnee:
I'm sorry. Well, I mean, did you think she was still alive?

Justin:
No, that's fair. And that is something we've talked about before. We shouldn't be sad for old timey people that died young, because they would be dead now, anyway.

Sydnee:
That's absolutely right. I don't think she died particularly young. I think she was in her sixties.

Justin:
Think about all the celebrities you know—

Sydnee:
So not that that's all that, I mean, by today's standards that is relatively young, but back then—

Justin:
That was super old.

Sydnee:

... that was so good. That was so good.

Justin:
But think... But also think about all the celebrities that are alive right now that you'll never meet, you wouldn't have met Marie Curie. She, she probably lived over in France.

Sydnee:
And if she'd lived much longer, maybe she would've done something horrible and she wouldn't be on my underwear today.

Justin:
She would've been, she would've committed genocide.

Sydnee:
[laughs]

Justin:
Maybe. I don't know! I don't know.

Sydnee:
That is the eventual outcome of all humans. If you live s—if you live pretty long, you do something awesome, like isolate radium, if you live too long, you do some something terrible, like commit genocide.

Justin:
Did you ever see the episode of *Quantum Leap* where Dr. Sam Beckett—

Sydnee:
[laughs]

Justin:
... prevented Marie Curie from, uh, inventing the atomic bomb? It was profound. I think, I think it's fair to say it was profound.

Sydnee:
Do you wanna share his whole memory theory with, with everyone?

Justin:
This isn't a theory. Dr. Sam Beckett had a Swiss cheese memory. He used to have—

Sydnee:
This doesn't make sense to me.

Justin:
He used to have a photographic memory, when he stepped in the quantum loop accelerator vanished. He, uh, uh, got holes in his memory that was very useful as a narrative device, when they remembered to use it. It was sort of like, um, Superman on The Super Friends. He would, he would only remember his powers when he... [laughs] like it, it served the story. Swiss cheese memory is very much the same way.

Sydnee:
Like apparently like, like occasionally he would be tied up to a chair and be there.

Justin:
And he would forget that I'm super strong, uh, superman now not Dr. Sam Becket.

Sydnee:
Oh no. That didn't happen to Dr. Sam Beckett.

Justin:
No, he never got there.

Sydnee:
He had to think his way out of—

Justin:
He—

Sydnee:
... out of his quandaries.

Justin:
Uh, and I wanna hear about quack.

Sydnee:
Hope... Always hoping that the next leap…

Justin:

Would be the leap that took him home. Syd quacks.

Sydnee:
Oh, I miss *Quantum Leap*.

Justin:
Me too. Come on, come on TV.

Sydnee:
Bring back *Quantum Leap*.

Justin:
You made a show outta Hannibal Lector, what are you waiting for?

Sydnee:
Quantum Leap, Quantum Leap!

Justin:
Now next, [laughs] a two person chant for *Quantum Leap* would probably have the effect for him. Hey, that's, uh, what you do in effect. We should do a Sawbones about the history of quantum leaping.

Sydnee:
That's not a thing, but okay.

Justin:
Quack, quacks.

Sydnee:
Okay.

Justin:
Quack.

Sydnee:
The first quack—

Justin:
Quack.

Sydnee:
Okay.

Justin:
Quack.

Sydnee:
[laughs]

Justin:
Quacks. You guys like *Mighty Ducks*?

Sydnee:
Are we gonna do some *Mighty Ducks* here?

Justin:
Come on quack. Do the triple dig on this section about quacks.

Sydnee:
Triple dig. Triple dig can we do a flying V now?

Justin:
We've had a few drinks.

Sydnee:
Flying V.

Justin:
We've had a few drinks, final. What is in mine?

Sydnee:
One, two, three!

Justin:
Quacks!

Sydnee:
Quack! Okay. William J. A. Bailey. He's our first quack. He was a Harvard dropout. He pretended to be a doctor.

Justin:
I do that constantly.

Sydnee:

I know you do. He wasn't. Uh, he did create Bailey's radium laboratories in New Jersey, in like East Orange or somewhere, and, uh, he made a lot of different products and devices based on radium.

