

Brains On (APM) | Shoes: How French Royalty Became the Fashion Police 01CZPBQWFNBKVJ9NFP73FF68C8

DARIA: Welcome to the first day on the job building America's second tallest skyscraper, the Cloud Tickler. We have a few safety scenes to go over before we-- excuse me. What's your name?

JOY DOLO: Me?

DARIA: Yes, you.

JOY DOLO: Oh. I'm Joy. Why?

DARIA: Hello, Joy. What are those you're wearing on your feet?

JOY DOLO: Shoes.

DARIA: Those aren't shoes. Are those shoes?

JOY DOLO: Well, there are two things I wear on my feet. I'm pretty sure that's shoes. (HUSHED TONE) Is this a shoe-free construction zone?

DARIA: No. The first rule is always wear shoes, which is why-- I think those are flippers for snorkeling, definitely not construction site-appropriate shoes.

JOY DOLO: Are flippers not the shoes of the sea? Is the sea not the inverse of the sky?

DARIA: That's beautiful, but you can't wear flippers.

JOY DOLO: What about these?

[WHIMSICAL NOTES PLAYING]

DARIA: Those are ballet shoes, still not the shoes you need here. Do you have any boots?

JOY DOLO: Absolutely.

[CHRISTMAS JINGLE BELLS RINGING]

DARIA: Those are elf boots? Don't know.

JOY DOLO: These work?

[COUNTRY MUSIC PLAYING]

DARIA: Those are cowboy boots. I think I'm going to have to ask you to leave.

JOY DOLO: Well, fair enough, I guess. I brought my pink slippers just in case I got fired.

DARIA: When you're fired, you get a pink slip not a pink slipper. You know what? Never mind.

JOY DOLO: OK. Bye bye.

[MUSIC PLAYING]

I'm Joy Dolo, and this is *Forever Ago*, the show where we start at the beginning. Every episode, we explore the origin of a different cool thing. And today, we're polishing our fanciest footwear, lacing up and tip tapping our way through history to find out where shoes come from.

DARIA: Hello.

JOY DOLO: And this is my co-host for the day, Daria!

DARIA: Yep. We're wearing matching shoes for the occasion.

JOY DOLO: Kind of weird that we both had sparkly Velcro cheetah shoes just ready to go.

[CHEETAH GROWLS]

DARIA: You know what they say.

JOY DOLO: Great minds shoe shop alike, yep.

DARIA: Yeah, something like that.

JOY DOLO: Absolutely. (LAUGHING) Well, before we set off on our search for the first shoe, I want to hear more about you, Daria. I know you're sporting the sparkly cheetah look today. But what's your second favorite pair of shoes?

DARIA: Probably my black winter boots.

JOY DOLO: Black winter boots? And do you wear-- I mean, it's winter here in the Midwest, so we get a lot of snow. Do you a lot of use out of those boots?

DARIA: Yeah.

JOY DOLO: And they're sparkly?

DARIA: No.

JOY DOLO: [LAUGHING] Do they light up?

DARIA: No.

JOY DOLO: [LAUGHING] Do you usually go for comfort or fashion in your shoes?

DARIA: Kind of both. I like them to look more natural, but I also want them to be comfortable.

JOY DOLO: Yeah. Yeah. Can you imagine what it would be like if we just didn't have shoes?

DARIA: Probably painful.

JOY DOLO: (LAUGHING) Painful? Yeah. Walking around on gravel all the time. Do you think it would change your life in any way?

DARIA: Probably. I probably wouldn't get up from the couch.

JOY DOLO: [LAUGHING] You would just stay home--

DARIA: Yeah

JOY DOLO: --on the walk-on carpet. But there are so many things I would not do without shoes.

DARIA: Like mountain climbing.

JOY DOLO: Or riding the subway.

DARIA: Shoes keep our feet clean and dry, though.

JOY DOLO: And they keep us from getting hurt.

DARIA: But there must have been a time where people didn't have shoes, right?

JOY DOLO: Yeah, there must have been a first pair.

DARIA: And I'm guessing they weren't sparkly with Velcro.

