

Sawbones 203: Aspirin

Published October 1st, 2017

[Listen here on themcelroy.family](#)

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

[theme music plays]

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

Sydnee: And I'm Sydnee McElroy!

Justin: Sydnee, you have cleared up a lot of, um, medical misconceptions for me over the years, but I don't think any were as stunning as when we were watching a commercial for aspirin, and you looked at me and said, "You know you shouldn't take aspirin for a headache." Cause, like, for me, growing up, that— I thought that that's what everybody did. Like, aspirin for a headache is, like, a thing.

Sydnee: Well, I'm not—

Justin: It's, like, a major thing.

Sydnee: Let me clarify. I'm not saying an aspirin can't work for your headache. I'm saying that there are other over-the-counter pain relievers that may be a better choice for your headache, and there are a lot of reasons why someone may not be able to or why it might not be advisable for them to just take aspirin whenever they need to for a headache. I rarely recommend to people to just take an aspirin whenever they feel like, for aches and pains or headaches or anything like that.

Justin: Let's also double back and double clarify that until that exact moment, I thought aspirin and Tylenol were the same thing. So...

Sydnee: And they are definitely not.

Justin: So, they're definitely not. So why don't you educate me about what aspirin actually is?

Sydnee: Sure. So, first of all, you aren't the first person to wanna know about aspirin.

Justin: Good.

Sydnee: No. So, thank you—

Justin: My thirst for knowledge—

Sydnee: [laughs quietly]

Justin: —is shared.

Sydnee: Mary and Raina and Jen and Matthew and Mark, who have all suggested this topic. So, aspirin is probably older than you know about. It's been around a long time.

Justin: Really?

Sydnee: Yeah. So, the name, the chemical name for aspirin is acetylsalicylic acid.

Justin: [snorts quietly]

Sydnee: As you can imagine, that never really caught on. [laughs]

Justin: That's a mouthful.

Sydnee: Yeah, nobody tends to call it that, like, in the store. You don't go and ask for an acetylsalicylic acid, please. It's a mild analgesic, meaning it is a— that's pain reliever. Works on pain. It's mild. It's certainly nowhere among the strongest of our pain-relieving medications, and like I said, I don't know that it would be my first over-the-counter choice for most pain, depending on the patient.

It relieves pain by blocking the production of substances called prostaglandins. So this— this happens through something called cyclooxygenase, which is an enzyme, and it inhibits it, and then you don't get these prostaglandins, and then the result

of that is that your nerve endings aren't as sensitive to pain, because the prostaglandins sensitize them, and so this desensitizes it, and there you go.

Justin: Okay.

Sydnee: Less pain. That's just how aspirin works, in case anybody's really fascinated with how aspirin works.

Justin: And able— like, literally able to process the information that you just imparted.

Sydnee: Well, sometimes you'll hear things thrown around, like in commercials, about things like COX-1 inhibitors and COX-2 inhibitors, and—

Justin: [snorts]

Sydnee: You cannot giggle when I say that.

Justin: [deep voice] Sorry, go ahead.

Sydnee: [laughs quietly] You— please be professional.

Justin: [deep voice] Sorry, Dr. McElroy. Please continue your dissertation.

Sydnee: But that's where this comes from, is the inhibition of this enzyme, and then it blocks the prostaglandins. This also will later lead to our discovery that aspirin can do other things other than help with mild headaches. So, we have found evidence that early man would chew on things that contained salicylic acid.

Justin: Like natural— this was, like, naturally occurring in the world?

Sydnee: Salicylic acid is naturally found in a variety of plants.

Justin: Okay.

Sydnee: So, let me start with that. The most common thing I'm gonna talk about is willow bark.

Justin: Mm-hmm.

Sydnee: So, willow bark contains salicylic acid. Any kind of herbal remedy that is suggesting willow bark is probably suggesting it because of the presence of salicylic acid.

Justin: So, you always are so down on natural remedies, but this seems like apparently the table's been turned on you, Dr. McElroy.

Sydnee: I am not down on natural remedies. I like the fact that aspirin has many, many studies to support its use. [laughs]

Justin: Fair enough.

Sydnee: I am also not advising anyone to chew on willow bark.

Justin: Uh... it's hard to control dosage, I would imagine.

Sydnee: Uh, yeah, exactly. And there's, like, a lot of other stuff in willow bark that isn't salicylic acid.

Justin: Like bark things. [laughs] Like wood stuff?

Sydnee: Like the wood stuff.

Justin: You know there's wood parts in there?

Sydnee: So, it contains— so, like, there's some evidence that early man knew—they didn't know about salicylic acid but knew, you know, "I don't feel good, I chewed on this willow bark, I feel better. Hooray."

Justin: "I did it."

Sydnee: Great. Good— good job. [laughs]

Justin: And then they mushed it with their little hands into pills.

Sydnee: [laughs]

Justin: And sold it to other cavemen.