Um, his biggest idea was that you could add, just give, give people radium salts that you could add to drinking water. Um, this was used to treat, uh, again, everything. Headaches, diabetes, uh, anemia, which is ironic, since it could cause anemia, constipation, asthma, mental illness, anything. Anything you name it, radium can cure it. Uh, he... Actually, his most popular product was called radithor, radithor, radithor?

Justin:
[laughs] Today, my favorite Gore album. All hail Radithor!

Sydnee:
Which was essentially—

Justin:
Shudder in his shadow!

Sydnee:
Triple distilled, drinking water with one microcurie each, 'cause, uh, the curie became a, a unit of measurement.

Justin:
For radioactive material?

Sydnee:
Exactly. One microcurie, each of radium 228, radium 226.

Justin:
Just a microcurie.

Sydnee:
It was called, uh, a cure for the living dead.

Justin:
[laughs]

Sydnee:
Perpetual sunshine, and he thought it worked by stimulating the endocrine system.

Justin:
Sure.

Sydnee:
It didn't.

Justin:
It did not.

Sydnee:
It didn't do any of that stuff. Um, I think the, the way that this, uh, cure eventually fell, uh, people finally realized that it was not a cure for anything, and was in fact a hoax, was because of Eben Byers, who was a wealthy American socialite. He was an industrialist, he was a very, um, popular, um, wealthy figure in society at the time, who totally bought into this and said, "You know what? I'm gonna drink so much of this stuff, 'cause I wanna live forever." He in his lifetime drank 1,400 bottles of radithor and then unfortunately got cancer.

Justin:
Just remember that when you're sucking down your acai and your goji berries—

Sydnee:
Somebody's gonna be this guy.

Justin:
Yes. One of you is gonna be this guy.

Sydnee:
One of you is gonna be Eben Byers.

Justin:
Don't be the Eben Byers of goji berries. [laughing] Let somebody else have a few more than you. It's all so you're not the one who gets the cancer from the goji berries.

Sydnee:
Do you wanna be the Eben Byers of Sensa?

Justin:

[laughs]

Sydnee:
Really? Really?

Justin:
Really?

Sydnee:
Come on.

Justin:
Just exercise.

Sydnee:
Come on.

Justin:
Come on.

Sydnee:
Calories in, calories out people. Um—

Justin:
1,400 bottles. I love it.

Sydnee:
1,400 bottles.

Justin:
You know that this dude had to be like leaving dinner, "I'd love to stay. I have to go home and suck down some radioactive water. So just call—

Sydnee:
Just real quick.

Justin:
Just real quick.

Sydnee:
Just real quick.

Justin:
Gonna put home real quick, get a few bottles of radioactive water and put... Oh man, I feel terrible."

Sydnee:
Do you know, um, the, I thought you would enjoy this Justin, the, uh, wall street journal headline the day after he died. Um, do you wanna read that for everybody?

Justin:
The Radium Water Worked Fine until His Jaw Came Off.

Sydnee:
[laughs] I love that for two reasons. One, because of what it says, and two that at the time, that's the way journalists wrote the news.

Justin:
Yeah.

Sydnee:
Where, where is that?

Justin:
Sweetest album title ever, by the way. Take... Go, go ahead, Kings of Leon, do it.

Sydnee:
This, uh, this was a, a very important case because um, it strengthened, uh, the Federal Drug Administration standards for, um, patent medicines, which is a... You know, that's a, that's a whole episode onto itself, but medicines that weren't medicines, but—

Justin:
Coming soon.

Sydnee:
Yes. Patent medicines. Um, he also made Arium, which was a radium-based aphrodisiac that, that basically made him a millionaire. And as a result, during World War II, uh, William J. A. Bailey was the manager of the electronic division of IBM. So there you go. Didn't do too bad for himself considering his quackery.

Justin:
Tell me about more radioactive stuff, I'm into it now.

Sydnee:
Okay. So there was, uh, Doramad, radioactive toothpaste.

Justin:
Can I say what I like about—

Sydnee:
There were several radioactive toothpaste, I should, I should point out.