JOY DOLO: Well, not everyone can be as fashionable as us.

DARIA: Too true.

JOY DOLO: Too true. To help us find the first pair of shoes, we asked one of our reporter friends to investigate.

[MUSIC PLAYING]

Today, we're joined by our one and only shoe correspondent, Nancy Yang.

NANCY YANG: Hey, everybody.

JOY AND DARIA: Hi, Nancy.

NANCY YANG: Hello. So, before we get started, how old do you two think shoes are?

DARIA: 20,000.

JOY DOLO: 20,000? I'm going to say 40,000 years old.

NANCY YANG: What?

JOY DOLO: [LAUGHING]

NANCY YANG: You, Joy, are spot on.

JOY DOLO: Oh, no way!

NANCY YANG: Yes! Yes! Lucky guess. Or maybe you're just super, super smart.

JOY DOLO: I'm really smart.

NANCY YANG: You're super smart.

JOY DOLO: [LAUGHING]

NANCY YANG: Right. But some archaeologists think shoes were in use as far back as 40,000 years ago. That's way way before the pyramids were built, which are some of the oldest known structures still around today.

DARIA: Wow. Humans must have gone through a lot of shoes since then.

JOY DOLO: But humans didn't always wear shoes, right?

NANCY YANG: You're right. We used to walk around barefoot all the time. Do you guys like going barefoot?

DARIA: Yes, only when my feet are sweaty.

JOY DOLO: [LAUGHING] When it gets real hot, it's nice not to have shoes on, I agree. And also like walking around in grass. Like I like walking around my backyard with no shoes on.

NANCY YANG: But going barefoot is not always ideal because, like you guys were saying earlier, it can be kind of painful.

JOY DOLO: Mm-hmm.

NANCY YANG: But we humans, we like to create all sorts of tools to make our lives easier, right? So eventually, we discovered that shoes could help protect our feet from things like hot sand, sharp rocks, splinters, and even keep them warm and dry, so shoes it was.

JOY DOLO: So what did the first pair of shoes look like?

NANCY YANG: It's hard to say for sure since most of them didn't survive through today. But we do have some idea of what people wore in the early days of shoes.

The oldest pair that have been unearthed are called the Fort Rock sandals, which were found in Oregon in 1938 by an anthropologist named Luther Cressman.

MAN [COUGHING] Wow, there sure is a lot of ash in this cave.

IMPERSONATING

LUTHER

CRESSMAN:

NANCY YANG: Cressman was exploring Fort Rock Cave. And inside, there was a layer of ash from a volcano eruption that happened thousands of years ago.

MAN Just got to keep digging, that's my motto. When you're in a hole, keep digging, and all your problems will be

IMPERSONATINGsolved. [COUGHING]

LUTHER

CRESSMAN:

NANCY YANG: And then he found something he had never seen before.

MAN Wait a minute. What's this!

IMPERSONATING

LUTHER

CRESSMAN:

NANCY YANG: At first glance, Cressman's discovery might have just looked like a bundle of ropes. But on closer inspection--

MAN This looks like a pair of shoes?

IMPERSONATING

LUTHER

CRESSMAN:

[TRIUMPHANT MUSIC PLAYING]

NANCY YANG: And that was just one of several dozens of shoes that Luther and his crew found in Fort Rock Cave, possibly worn by the Indigenous Klamath and Paiute tribes. Those sandals date back over 9,000 years. They were made of sagebrush bark and twine. They were close-toed shoes with flat soles and looked like they were made of tightly wound rope.

What do you think, Daria and Joy? Would you like to wear these shoes? Do they sound comfortable?

DARIA: No.

JOY DOLO: Not at all. I would say it sounds like ropes, like you're just wrapping rope around your feet.

NANCY YANG: Well, comfortable or not, most early shoes were made of plant fibers, scraps of animal skin, and tree bark.

LUMBERJACK: Timber!

[SOUND OF TREE FALLING]

NANCY YANG: Of course, as humans evolved, so did our shoes. As we entered the Middle Ages, when royalty and knights wore the power players, shoes increasingly became fashionable and served as status symbols. In Europe, the Crakow, or Poulaine, were long, pointy-toed shoes. Some were a foot, a foot, or longer.