Sydnee: No, not yet. Not yet.

Justin: Okay.

Sydnee: We're not there yet. So, uh, and this is kind of widespread. There are ancient Sumerian writings, uh, the Ebers Papyrus from Egypt, that all reference the use of plants that specifically contain salicylic acid. Like I said, most commonly willow bark is mentioned, but it depends on where in the world you are as to what was available. Uh, meadowsweet is another common one. But, I mean, it's in jasmine, beans, peas, clover. There's lots of different plants that different ancient peoples would've had access to that contained salicylic acid.

Justin: So, are you telling me if I eat enough peas, it'll cure a headache?

Sydnee: No, I don't wanna say that. It would depend on— I'd have to know the exact amount of salicylic acid per pea, and then—

Justin: 1000 peas.

Sydnee: Every— [laughs] every plant that contains it, you gotta wonder about its bioavailability. Like, how much of it can you absorb, based on how it is—

Justin: Okay, 2000 peas. Fine.

Sydnee: So— I mean, if you wanna eat 2000 peas, I'm not gonna stop you.

Justin: You would stop me. That— that is incorrect. You would stop me from eating 2000 peas.

Sydnee: I would stop you from eating 2000— peas are very small, to be fair.

Justin: So, you're saying maybe I could eat [through laughter] 2000 peas?

Sydnee: [laughs]

Justin: Is that your [crosstalk]—

Sydnee: I'm saying that I've never considered— I've never considered measuring peas by the individual unit as to, like, how many—

Justin: Nobody does! If you think about it, you wouldn't say, like, "I had two chicken tenders and 58 peas." Okay? No one talks that way.

Sydnee: See? And that doesn't sound like very many. You say 58 peas, and I think that's probably a very small—

Justin: Yeah, I could [crosstalk] 58 peas, yeah.

Sydnee: —amount of peas. I don't know.

Justin: [wheezing] I had 230 peas!

Sydnee: [laughs] I've never considered the amount of peas—

Justin: The serving size should be listed that way. "Oh, about 70 peas." [laughs]

Sydnee: That would make it very hard to calculate calorie content.

Justin: Yep.

Sydnee: So, in all of these mentions of the use of the salicylate— salicylic acid, salicylate, I'm using these words interchangeably— containing plants, it's usually used for pain or for fevers.

Justin: Okay.

Sydnee: That's usually how it's referenced as being, you know, employed as a medicine. Um, ancient Chinese medicine also advised willow bark specifically for a variety of illnesses. Like I said, pain and fevers, also things like rheumatic fever specifically, a goiter they recommended willow bark for, colds, probably because of the aches and pains and fevers and all those things that came with it, and even bleeding, which was probably a bad idea. Cause as we're gonna talk about, aspirin does, to some extent, thin your blood.

Justin: Oh, okay.

Sydnee: So, using aspirin for bleeding...

Justin: Bad.

Sydnee: ...is not a good idea.

Justin: Okay.

Sydnee: But all those other things... well, I don't know about goiter either. But anyway, I could see where they got some of these ideas, cause it— there probably was some response from the willow bark.

Hippocrates advised powdered willow bark for headaches, um, and also for minor aches and pains and fevers, and the same kind of thing everybody had been using it for. In addition, he specifically had a recipe for a kind of tea made of willow bark that he recommended you give to women during labor to help with labor pains. So, if somebody is having a baby, you can give that person some willow bark tea.

Justin: We'll just call anything tea, won't we?

Sydnee: Just boiled leaves.

Justin: Boiled leaves, right? That's it, huh?

Sydnee: Yeah.

Justin: Okay.

Sydnee: Right?

Justin: I guess, yeah.

Sydnee: [laughs]

Justin: Like daffodil tea, is that just hot water and daffodils?

Sydnee: On that— on that 50's menus that we saw at that Cosi place today, we, um— boiled leaves was the, like, 50's slang for tea.

Justin: They— why didn't they just say tea? Why did they waste so much time? The diner slang, you mean.

Sydnee: Yeah, diner slang. If you want black coffee with sugar you say, "I want a brunette with sand."

Justin: Okay.

Sydnee: And if you want tea you just say, [holding back laughter] "I would like some boiled leaves." Which would make you not want tea. I think I would change my order if somebody said, "Oh, you want boiled leaves?" I'd go, "No?"

Justin: "No? Gross!"

Sydnee: "No? Thanks?"

Justin: You're right, that's gross.

Sydnee: So, it's well known throughout the Roman world by then that you should use willow bark for things, and anything with salicylates in them. Pliny wrote of the use, Pliny the Elder wrote of the use of willow extensively in Natural History, including chapter 37, which is called The Willow: 14 Remedies.

Justin: Hmm.

Sydnee: So at least 14 remedies.

Justin: Perfect.

Sydnee: Each one of these is different in terms of what you add to it. So, willow plus, alcohol, for instance, is great for, uh, killing your libido.