Justin:
I wanna say the thing I like, I think, about talking about radioactive, uh, uh, treatments or things is, so much of what we talk about is complex enough that even if I were to be sent back into the early 20th century, by which I mean, you know, caveman times basically, I, I don't think I would be able to explain to people the severity of the situation they find themselves in. This one's so easy. Radioactive stuff gives you cancer. Like... And you don't know what that is yet, but it's bad. Like, uh, even I—

Sydnee:
It's bad. Don't put stuff in your mouth, please.

Justin:
Even I could be the one who's like, "No, no, no, no, no. Don't do that. That's radioactive. You don't wanna do that. We're gonna come up with a symbol here in a few years that says, don't, don't just, don't whatever you're gonna do with this thing. Don't do it."

Sydnee:
No don't, I mean, radioact— like radioactive stuff, like you see that symbol and you run away from it 'cause you know, it's like in the air and like you want... you don't wanna breathe it in, you know? And back then they said, "You know what? We've got these small amounts of thorium left over, when we make mantles for gas lanterns, why don't we make it into toothpaste? Because it'll kill bacteria and that'll make people's teeth really clean. So here's some radioactive toothpaste."

Justin:
Yeah. It'll also kill like, your tooth cells.

Sydnee:
Radiation emanation activators were produced. Uh, these were initially made for medical facilities and it was a, uh, device that would, um, like put... it would like emanate a certain amount of radioactive energy into water, and then you would know exactly how much radiation was in your water and then you could drink it or bathe in it or whatever your doctor told you to do. These were regulated by the AMA.

Justin:
Perfect.

Sydnee:
The AMA got mad about other, um, imposter products that I'm gonna tell you about.

Justin:
"Only we can insert a tasteful amount of radium into water."

Sydnee:
Exactly. "This doesn't work, but we're gonna make sure it doesn't work in the way we think it doesn't work—[laughing] and not the way *you* think it doesn't work." Brought to you by the AMA. Um, so—

Justin:
What does that... What did this lead to, Syd?

Sydnee:
The radium or revigator, revigator—

Justin:
Revigator.

Sydnee:
Revigator, which was invented by R. W. Thomas in 1912. So these were basically like ceramic pots that you could just keep in your home, it looked very... They... Actually, if you look at pictures online, they looked really nice.

Justin:
Very tasteful.

Sydnee:

Very... Exactly. They're looking great in your den. I don't know. And they were aligned with radioactive material. So you would fill 'em with water, leave them overnight. And the next morning, pour yourself a glass of water.

Justin:
Enjoy.

Sydnee:
Yeah. And it would prevent s—

Justin:
It wouldn't.

Sydnee:
No, but, it... they thought senility, flatulence, and arthritis.

Justin:
Hey, uh, I know my grandpa, and considering their drinking water, that's going to kill them at an early age of cancer, this would definitely prevent a large amount of senility and flatulence, just statistically speaking.

Sydnee:
[laughs]

Justin:
They would not make it to the senility, and flatulence, and arthritis stage. Uh, so in that sense, I, I guess it's accurate.

Sydnee:
When somebody tells you that they have something that's going to prevent senility, flatulence, and arthritis, you should pretty much assume they're lying.

Justin:
What that means is you're gonna die young.

Sydnee:
That means they don't know what they are talking about.

Justin:
If they said it'll prevent grandpaism, [laughing] then you should probably leave the room.

Sydnee:
Now to, to be fair, these—

Justin:
This would prevent *Murder, She Wrote*.

Sydnee:
These.

Justin:
"You will never enjoy *Murder, She Wrote*. That's a guarantee for me to you. Drink this. I promise you'll never watch Matlock and enjoy it."

Sydnee:
"You will never watch any of those *CSI* programs."

Justin:
"You will never like *CSI.* This is my guarantee to you."

Sydnee:
The... To be fair, the water, uh, that they were... that you would put in these pots really didn't have high levels of radiation. Um, the, the biggest crime is probably just that it didn't work at all—

Justin:
Okay.

Sydnee:
... bad or good. Um, it did have things like arsenic, lead, and uranium in it—

Justin:
Fantastic.