JOY DOLO: That's crazy. Like how would you play soccer?

NANCY YANG: [LAUGHING]

JOY DOLO: I don't think you could.

NANCY YANG: Mm-mm. Nope.

DARIA: I bet the ball would pop.

JOY DOLO: I bet you it would pop all the balls, yeah. [LAUGHING]

NANCY YANG: Right. These fancy shoes were worn by people with money and power. Working people, on the other hand, wore round toe shoes.

[PIANO MUSIC PLAYING]

Then in the Renaissance, when artists and writers like Leonardo da Vinci and William Shakespeare were crafting their masterpieces, Europeans fell in love with another outrageous type of shoe, the chopine, which were basically platforms to the extreme. People who wore chopines wanted to stand out, and they did. Some shoes were as tall as 2 feet!

As you can imagine, it wasn't the easiest thing to walk in. Wearers regularly have attendants walking next to them for balance. So people were essentially acting as canes.

[FOOTSTEPS]

WOMAN: Woo. Whoa. Whoa!

[CRASHING SOUND]

JOY DOLO: [LAUGHING]

NANCY YANG: Of course, these crazy shoes were mostly for the rich and powerful. People who were poor typically had simpler shoes, shoes that were made for working in the fields or that could get dirty.

On the other hand, the wealthier classes could indulge in, say, hmm, silk or velvet shoes because they never had to worry about walking in the mud, so why not? Have you guys ever had a pair of fancy shoes that you had to work hard to keep clean?

DARIA: Maybe a year ago I had these pennies that I thought were really nice. And they were the first shoes that I ever wanted to actually try to keep clean because all my other shoes always got dirty or had holes in them just because of how rough I was with them.

JOY DOLO: Yeah. Yeah. I always had shoes that had holes in them because I was so rough. My mom always said I was a tomboy. And so I liked to play like hard, you know? But then also like if you have white shoes, any shoes that are like a light color, I used to try so hard to keep them clean because just like leaving your house to do regular activities you get dirt and dust all over them. So you got to clean them as soon as you get home, so.

DARIA: That's one of the reasons I like wearing black shoes.

JOY DOLO: [LAUGHING] That's smart.

NANCY YANG: Now, it shouldn't be surprising that as shoes became fancier, so did the rules about who could wear them. Take high heels, for example, which were originally worn by men. In 17th century France, le Roi Soleil, that is the Sun King, Louis XIV, began his 72-year reign. He had a taste for luxury and-- actually, you know what? I'll just let Louis tell you himself.

MAN [CLEARS THROAT] Yes, that would be King Louis XIV.

IMPERSONATING

LOUIS XIV:

NANCY YANG: Oh, sorry, King Louis. How are you, your majesty?

MAN Oh, it's not a bad day. I had breakfast in the garden this morning, spoke to a few friends. After that, I sat for a **IMPERSONATING** portrait. I just got a new pair of shoes that I want the painter to depict. Everyone must see them.

LOUIS XIV:

NANCY YANG: Oh yeah? Let me guess, red heels?

MAN Nancy, Nancy, Nancy, of course they are. That's my trademark, you know? People see red heels, they think **IMPERSONATING** Louis, just like when people see bunny slippers, they think Nancy.

LOUIS XIV:

NANCY YANG: Well, maybe I need an upgrade. Red heels would look so good on me, right? What do you think?

MAN Oh, no, no, no. That won't do. You see, only people who are in my court, that is, my circle of friends, my closest **IMPERSONATING** confidants, can wear shoes with red heels. It's pretty exclusive. I mean, if everyone wore shoes with red heels,

LOUIS XIV: they wouldn't be special.

NANCY YANG: Well, aren't we friends? I mean, we are, right?

MAN Uh, I think I hear someone calling for me. (STAMMERING) What's that? You need me? I'm on my way. Sorry, got **IMPERSONATING** to run.

LOUIS XIV:

NANCY YANG: Wait, Louis. Louis!

JOY DOLO: Wow that was cold.