Justin: Okay?

Sydnee: So, if you need to do that, if you want to lessen your sex drive, willow bark, alcohol... no sex drive.

Justin: But the willow bark— wouldn't that— if it sped up your blood flow, wouldn't that be counter..

Sydnee: Well, it doesn't— it doesn't speed up your blood flow. It thins out the blood.

Justin: Oh, okay...

Sydnee: It stops the kind of clotting ability.

Justin: Alright, alright, I'm with you.

Sydnee: So not completely, but it stops parts of the clotting ability.

Justin: Okay.

Sydnee: He also recommended it— again, like I said, anything that, like, bleeding is a bad idea, and he did recommend it for mouth bleeding specifically.

Justin: Ugh!

Sydnee: It's probably not a good plan. Corns, calluses, acne, blindness, he thought it was good for a diuretic. If you have an abscess—

Justin: It sounds like they were just so stoked to find one that *did* do something.

Sydnee: It did something.

Justin: Like, "We know this does something. Let's try it for everything."

Sydnee: And you see this. It's very common, if they found— you know, if you found some sort of herbal substance that worked as a laxative, it would be used for everything. If you found something that made you vomit, those were always very popular. Something that made you pee was very popular. Results you could see or feel or actually— like, tangible results were very popular.

Justin: Pliny's ticking me off right now, because he's perverting one of our mainstays of "Cure-alls cure nothing." He's turning this thing that does cure something into a cure-all!

Sydnee: That's true.

Justin: He's perverting our, uh... our slogan, there.

Sydnee: Although, you could make the argument that it's not— aspirin doesn't *cure* a lot of things.

Justin: Okay, but I—

Sydnee: I mean, if you have a—

Justin: Alright, that's debatable.

Sydnee: I mean, I guess if you have a headache and you take an aspirin and it goes away, we have cured the headache. But if you have a fever because you've got the flu, and you take an aspirin and your fever goes away, you didn't cure your flu.

Justin: Okay, yes.

Sydnee: So...

Justin: Fair.

Sydnee: Uh, ear diseases, gout, affections of the sinews? Whatever that would mean. As a depilatory. I don't know how aspirin would remove hair, but... there you go. Any of these things. And then, by the way, that recipe of alcohol plus aspirin— or plus willow bark equals no sex drive? If you do that daily, it will go away forever, according to Pliny the Elder.

Justin: Lotta free time.

Sydnee: So... watch that concoction, unless you want that. Unless that's your intended effect, then that's totally fine, but otherwise, be careful.

For the next few centuries, people— like, willow bark had become part of, like, the common pharmacopeia at this point. It was an accepted, handed-down, you know, through oral histories and folk medicine in various cultures that this is something we use. It's active, it works, you know. But nobody was, like, studying it to see, you know, why *does* willow bark do something?

Justin: Yeah.

Sydnee: There are a couple exceptions to this. In 1763, Reverend Edward Stone in London wanted to study the use of willow bark for malaria. He was looking for something that might work like quinine we knew did, because of the Peruvian

cinchona bark, which we had already realized was active against malaria. So, he was looking for something like that that would be easier and cheaper and closer to home.

Justin: The prices on that bark went buck wild after it was discovered it cured malaria.

Sydnee: Exactly.

Justin: It was hard to come by.

Sydnee: You're exactly right. It was hard to get. And so, this was kind of a search for something else. He was actually guided by the Doctrine of Signatures, which we've talked about before.

Justin: Uh, where... is that like, like cures like?

Sydnee: Exactly, like cures like. Which means he looked for something, uh, not that looked like malaria, cause you can't find something that looks like malaria, but they knew that malaria kind of came from, like, murky, still waters, you know? Cause that's where the mosquitoes would lay their egg rafts, and that's where the mosquitoes lived, and—

Justin: So, he was looking for something that grew in that same environment?

Sydnee: So, he looked in that same environment, and looked for something that grew there, and he found the willow bark. And he tasted the willow, he chewed on it, and he noted that it was bitter, much like the Peruvian bark was.

Justin: Perfect.

Sydnee: And so, he thought, "You know what? Maybe this'll work too." It was noted that it didn't work as well as the cinchona bark, which made sense, because that contains quinine and this just contains salicylic acid. But it did seem to work, because the fever would go away.

Justin: So... but, like, he was just discovering that aspirin already did that, right? Like, we already knew that.

Sydnee: We already knew that, yeah. We kinda already knew that, but—

Justin: He was probably still pretty proud of himself.

Sydnee: Well, yeah. And for a lot of people suffering from malaria, it was at least something that brought them some relief, would temporarily break the fever. And I'm, you know, like we've talked about before, it's not like malaria is uniformly fatal, so... if you feel better and then you do get better, you would probably think it cured you, even though it didn't have the quinine in it.