Sydnee:
... from the radioactive lining that was painted inside the—

Justin:
Perfect.

Sydnee:

... the pots, but all in all it probably, unless you were drinking massive amounts of it, it probably didn't hurt you very much, it just certainly wasn't helping you in any way. Um, this led to many other applications. There was, uh, Degnen's radio—active eye applicator, which was like a cream that you could put around your eyes for, like, um, if you were nearsighted or far farsighted, that kind of thing. There were face creams and powders. There were medicated pads and compresses. It was even, um, advocated as like a smo—like a, a smoking secession aid. Like, if you wanna stop smoking, take some radium.

Justin:
Well, you'll stop smoking.

Sydnee:
You're gonna stop. You're gonna stop smoking. You're just gonna—

Justin:
Do it by stopping breathing.

Sydnee:
There you go. That sounded really sad, so I stopped saying it, but thanks for, you know, punching through there.

Justin:
Sorry Syd, I'm doing my best over here.

Sydnee:
There, there was a radium spa, a radium spa, hotel.

Justin:
Sounds kinda nice actually.

Sydnee:
At... Could you tell me what that name of that city is?

Justin:
Joachimsthal.

Sydnee:
There you go. That's where Marie Curie isolated radium, initially.

Justin:

Okay.

Sydnee:
That town. Um, and there were like—

Justin:
Here it is. The home of radi— Here... Right here.

Sydnee:
The home of radium.

Justin:
The birthplace of radium.

Sydnee:
The birthplace of radium. "You can bathe in a radium bath. You wanna sit in one of our radium steam rooms?

Justin:
"Come on to Joachimsthal.

Sydnee:
Inhale a bunch of radium?"

Justin:
Come to Joachimsthal. Population 2,978. Wait. Nope, nope, nope, nope, nope 2,976. Sorry about that. Whoa, whoa.

Sydnee:
"Ooh. Oh. Nope."

Justin:
Nope, Nope. Sorry. My mistake, gotta update that."

Sydnee:
And this, this led to, um, uranium sand houses, which persisted all the way into 1950s, to be honest, long after we knew the dangers of radiation treatments.

Justin:
What could that be?

Sydnee:
So these are in places like New Mexico, Colorado, Utah, so out west. There were these, like, round houses, not the roundhouse—

Justin:
Not, not the Snick classic, *Roundhouse.*

Sydnee:
Roundhouse. Uh, not the roundhouse, but roundhouses with benches and then they would have some sand in the middle that had been, uh, premixed with like radioactive dust.

Justin:
[laughs]

Sydnee:
And you would just sit and breathe it in. You could also fill a box with all this radioactive sand stuff and then lay in it for a while, like a coffin of radioactive sand that would fix your arthritis.

Justin:
Some are boring than anything, but this—

Sydnee:
It won't fix your arthritis or bursitis or rheumatism or anything else that it says it would fix, but that's what they thought.

Justin:
Syd, please tell me that we have some actual use for radioactive energy.

Sydnee:
Yeah, well, I mean, obviously, most people are familiar with radiation therapy for, uh, various types of malignancies. So we do have, of course, radiation therapy via external beam. So, like, somebody, like, shooting a beam of radiation into, into a tumor, you know, or cancer that you have. We have brachytherapy, which is, like, um, yeah, the most common example is, like, little seeds that they implant to a prostate for prostate cancer. So we definitely use radiation therapy in multiple ways for, uh, cancer treatment now.

And then, uh, we also use radioactive iodine, uh, for thyrotoxicosis or a

thyroid disorder. So we, we definitely use radiation therapy in, uh, multiple real ways nowadays. Um, but what it took us a long time to, to learn is that, you know, if you don't use it for a specific disease and you just, uh, you know, randomly apply radiation to a person, that it can cause a lot of problems, so...

Justin:
So be careful with radium.

Sydnee:
Yeah. I would try not to...

Justin:
Radioactive anything pretty much.

Sydnee:
Radium is actually fairly difficult to isolate, like back in the '50s, like, at the height of our radium, isolating frenzy, we had like, um, I think that the most we had at any given time was, like, total five pounds of radium across the whole world.