DARIA: Seriously. But hey, you can get some sparkly Velcro cheetah shoes like us.

NANCY YANG: I am in.

JOY DOLO: Yes!

NANCY YANG: Now, at this point in history, shoe making was all mostly done by hand by a shoemaker, also known as a cordwainer. Since they were so much work to make, good shoes were expensive. And that was just another way shoes exposed the divide between the rich and the poor. The rich could afford high quality shoes, the poor could not. But all that was about to change thanks to a man named Jan Matzeliger.

JOY DOLO: Ooh, I can't wait to hear more, but hold that thought. I think it's time for a little break.

NANCY YANG: Agreed. I need to rest my feet.

JOY DOLO: Well, while you do that, how about we play a game, Daria?

DARIA: Of course.

JOY DOLO: Of course. Cool! It's called First Things First.

[XYLOPHONE PLAYING]

Here's how it works. We have a list of three inventions, and we have to guess which came first, which came second, and which came most recently in history.

DARIA: Like the classic chicken or the egg problem.

JOY DOLO: Yes. But thankfully we actually have the answers for this game. They're sealed in an envelope here in the studio. So Daria and I will be guessing along with everyone listening at home.

DARIA: You want to hear today's free invention?

JOY DOLO: Yep. Lay it on me.

DARIA: OK. It's cowboy boots, snow shoes, and clogs.

JOY DOLO: Oh, goodness. Do you know what clogs are?

DARIA: No.

JOY DOLO: [LAUGHING] Well, they are a type of slip-on shoe that were made either partly or entirely from wood, which doesn't sound so comfortable. So what do you think? Which one of these came first?

DARIA: Probably the clogs, then the cowboy boots, and then the snow shoes.

JOY DOLO: That's a good-- yeah, because I think clogs would be kind of first just because of wood--

DARIA: Yeah.

JOY DOLO: --you know? But--

DARIA: They didn't have all of the materials we have now.

JOY DOLO: Yeah. And I think I've seen snowshoes before. And those are like the-- they like look like racquets.

DARIA: Oh yeah.

JOY DOLO: Yeah. And I wonder if those are made out of wood.

DARIA: Hmm.

JOY DOLO: They must have used them way back in the day.

DARIA: Yeah.

JOY DOLO: But I think maybe I'll say clogs, snowshoes, boots.

DARIA: OK.

JOY DOLO: I feel good about that. Do you feel good about yours?

DARIA: Yeah.

JOY DOLO: OK. [LAUGHING] All right, write down your answers if you're playing along at home, and *Forever Ago* will be right back.

DARIA: With more fancy footwork.

[MUSIC PLAYING]

MAN: Did you know that people wore shoes for thousands of years before shoe sizes existed? Legend has it that shoe sizes got started in 14th century England, when King Edward II wanted to order new shoes for his young son.

MAN My beautiful baby boy must look sharp.

IMPERSONATING

KING EDWARD

II:

MAN: Usually a shoemaker would measure a customer's feet themselves, but.

MAN The feet of my wee son are too royal to be inspected by a lowly shoemaker.

IMPERSONATING

KING EDWARD

II:

MAN: So it said that the King measured the length of his son's feet in barleycorn. That's a type of grain, like wheat.

MAN One barleycorn, two barleycorns, three barleycorns-- hold still-- four barleycorns.

IMPERSONATING

KING EDWARD

II:

MAN: People had been using barleycorn to measure things for a long time. But King Edward made it official.

MAN Ahem. I hereby declare that three barleycorns make an inch. And believe it or not, shoe sizes in the UK are still

IMPERSONATING based on this barleycorn unit of measure today. How retro.

KING EDWARD

II:

[MUSIC PLAYING]

JOY DOLO: And we're back.

DARIA: You're listening to *Forever Ago*.

JOY DOLO: Where we explore the history of the stuff around us.

DARIA: And today, that stuff is shoes.

JOY DOLO: Oh, yeah. Speaking of cool shoes, I think it's time for a wardrobe change.

DARIA: Let's do it. Time for a second pair of matching shoes.