There's also some studies in the 1800's where Thomas McLaughlin studied it for rheumatism, but there really weren't a lot of people who were sitting down and saying, "This is willow bark. It works for something. Why the heck does this happen?" until 1828, when Johann Buchner, a pharmacy professor in Munich, isolates salicin, salicylic acid, the active ingredient in willow bark, and says "This is the thing. This compound. This is what's—"

Justin: "No more eating bark, everyone. Good news."

Sydnee: "No. You don't have to chew the bark. I have narrowed it down to this exact... powder, liquid, whatever, substance, this substance, and this is what it is." There were two Italian chemists who had kind of beat him to it a couple years before, but it was an impure form, and it wasn't what the future work that we now know as aspirin was built upon.

In 1838 there was an Italian chemist, Raffaele Piria, who was able to create from salicin the acid form of that, salicylic acid, and that was something that could be stabilized and used for pain relief. Different compounds are either stable or exist in different forms. The salicylic acid form was something that you could have a powder of and take.

Justin: Okay. I don't— I don't quite understand. So, like, was salicylic acid in willow bark?

Sydnee: Salicylic acid is in the willow bark, but it's in the pure— it's in the first compound of salicin.

Justin: Okay.

Sydnee: And you have to use— you use chemistry to turn it into salicylic acid.

Justin: Good enough for me. Thank you.

Sydnee: Does that work?

Justin: Yeah, sure.

Sydnee: Okay. We'll just— we'll stick with that, without getting into how you— how you do that. I don't think that would be as interesting for everyone, maybe.

Justin: Alright.

Sydnee: Uh—

Justin: Tweet at Sydnee.

Sydnee: [laughs]

Justin: She'll lay it out for you.

Sydnee: However, it was really hard on the stomach in that form, they found. If you took pure salicylic acid and ate it, that was— that would, like, give you nausea and belly cramps, and maybe some bleeding ulcers.

Justin: So, you need some fillers in there. They didn't have a gel coating.

Sydnee: [laughs]

Justin: That's the problem. They needed a gel cap coating.

Sydnee: No. Well, the— a little more than that. A little more that. This pure acid form is really hard on the stomach. They need to do something that can help soften that. So in 1858, a French chemist, Charles Gerhardt, buffered the acid. If you've ever thought of, like, Bufferin, if you've ever heard these terms about buffered aspirin—

Justin: Mm-hmm. Oh!

Sydnee: That's what they're— they buffered it.

Justin: Okay.

Sydnee: They buffered the acid, the salicylic acid, with sodium, and made acetylsalicylic acid, which will become aspirin. But he kind of lost interest in it? So he just made this, he made this, like, amazing discovery. Here is the formula for acetylsalicylic acid, this amazing thing. And then, like, nothing came of it. And then the formula was rediscovered in 1899 by Felix Hoffmann, who, under the direction of Arthur Eichengrün, they were working for Bayer, a German company called Bayer, you may recognize.

Justin: Bayer.

Sydnee: Bayer. [laughs] As in aspirin, Bayer aspirin. Anyway, they were working for Bayer. They were looking for a way to take salicylic acid and turn it into something that is buffered that everybody can take, that'll be gentler on the stomach, and they probably just rediscover this old formula and go, "Hey!"

Justin: "Perfect!"

Sydnee: "This'll work!" So, they reproduce it, and they've got aspirin, and they convinced the people who ran Bayer, like, "You've gotta make this, this is gonna be huge."

He actually tested it out, Hoffmann tested it out on his dad, because his dad had terrible arthritis. And his dad was like, "This is gangbusters. You— you win."

Justin: I just— I'm sorry, I'm still hung up on Charles Gerhardt, who did this— [laughs] he made this discovery and then at the end he was like, "[clicks tongue] Alright, cool."

Sydnee: "Well, I did that."

Justin: "Anyway, I gotta get back upstairs. It's time for dinner."

Sydnee: I don't know if he didn't recognize the significance, maybe, of what he'd done, or...

Justin: Well, we know about it though, right? So, like, he had to have told somebody!

Sydnee: I don't— I don't —yeah!

Justin: That is wild.

Sydnee: Anyway, so Bayer got to make it. Because they got it now.

Justin: Good for—

Sydnee: They have the formula.

Justin: Good for them. And what did they— how did that go?

Sydnee: So, in February 7th, 1900, aspirin is patented.

Justin: And...?

Sydnee: So, acetylsalicylic acid is now become aspirin, and you're probably wondering, why did they call it that?

Justin: Why did they call it that?

Sydnee: Well, and I'm gonna tell you why they called it that. But first, we gotta go to the billing department.

Justin: Let's go!

[ad break]

Justin: Alright, Syd. You were going to delight me with the reason that aspirin is called aspirin and not acetasi— acetalsylic...

[pauses]

Sydnee: [laughs]

Justin: ... asudosid—

Sydnee: Acetylsalicylic acid.