Justin:
Wow. So it was—

Sydnee:
So it, it—

Justin:
... was precious, precious material.

Sydnee:
It's... it was a very precious material. We're better at isolating it now clearly, but at the time we, we were not good at isolating it, which is why it was such a, a very, uh, fashionable, um, thing to use for treatment, is because it was hard to get and, and, um, you know, we thought it had these health benefits, which were based in some sense of reality and then quickly became surreal, I would say.

Justin:
I wanna say a huge thank you to people who suggested this, both, uh, Doc McBruce and, uh, Kristen Tans, suggested that we talk about radium, so thank you so much.

Sydnee:
Yeah. Thank you. It was great idea.

Justin:
... for, uh, a good suggestion. And, uh, thank you, you at home for listening to the show. If you don't mind, if you get a second, would you, uh, tweet about our show using the, @Sawbones hashtag. Don't start it with @Sawbones because then only people who follows already will see it and then they already know about it, so tweet about our show, using the @Sawbones hashtag.

Sydnee:
You can do what I do. Just put 'hey' at the beginning.

Justin:
Don't use the @—

Sydnee:
That's what I do when I'm tweeting it, Justin.

Justin:
Don't use the @Sawbones hashtag, that's not a real thing.

Sydnee:
No.

Justin:
Just, just say @Sawbones.

Sydnee:
And, and by the way, when I, when I tweet at Justin, I tweet at @JustinMcElroy, so you can too.

Justin:
When I tweet back to my beautiful, talented, uh, brilliant wife, I, uh, tweet with the, @SydneeMcElroy, S-Y-D-N-E-E.

Sydnee:
Also, please feel free to review our show on iTunes. I read every review and when they're nice, they make me happy and I appreciate it.

Justin:
And, and we need lots of happy ones to cover up the ones that are mean.

Sydnee:
'Cause the mean ones really, you know, they hit me in that soft place in my heart—

Justin:
Ruin, ruins my whole day again.

Sydnee:
In my heart place.

Justin:
Right. It hits her right there in her heart place.

Sydnee:
And then, and then I need some Lomain.

Justin:
Thank you to people—

Sydnee:
I need some beer to make me feel better.

Justin:
Thank you to people who've reviewed the show this week. People like Chairman Wow, Ridiculous Q, uh, Jay Rockel, [laughs] Jay—

Sydnee:
Jay Caralac.

Justin:
J Caralac, there it is. Freckles 301, TLP—

Sydnee:
TLPFC, Justice 1199.

Justin:
York monkey.

Sydnee:
Total Girl, Total Girl Boss, Total Girl Boss. That's har— That's hard to say.

Justin:
Juggle Mank.

Sydnee:
Lubermans.

Justin:
DJ Reigns.

Sydnee:
Kampari.

Justin:
Lance Guberman MD. [laughing]

Sydnee:
Degringlade, Degringlade.

Justin:
Shell Link.

Sydnee:
What?

Sydnee:
Zzzantar.

Justin:
Zzzantar!

Sydnee:
[laughs]

Justin:
Chucky Sparkles.

Sydnee:
And Shaylin79.

Justin:
Uh, thank you so much to all of you. Who've reviewed the show. Uh, we super appreciate it. Uh, means the world to us, and it really helps us to help spread the word, send someone, you know, a link, uh, to our home on maximum fun. You can use the redirect sawbonesshow.com and, uh, you can find some maximum fun, where you'll find a lot of other great programs. Syd, what are some of the programs they can find?

Sydnee:
My Brother, My Brother and Me.

Justin:
Okay. That's a great one. But what about others?

Sydnee:
That's my favorite.

Justin:
Judge John Hodgman, Jordan, Jesse, Go! Stop Podcasting Yourself, Wham Bam Pow, One Bad Mother. I could go on.

Sydnee:
Throwing Shade.

Justin:
Bullseye. So many of our favorites are all there waiting for you to enjoy them. And we are waiting for you to meet us next Friday for another episode of Sawbones. I'm 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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