JOY DOLO: Knee-high, fur-lined boots with bells.

[BELLS JINGLING]

DARIA: Ah, much better. It's always so cold in this studio.

JOY DOLO: (LAUGHING) Yeah. All right, now that that's taken care of, it's time to finish our game of First Things First. Today's three inventions are cowboy boots, snowshoes, and clogs.

DARIA: And I guessed clogs, cowboy boots, and snowshoes.

JOY DOLO: And I guessed clogs, snowshoes, cowboy boots. So do you have the answers in the envelope, Daria?

DARIA: Here you go.

JOY DOLO: I'm so excited I can't even contain it! (SINGING) Amor, here we go.

[ENVELOPE TEARING]

[ANXIOUS SOUND]

DARIA: [CHUCKLING]

JOY DOLO: OK. Well, look at this, the very first thing is snowshoes. They were invented around 4,000 BC in Central Asia.

DARIA: Oh, wow!

JOY DOLO: That was longer ago than I thought.

DARIA: I thought they were made in like the 1900s--

JOY DOLO: Yeah!

DARIA: --maybe 1800.

JOY DOLO: Even further back. The first ones were just some pieces of wood with some straps to tie to your feet. And there's a drawing here. It looks like giant paddles kind of.

DARIA: Yeah.

JOY DOLO: And then the second one, the second answer was clogs. And so I guess we were kind of both wrong about that.

JOY AND DARIA: [LAUGHING]

JOY DOLO: But clogs were in the early 1300s when they started showing up in Holland. Traditional clogs were made from a square block of wood that was carved and smoothed into a shape you could fit your foot into, which I don't know if I would wear that, Daria. What about you?

DARIA: Mm, probably not. I would probably trip, fall, and maybe break a few toes.

JOY DOLO: (LAUGHING) Yeah. It just sounds heavy. And then last but not least is cowboy boots, which was made mid-1800s. Cowboy boots have a lot of shoe ancestors, like the boots worn by Spanish vaqueros, basically Spanish Cowboys, or Wellingtons, which was a style of boot popular with wealthy British aristocrats in the early 1800s.

DARIA: Hmm, that's interesting.

JOY DOLO: Have you ever had a pair of cowboy boots?

DARIA: Yeah I had pink cowboy boots that my grandparents got me when I was younger. And I've never worn them because they were always too small-- I mean, too big.

JOY DOLO: Yeah.

DARIA: And then when I did decide to wear them, they were too small.

JOY DOLO: [LAUGHING] It's like you missed your chance. It was like so close, so close, and then [LAUGHING]. That was fun. Thanks for playing with me, Daria.

DARIA: Sure thing.

JOY DOLO: All right. I think it's time to step back into the history of shoes with reporter/shoe correspondent Nancy Yang.

NANCY YANG: Hoo, nice boots, you guys

JOY DOLO: [LAUGHING]

DARIA: Thanks. Here's your pair.

[BELLS JINGLING]

NANCY YANG: Yes! OK. When we left off, I was telling you about a guy named Jan Matzeliger.

JOY DOLO: Yeah. You said he was about to change the shoe game for everyone.

NANCY YANG: Yes. Back to Jan. He was born in 1852 in Dutch Guyana, the South American country that's now known as Suriname. By the late 1870s, he had made his way to Lynn, Massachusetts. It took Jan several years to learn English, and it was hard to find work as a Black man. But he was determined to make it in his new home.

This was in an era called the Gilded Age of America, when the economy was doing great.

[TRAIN CHOO-CHOOING]

The transcontinental railroad had recently been completed, linking the East Coast to the West, Alexander Graham Bell had just invented the telephone--

[TELEPHONE RINGS]

--hello, and Thomas Edison found a way to give us a longer-lasting light bulb.

[DING]

It was during this period that Jan got a job at a shoe factory as an apprentice in Lynn, Massachusetts, where the shoe business was booming. And quickly he found out that shoemaking was a slow process.

MAN You can say that again.

IMPERSONATING

JAN

MATZELIGER:

NANCY YANG: Oh, hello, Jan. I was just talking about you. Would you mind telling everyone how shoes were made before your big invention?