Justin: Acetylsalicylic—

Sydnee: Well, for one thing, that would be really hard to market.

Justin: And say.

Sydnee: Yeah. Uh, nobody's gonna remember that.

Justin: Never.

Sydnee: So, they obviously— and this is common with medications. They come up with brand names that are easier to remember and say and—

Justin: Zelestrine.

Sydnee: I don't know what that is. That's not—

Justin: I just made that one up.

Sydnee: Yeah.

Justin: You can have that one for free, drug companies.

Sydnee: [laughs]

Justin: Big Drug.

Sydnee: Some of them sound like I think what they're supposed to do. Like, you think of, like, Sonata, which is a sleep medication. Doesn't it sound like—

Justin: Sounds like a— it's like a sleepy...

Sydnee: It sounds sleepy. Anyway, the way they came up with this, the A is for acetyl, so there you go.

Justin: Okay.

Sydnee: The S-P-I-R, the spir, a-spir, spir, comes from the plant that they specifically derived this salicylic acid from. So, they didn't actually make the original aspirin from willow bark. They made it from the meadowsweet I mentioned earlier, which the scientific name is spirea ulmaria. And so that's just where they got the salicylic acid from. So, anyway— so, A and S-P-I-R for that.

The I-N is just a— it was a popular suffix that they stuck on medications at the time.

Justin: People used "in."

Sydnee: A lot of things ended with I-N, and so A, S-P-I-R, they stuck the I-N on there and they got aspirin.

Justin: I feel like you see I-X a lot on medicines?

Sydnee: Mm-hmm.

Justin: These days, right?

Sydnee: Sometimes— yeah, I guess you can see that, yeah.

Justin: Chantix, and there's probably other ones.

Sydnee: I don't know. I—

Justin: Well, it's like, Wellbu— Wellbutrin. That's an I-N.

Sydnee: That's true. The I-N is just a popular thing to stick on the end of a medication. Sometimes, if you actually look at, like, the chemical name, like the compound name of some medications, the end will tell you what kind of medicine it is. For instance, like, there are a lot of cholesterol medicines that end with –statin, cause that's the class they're in, the statin class.

Justin: I didn't know that.

Sydnee: It tells you that it's that medicine. Aspirin was just— they just thought this would sell well, so there you go.

Justin: So, it's a brand name. I had never really thought about it that way.

Sydnee: Aspirin was originally— yes, and it actually— it is still trademarked, but it's violated constantly. But there is someone who owns it.

Justin: That's a problem with trademark law in the US. Or, I mean, one of the problems, and I'm sure other countries do this too, but if you don't defend it constantly, it eventually loses its teeth.

Sydnee: Well, and if you wanna— I am not gonna get into the entire trademark history of the word "aspirin," because it is a long, convoluted story about patents and trademarks that crosses international waters and involves, like— well, I'll get into this— involves, like, treaties. Because aspirin was made initially by the German company Bayer, so they had the patent, they had the trademark on the name "aspirin," and then they began selling it all over the world, and a lot of stuff went wrong with this process. And then it was sold, and it was sold back, and there's— if you're interested in that kind of history, trademark law and that kind of stuff, I would highly recommend reading the story of aspirin. I'm not gonna tell you all that, cause I'm a doctor, but... anyway.

It was initially a powder, when they sold it. They sold little packets of powder, but then they turned it into tablets in 1915.

Justin: A lot easier.

Sydnee: Yeah, a lot easier to take. And primarily it was marketed to doctors. They would just send the little packets to doctors—

Justin: Doctors get a lot of headaches.

Sydnee: No, they would say— because at the time it was actually, um, really, it was considered unethical to market directly to consumers.

Justin: [snorts quietly]

Sydnee: Wouldn't it be nice. [laughs]

Justin: Yeah, must've been nice, sheesh.

Sydnee: If that still— if that still existed. But at the time, you wouldn't have made a commercial for aspirin telling consumers to buy it. You would send packets to a doctor and say, "Hey, I think you should give this to your patients, it's great," and then hopefully your doctor tries it, or gives it to patients, they get good reviews, and then they start recommending it to patients as a result. That was the goal.

So, the trademark— like I said, from the beginning, was challenged, like, country by country, almost from the initial introduction of aspirin. Because it was... uh, I mean, it was a huge success. It was a smash success. People started taking it, and it did something. And so many medications at this point in history—

Justin: Didn't.

Sydnee: Didn't do anything.

Justin: Yeah.

Sydnee: Other than secretly make you drunk or high.

Justin: That would just be the slogan. Like, "It does something!"

Sydnee: [laughs] That's it!

Justin: "Use Aspirin."

Sydnee: It does something. And there were so many different illnesses that we couldn't really treat, but would cause things like fevers and aches and pains, and this would relieve those. Hallelujah. And everybody had pain, and nobody knew what to take for it. Again, here you go.