MAN Oh, it was a chore, let me tell you. Shoes were still made mostly by hand. First, molds of a person's feet were made with wood or stone. We called these lasts, which we use to size and shape the shoes. We had machines to cut and stitch the leather, so that was helpful. But shaping and attaching the body of the shoe to the sole was done by hand.

[HAMMERING]

It was a whole thing and really slowed down the process. It took an hour to attach just five! On top of that, the people doing this work had a pretty special skill set, so they could charge a lot. Great for them, bad for anyone who wanted a thrifty pair of kicks.

NANCY YANG: And that's where you come in.

MAN Yep. I decided there had to be a better way.

IMPERSONATING

JAN

MATZELIGER:

[MUSIC PLAYING]

NANCY YANG: Jan would work 10 hours a day at the shoe factory, and then he'd come home to study English and work on his designs for his invention.

MAN It was no easy task. And everyone told me it couldn't be done. But I worked hard, and I kept my designs top secret.

JAN

MATZELIGER:

NANCY YANG: Jan studied the lasting process at the factory, and he used his spare money--

MAN Which I didn't have much of.

IMPERSONATING

JAN

MATZELIGER:

NANCY YANG: --to buy materials and parts to build a prototype. After five years, Jan was finally ready to submit his design to the US government to patent it, all 15 pages. It was so complicated that they didn't believe it would actually work. So, they sent someone to visit Jan and see his machine in action. Of course, it was a real deal.

MAN I built a lasting machine, one that quickly attached a top of the shoe to its sole. My machine could produce 10 **IMPERSONATING** times what a human could in one day.

JAN

MATZELIGER:

NANCY YANG: And there's the game changer. This lasting machine was able to bring affordable shoes to the masses. A human could only last 50 shoes in a day. Jan's machine, it could do up to 700 shoes every day--

JOY DOLO: Goodness!

NANCY YANG: --which means prices dropped, some people say as much as 50%. And suddenly good shoes weren't just for the rich. Regular people could afford them too.

MAN Yup. So next time you're putting on your shoes, think of me, unless your shoes stink, in which case, think of **IMPERSONATING** literally anyone else.

JAN

MATZELIGER:

[TRAIN WHISTLE BLOWING]

Well, that's the shoehorn. Got to get back to work. You know how to make shoes for the entire world, Nancy?

NANCY YANG: How?

MAN You take it one instep at a time.

IMPERSONATING

JAN

MATZELIGER:

[CYMBALS SOUND]

Later everyone.

[LAZY LAUGHING]

JOY DOLO: See you later, Jan.

NANCY YANG: Thanks, Jan.

JOY DOLO: Get out of here with those jokes. [LAUGHING]

NANCY YANG: So the machine that made your shoes is probably a descendant of Jan's invention.

DARIA: Even my jingly boot?

NANCY YANG: Yeah. But even so, I think the shoes we wear today would look super foreign to him. Like your boots or stilettos, the ones with the really thin high heels, or even the sneaker, big squishy rubber soles, could he have imagined that? Both of those appeared in just the last 150 years.

And looking at the ways our shoes have evolved over time, you can see a reflection of our history there. Think about World War I. Before the war, shoes were fairly snazzy. Think bold colors with lots of embellishments like buttons and beading.

But when the war broke out in 1914, most of the leather was needed for the war, so people switched to making canvas shoes. And as men shipped off to fight overseas, women began taking on traditionally male jobs, like working in factories, which meant a shift toward more comfortable working shoes for women.

DARIA: What about after the war?

JOY DOLO: Yeah. Could you tell it had ended by what people were wearing?

NANCY YANG: You could.

[JAUNTY MUSIC PLAYING]

The war ended in 1918, and the roaring '20s began soon after that. People felt more freedom to do whatever they wanted. And lots of people learned fab dances, like the Charleston, which included things like kicking the legs back and forth quickly and energetically. Good thing the popular shoe style for women at the time were heels with straps. It helped people's shoes stay where they belonged, on their feet.

If you ask me, shoes can tell us a lot about the people wearing them, how they spend their time, and the world they live in. So, what do your shoes tell me about you?

DARIA: Maybe that I'm not good at choosing good styles, so I just choose neutral-colored ones.

JOY DOLO: Neutral-colored ones because they go with--

NANCY YANG: They go with--

JOY AND NANCY:--everything.

JOY DOLO: [LAUGHING]

NANCY YANG: That's actually really smart.

JOY DOLO: That's incredibly smart.

NANCY YANG: Yeah.

JOY DOLO: But I think my shoes say that I'm always on the go. I'm always going somewhere. I'm always working and getting in my car, running around with a dog or just being outside. So I think that's what my shoes say about me.

JOY AND NANCY:[LAUGHING]

What about you, Nancy?

NANCY YANG: Well, I like to wear a lot of flat, comfortable shoes, kind of like you because I'm always on the go. I work in a newsroom. So when things get crazy, I'm always like running from one room to the next. And I have to have shoes that are super comfortable and won't fall off my feet. So flat, comfortable shoes are kind of my go-to. But every once in a while, I like to dress up a little bit, too. So I opt for a shoe that really stands out--

JOY DOLO: Heck yeah.

NANCY YANG: --like maybe a pair of red shoes.

MAN Uh, oh, oh, but remember, no red heels. That's my thing.

IMPERSONATING

LOUIS XIV:

NANCY YANG: OK. OK, King Louis. Royals, sheesh!

JOY DOLO: Well, I feel like we've walked a couple thousand miles through shoe history. Thanks for all that info, Nancy.

NANCY YANG: You're welcome. I hope you both had a heel-y good time? See what I did there?

JOY DOLO: Ah! See you.

NANCY YANG: Bye.

JOY DOLO: See you later.

DARIA: Bye. See you later, Nancy.

[MUSIC PLAYING]

JOY DOLO: We have come a long way since the Fort Rock Cave sandals.

DARIA: Or since King Louis' red heels.

JOY DOLO: Human beings have made some crazy shoes over the years.

DARIA: Like sneakers, clogs, and flip-flops.

JOY DOLO: We made light-up shoes.

DARIA: And Crocs.

JOY DOLO: What kind of shoes do you think the future holds, Daria?

DARIA: Probably like shoes that-- it's kind of like a hoverboard--

JOY DOLO: [GASPS]

DARIA: --but like it makes you float up so you don't even have to walk. You can just like lean forward, and you would just float there.

JOY DOLO: And you just like glide.

DARIA: Yeah.

JOY DOLO: Oh, that's a great idea. I would buy those shoes.

DARIA: I would, too.

JOY DOLO: Sign me up. Well, we asked our listeners to dream up some futuristic shoes, too.

DARIA: And they had no shortage of ideas.

GIRL 1: Invisible shoes. Oh, yeah.

GIRL 2: So like one of those shoes from *Back from the Future*. Like if it's too big, it makes it small, and then it could tie your shoes.

GIRL 3: For shoes in the future, you probably have like magnetic shoelaces or straps.

GIRL 1: They'll make your feet invisible. It can make your whole body invisible, too, like [MIMICKING LASER NOISE]

GIRL 3: Like you probably just press this button on your shoe, and then like [MAKES NOISE] just like shoelaces or whatever, just pulled together tightly, as tight as you need it.

GIRL 2: Like every time you run or something, you can go back through time. Sometimes you jump or leap to the future.

JOY DOLO: Some amazing shoe ideas there. One thing I didn't hear, bacteria shoes.

DARIA: Probably because bacteria don't have feet.

JOY DOLO: Oh, no, no, no, no. I'm talking shoes made from bacteria. Hold on, before you gag, let me explain. Lining Yao was part of a team at the Massachusetts Institute of Technology that wanted to solve a common foot problem.

LINING YAO: Everybody knows if you go on a run or go on an exercise, your feet are the most exhausting part, or at least one of the most exhausting part. And we wanted to make a beautiful shoe, an adaptive and smart shoe to make your feet comfortable. A lot of people sweat a lot in their feet.

DARIA: Sweaty feet are a problem. OK, I'm with you so far.