Justin: Here you go. A pill that actually fixes it.

Sydnee: Uh, so, World War I came along, created shortages of phenol, which was necessary in the production process of aspirin. It's not— as I mentioned, it's not the component of aspirin, but you use it as you produce aspirin.

Justin: Right.

Sydnee: But it was also used in explosives, so...

Justin: So, priorities.

Sydnee: Yeah, exactly. This led to decreased amount being shipped to Germany, which was very hard for Bayer, because they needed it to make their aspirin, and they were making lots of aspirin and trying to protect their trademark so they

could keep the aspirin flooding the markets. So, they needed more phenol to make the aspirin, and obviously Britain isn't gonna send 'em any.

Justin: Of course.

Sydnee: At this point. So, uh— and they also didn't want, didn't want the US shipping their phenol to the UK, because they were using it for explosives.

Justin: Right.

Sydnee: So, they tried to find a way to get the phenol, but they didn't want to find a way to do it overtly, because at this moment, the US still hasn't entered the war.

Justin: Okay.

Sydnee: So, they don't want to shift any more sentiment against Germany than is already against Germany in the US.

Justin: Okay.

Sydnee: So, this gives birth to The Great Phenol Plot. This is really what this is called.

Justin: I'm on the edge of my seat.

Sydnee: Until the US entered World War I, they were remaining fairly neutral, but they were trading with the Allies to, like, show their support. The German Ambassador wanted to try to undermine American industry— secretly, because they didn't want to hurt public opinion against the Germans. So, what they started doing— and they needed the phenol. They desperately needed it to keep Bayer afloat, and because of, you know, explosives.

So, Thomas Edison [holding back laughter] was one of the biggest producers of phenol at the time, cause he had a giant plant that he used to make phenol to make his phonograph records, cause it was essential in the phonograph record process.

Justin: Okay.

Sydnee: So, he had tons of phenol in excess. So, Germany created, through the help of a German ambassador and an interior minister, they created a shell corporation in the US to buy up all of the excess phenol from Thomas Edison and ship it back to Germany.

They were buying, like, three tons of phenol a day and shipping it back to keep Bayer in business, and to keep it out of the UK so that they couldn't use it for explosives. So, this was all this secret plot that was orchestrated, that was only uncovered— and this is true— because a briefcase... with the details of the plot... that was being carried around by this interior minister who was helping with this plot— he left it. He left his briefcase somewhere. Forgot it.

Justin: [laughs]

Sydnee: And a Secret Service agent who was suspicious of him and was trailing him got the briefcase, cracked it open, found all of this information about the great phenol plot, the whole thing got published in an anti-German newspaper at the time, a newspaper in the US that was pushing against Germany in the war, and even though none of this was illegal, it was really unpopular. So—

Justin: Right, yes, obviously.

Sydnee: [laughs] As a result, this got picked up by the big media, as a result, Edison says, "You know what? I don't think this looks good for me. I'm gonna stop selling you phenol." And he starts giving his phenol to the US military to use as explosives, and then the US entered the war.

Justin: Just when you think Thomas Edison can't suck any more, he goes and sucks more.

Sydnee: [laughs]

Justin: And sells explosives to the Germans. What a— he killed puppies! That guy sucked so bad.

Sydnee: [laughs] So, as part of the—

Justin: [groans] Don't even get me started on Thomas Edison!

Sydnee: Well, more will happen with the patent and the trademark on aspirin. The Treaty of Versailles actually included a provision that Bayer had to give up the trademark on aspirin, actually, as well as heroin.

Justin: Hmm.

Sydnee: Aspirin and heroin were both released as a result, as one small provision in the Treaty of Versailles. Um, and that same year, aspirin became available over the counter, and once it was available over the counter, everybody was buying it. When you didn't have to get it from your doctor, you already knew it worked, and with the end of the war and phenol becoming more available, and more aspirin, and now everybody's making it, everybody's taking it.

The Spanish Flu epidemic of 1918 really increased sales of aspirin, because people were sick, they felt terrible. Unfortunately, a lot of people were dying. You didn't really know what to do about it, so you give them aspirin, and at least it made people feel better. It lowered their fever, it helped with the aches and pains, and it was seen as kind of a miracle drug, even though it wasn't actually curing the flu. And this, combined with the markets being flooded with copycat generic brands at this time, and variations on the name aspirin, really spread its use. So, like in Australia there was Aspro, which was huge.

Justin: Aspro!

Sydnee: Aspro. And sold everywhere. And then there were just formulations in the US that were called things like Burton's aspirin, or Malloy's aspirin, which were just aspirin. There was Cal-aspirin, there was St. Joseph aspirin, there were things like caff-aspirin.

Justin: Cafaspirin?

Sydnee: Which is caffeine and aspirin.

Justin: Oh, that sounds effective, though.

Sydnee: Anacin. A lot of people have heard of Anacin.

Justin: Anacin sounds familiar.