JOY DOLO: Awesome. So Lining and her team set out to make a shoe that would help solve the sweaty foot problem. They took a specialized bacteria and put it into fabric.

Now, the cool part is this bacteria is super sensitive to moisture. When it's in a wet environment--

DARIA: Like mirror a sweaty foot?

JOY DOLO: Exactly like that. When it's near a sweaty foot, the bacteria expands. When things dry out, it shrinks back down. So Lining and her team used this bacteria-laced fabric to make little nickel-sized panels on running shoes. And these panels change when you sweat.

LINING YAO: Basically they open and close, depending on the sweat and also the temperature of the skin. They will open up to help you to get rid of the excessive sweat and heat. And then they will close again once you lose enough sweat. So it's like a tunable fabric.

JOY DOLO: So imagine that, shoes that automatically open up a vent when you sweat. How cool is that?

DARIA: It sounds amazing. No more sweating feet.

JOY DOLO: No more sweaty feet, yeah. But now it gets even better.

DARIA: [GASPS]

JOY DOLO: So in addition to opening and closing, the bacteria they used was able to, wait for it, glow in the dark.

DARIA: Dun dun dun!

JOY DOLO: [LAUGHING]

LINING YAO: When you are sweaty, basically it glows more intensively. You can imagine you go on a run in the night, it will not only help you to get rid of the sweat, but also glow in the dark. So that glowing part was genetically engineered out of the natural bacteria.

JOY DOLO: So, Daria, I want to know, would you wear bacteria shoes?

DARIA: Of course I would. It would help so much with my feet. They're sweating right now.

JOY DOLO: So they would come in handy right now?

DARIA: Yeah.

JOY DOLO: If I looked under this desk, would your feet just be glowing? [LAUGHING]

DARIA: Maybe.

JOY DOLO: Well, Lining Yao and her colleagues only made a prototype of this shoe. It isn't for sale yet, but maybe one day.

DARIA: Hopefully.

JOY DOLO: Yeah, hopefully. Can you think of any other uses for fabric that opens and closes or glows when you sweat?

DARIA: Maybe for shirts for around your armpit--

JOY DOLO: Yeah.

DARIA: --or when you're running, or like you're jogging around, you don't have to come home to your family sweating and stinky.

JOY DOLO: Oh, I love it. It's good for everyone, the whole family.

Well, we've been all around the world today.

DARIA: From Fort Rock Cave in Oregon, where the oldest known shoes were discovered.

JOY DOLO: To 17th century France, where royal fashionistas declared themselves the fashion police.

DARIA: We also heard about some incredible bacteria shoes.

JOY DOLO: Gross, but useful.

DARIA: Do you have the next big foot fashion idea or a question for us?

JOY DOLO: Head to ForeverAgo.org and tell us about it.

DARIA: *Forever Ago* was brought to you by Brains On and American Public Media.

JOY DOLO: It's produced by Elyssa Dudley, Molly Bloom, Mark Sanchez, and Sanden Totten.

DARIA: We had engineering help from Veronica Rodriguez and Parker McDaniels.

JOY DOLO: Production help comes courtesy of Lauren Dee. Our fact checker is Ryan Katz. We want to give a special thanks to Eric Ringham, [? Sid ?] [? Raskind, ?] Ned [? Lebrecht-Stryker, ?] and Jeffrey Bissoy. Is there anyone you want to thank today, Daria?

DARIA: I'd like to thank my father and my mother and my brother, just for me and my family.

JOY DOLO: [LAUGHING] That's awesome, very sweet.

DARIA: I was thinking about our next matching ensemble. What about red heels?

JOY DOLO: Ooh, Daria, I like that.

MAN What did I say!

IMPERSONATING

LOUIS XIV:

DARIA: King Louis, I hate to break it to you, but a lot of people wear red heels nowadays, not just royalty.

MAN Preposterous! Unacceptable. Call my royal guards. I simply will not stand--

IMPERSONATING

LOUIS XIV:

DARIA: Some people just aren't into matching, I guess.

JOY DOLO: Now about those shoes.