Sydnee: That was caffeine and aspirin. There were actually many other medications that came out under the name Anacin eventually, but initially it was caffeine and aspirin. Um, that was a hugely popular one. Alka-Seltzer was initially aspirin and sodium bicarbonate.

Justin: Okay, and it's not anymore, right?

Sydnee: No, there's other Alka-Seltzers. It's its same thing, Alka-Seltzer has different, you know, products under Alka-Seltzer. Same thing with Anacin. Anacin was just aspirin and caffeine, and then it grew to a lot of other things.

Justin: Excedrin's aspirin and caffeine too, right?

Sydnee: Yeah. Although I think Excedrin has other formulation— like, there's other— you know how, like, Tylenol has a million different products? I think it's the same idea. But yes, yes. Now, all of this created, like, this aspirin fervor, fever... [laughs]

Justin: [mumbling] Fervor.

Sydnee: Fever, too. It was a joke, cause aspirin and then the fever—

Justin: Oh, it's like— okay, I got you.

Sydnee: It's antipyretic, and—

Justin: I love it, I love it, I'm crazy about it.

Sydnee: Anyway. And the only thing that dampened it, in the 50's and the 60's a couple drugs came on the market. First of all, acetaminophen, which you probably know as Tylenol.

Justin: Tylenol, huge.

Sydnee: Was introduced. And then shortly thereafter, ibuprofen was introduced. And both of these cut into aspirin sales majorly, because some people found them to work better, and for a variety of reasons sometimes they might've been safer, especially Tylenol, for various patients.

The other thing that really put a damper on aspirin sales was Reye syndrome. Reye syndrome— did you ever hear, "Don't take aspirin if you have chicken pox?" Have you ever heard that?

Justin: Uh-uh.

Sydnee: A lot of people may have kinda— they knew that, but they didn't know why they knew that. In the 80's, this rare complication was found in children who were given aspirin while they were recovering from certain viral illnesses. Chicken pox is the one that gets the most press, but really it was just any kind of viral illness. They had a fever, they felt bad, they were given an aspirin, and they developed this inflammation of the brain, inflammation of the liver, very serious illness—

Justin: Wow.

Sydnee: That sometimes could've been fatal. Just a small number of children, but enough that there grew this concern, "Why is there this reaction in kids who get aspirin with certain viruses?" We don't know, but the point was—

Justin: Be careful.

Sydnee: Don't give aspirin to kids was what grew out of this concern.

Justin: Kids period, or kids with chicken pox?

Sydnee: "Don't give aspirin to kids" grew out of this.

Justin: Oh, okay.

Sydnee: Unless for a very specific reason, your doctor has told you to give your kid aspirin, don't give your kid aspirin.

Justin: Okay.

Sydnee: That's just a good rule of thumb. In 1953, Dr. Lawrence Craven noticed that— and he was, like, a primary care doctor—

Justin: He was the—

Sydnee: [laughs]

Justin: Named after a horror movie villain.

Sydnee: [laughs]

Justin: "[villainous voice] My name is Dr. Lawrence Craven."

Sydnee: He noticed something more useful—

Justin: "Welcome to my island."

Sydnee: [laughs] It actually is kinda creepy how all this plays out, but it's very useful. He noticed that patients in his practice who chewed Aspergum, which is... a gum that has aspirin in it.

Justin: Right.

Sydnee: Yeah, if you can imagine that existed, a gum with aspirin. Uh, so people chewed Aspergum, which had about 227 milligrams of aspirin.

Justin: Mm-hmm.

Sydnee: Which to put in, like, context, like, a baby aspirin has 81 milligrams. Little— little baby aspirins. And then, like, the big aspirins have 325, so, like, a decent amount of aspirin is in there. So, 227 milligrams of aspirin. The patients who chewed this bled a lot more after they got their tonsils out than patients who didn't. This was the first—

Justin: "Dracula... delicious blood."

Sydnee: [laughs quietly]

Justin: "What a shame."

Sydnee: This led to a lot of studies being done on, "Why does aspirin maybe thin your blood?" And they found that it was antithrombotic, meaning maybe prevented clotting. And from this came studies that showed aspirin could reduce your risk of heart attack or stroke. Which is the biggest breakthrough for aspirin, and why it still, even though I might tell you not to take it for a headache, it still

is one of the most recommended medications for patients, and probably most important for certain patients to take.

Justin: Hm.

Sydnee: So, even now, there are about— there are between 700 and 1000 studies done on aspirin every year to try to figure out all the things it can do.

Justin: Wow. That's pretty— I remember seeing ads, like, "You should take one of these if you're having a heart attack—"

Sydnee: Yes.

Justin: And being like, "Nice try, guys."

Sydnee: No, you should.

Justin: "It's just a— it's just a headache pill."

Sydnee: It's the first thing we do. If someone comes in and we think they're having a heart attack or stroke, we give 'em an aspirin.

Justin: Um, Aspergum, by the way— I just did a quick search, uh, wasn't discontinued until 2006.

Sydnee: It's incredible—

Justin: I remember having it. I had it when I was a kid.

Sydnee: Really?

Justin: Yeah.

Sydnee: See, it's— I will say, I think it's more well-known now that generally we don't give kids aspirin.

Justin: Yeah.

Sydnee: Like I said, unless there's a very specific reason that your kid has some condition that we have said, "Take an aspirin," generally do not give children aspirin, period. Under 19 I think is the recommendation.

Justin: Yikes. Wow, that's serious stuff.

Sydnee: So, it is used in the prevention of heart attack and stroke. It does work for pain and fever and those kinds of things, but because it is this blood thinner, because it does this other thing, it may not always be the best choice for that. Acetaminophen does not do that, so for some patients it may be safer. If you're on certain medications or if you have other conditions, if you're already on blood thinners and that kind of thing, aspirin could be very dangerous for you. It can cause things like bleeding ulcers, as can things like ibuprofen. So, if you have a tendency for bleeding, or that kind of thing— again, there's a lot of reasons why you might not just wanna willy-nilly take an aspirin, so, like I say with everything, you should talk to your doctor.

But they've even found some studies that have correlated aspirin use with a reduction in cancer risk.

Justin: Hm.

Sydnee: I can't say that it prevents cancer yet, but they found some studies that are intriguing.

Justin: Wow.

Sydnee: So, aspirin does do a lot of things. One thing I wanna tell you not to do is please don't make a paste out of it and put it on your body.

Justin: Uh... that's a thing?

Sydnee: [laughs quietly] That is a thing that we see periodically. I think it's like an old folk remedy, and you crush up aspirin and kind of turn it into a paste and put it wherever you're hurting. Or, like, if you have a fever or something, they'll just put it on, like, the chest area.

Justin: Seems like a— a lot of...

Sydnee: It— yeah. It's bad. You'll absorb that. You do absorb that. Please don't do that. That's just something generally speaking we always recommend against. So, just— just to be aware, like, there are still Alka-Seltzers out there— if you've heard of Goody Powder...

Justin: Uh, yeah. Yeah, yeah.

Sydnee: People around here love to take Goody Powder for headaches. [laughs] That has aspirin in it. Think about that. It's the same thing as BC Powder. There's a lot of those, like, things. I've mentioned, like, Buffex, and Bufferin, and, I mean, there, like— we've talked about the gum that isn't around anymore, thank goodness. But there are tons of different meds out there that contain aspirin that you may not be aware of, so I would be very careful in general with over the counter pain relievers. Especially if you have a lot of complicated medical conditions, or if you are on a lot of other medications, or just, you know, it never hurts, ask your doctor. "Hey, which of these is probably the best thing for me to take if I have a headache, or if I'm hurting or whatever?"

Justin: It's probably not aspirin.

Sydnee: Probably not.

Justin: Probably not. Uh, folks, that's gonna do it for us this week. Thank you so much for hanging out with us. Hey, this is not really related to anything we're doing but, um, we've, uh... it's been really terrible to see the devastation in Puerto Rico and the area over the past couple weeks. If there's something that— if you feel so compelled to help, you can do like us and go follow the lead of our friend, Lin Manuel Miranda, who is pointing people towards HispanicFederation.org/Donate. So, uh, if you have a few bucks to spare, it's a very worthy cause, and we would highly recommend it. So, uh, go do that, if you are so inclined.

Thank you to The Taxpayers for the use of their song "Medicines" as the intro and outro of our program. It makes sense, because our show is about medicine. Think about it. You just got it, didn't you? First time? That's okay. Happens to everybody.

Sydnee: And thank you to the Maximum Fun Network.

Justin: Oh yeah, they've got a lot of great podcasts you should go enjoy, right now! And, uh, thanks to you for listening. We really appreciate your time here

with us, and we hope you have enjoyed yourself and learned a little something. Uh, but that is all the time that we have for this week. So, until next week, my name is Justin McElroy.

Sydnee: I'm Sydnee McElroy.

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

[theme music plays]

Maximumfun.org.
Comedy and Culture.
Artist Owned.
Listener Supported.

[Star Trek comm noise]

There is a new series of Star Trek coming out, and Maximumfun.org has submitted to our blackmail, and agreed to host a new show on the network. We're calling it The Greatest Discovery.

We've got photographs. We have recordings.

[laughs]

We have web browser history on everyone at Maximum Fun. Those are the things that have allowed us to have a second Star Trek show on Maximum Fun.

There's no way they're happy about this, but we will be recapping every episode of Star Trek Discovery, all 15 of 'em, as they come out over the fall and winter. And, uh, we hope you'll join us by going to Maximumfun.org and looking for The Greatest Discovery, or looking for it wherever you download podcasts.