

SEXUAL ENERGY SERIES-3: The Shock & Awe of Penis Evolution – Emily Willingham – #789

Announcer:

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Dave Asprey:

You're listening to Bulletproof Radio with Dave Asprey. Today we're going to talk about some people's favorite topic, the penis. We are going to talk about the fallacies that surround the phallus. You see what I did there? Our guest today is Emily Willingham, a PhD, who's written a new book called Phallacy: Life Lessons from the Animal Penis. She's a journalist who specialized in medical and health topics, and a science writer, and a research scientist looking at biology. We're going to talk about how evolution and the natural world have made the penis into what it is, and maybe explain why we're so fascinated with it, and probably not that much about what to do with it. Emily, welcome to the show.

Emily Willingham:

Thanks. Thanks so much for having me.

Dave:

I have to ask, and I'm sure you've answered this before, in fact I know you have. Why did you decide to write a book about penises?

Emily:

I actually was considering a book about the brain, which is what I'm working on now. While I was going back and forth with the proposal on that I was just driving around one day, perhaps with a car with my three sons in it, and it occurred to me, "Oh, wait a second, I've done a post-doctoral fellowship in penises." I actually studied how they develop. "I wonder if maybe there's an opening to write a book about those?" So, I emailed my agent. We were on the phone a half hour. I was still in the car and I just pulled over into a parking lot and we talked about it, and it was just a really exciting idea.

Dave:

I would love to have been a fly on the wall for that call with your agent. The number of jokes I'm not going to make here intentionally is large. So, you just said, "Okay, I've really studied this, I know about it." What's the main take away? After you wrote the book, it forces you to think differently when you write a book, so what was the number one thing that popped out after you ordered your thoughts in that way?

Emily:

It's interesting. I wish I could do a three-way tie to answer this question. I would say the number one thing is that the penis that we hold as this amazing thing, that we send pictures of to each other, and that kind of thing, when you put it contextually, among all of the analogous structures in the animal kingdom, it's not so much on the wow end of things, but because of that it means it's kind of on the, we can have a lot more fun with it end of things. So, there's a positive and a negative to it.

Dave:

What animal has the worst penis of all?

Emily:

I don't want to characterize them as worst.

Dave:

I know you don't, that's why I asked.

Emily:

I know. I would say that the one that has ... I'm judging your penis seed beetle, speaking of which possibly that one.

Dave:

Seed beetle?

Emily:

The seed beetle.

Dave:

Why is it the worst penis?

Emily:

Oh my gosh. I wouldn't say it's the worst, I would say it's the most daunting from the human gaze probably, because it's really tiny, because it's a little bitty beetle. There are a few species of them and they have spikes, and they have bumps, and they have jawed structures on them that leave marks on the genital tract of their mating partner, and so that sounds kind of terrifying.

Dave:

It could sound kind of interesting, depending on what you're into.

Emily:

Yeah, I guess that's true.

Dave:

So, we have these fearsome things. They evolved that way for some reason, though, and because you said this, why would you need spikes, and barbs, and things like that on a penis?

Emily:

So, one of the patterns that you see, and I emphasize this in the book, is that the more bells and whistles a structure like this has, the penis has, the more likely there is to be a little bit of tension in the mating process. Sometimes it's even what we call forced copulation, but it's definitely there's some tension there. So, on one side, on the female side, usually it's the female side, there are these adaptations that kind of are [inaudible 00:04:12] the penis, or kind of make the sperm go somewhere that doesn't succeed, and that kind of thing. In response, you see these adaptations that are like spikes, or little jaws that are going to make a little damage and get those sperm in there anyway, and things like that. So, the

more accoutrements they have, or accoutrement, depending on how you like to say that word, the more you see that kind of tension in the mating pair.

Dave:

Why would the females of any species evolve a chastity belt?

Emily:

This is an interesting question, and there are plenty of evolutionary biologists who focus on it. Usually the females make, first of all, the larger of the two gametes, the egg as we call it casually, is much larger usually than the sperm, and then they invest a lot more in the actual process of gestating, or creating the offspring. So, with that level of commitment the idea is that they're being pretty choosy, and sort of sorting things out right there on the ground.

Dave:

Okay, so just lots of demand, little supply, energetically intense, so make it so they have to work for it.

Emily:

A little, yeah, or compete for it.

Dave:

That sounds not that different than the typical bar when you think about it.

Emily:

That's a different kind of mate choice, actually. That's a choice where, yeah, that takes in different features we're looking at, usually.

Dave:

Okay.

Emily:

It depends on the bar.

Dave:

Okay, fair point.

Emily:

Right?

Dave:

What is the best penis of any animal out there, now that we're into the judgment land?

Emily:

Now we're judging the penises. I've been asked this question, and after a few answers I realized that I really intuitively the best penis is ours because I'm human, and because it doesn't have all of these

attachments to it. We can put it in places where lots of other animals might not be able to put their penises, so we get to kind of, it's really flexible. You can do a lot with those things, as you might know. So, it just makes it a lot more fun. It's my favorite.

Dave:

All right. That is a truly honest answer. I was thinking you were going to say octopus, or something weird.

Emily:

It's a tough competition, actually.

Dave:

What is an octopus, what does an octopus penis look like?

Emily:

Well, as you know, octopuses have their names because they have eight arms. They can have a penis structure, but there are some species that they'll pass along these structures called spermatophores, which I refer to as sort of like sperm lollypops, because they're little packets of sperm on a stick. In a lot of cases ... Well, here's a very specific example, it's a kind of octopus called the paper nautilus, which is neither paper nor a nautilus. It's a little octopus that creates a white kind of sail-like structure. It's one of the only ones that comes above the water, and it looks like little fleets of sailing ships. The female is so much bigger than the male, so if he gets near her she might just eat him. That is not his outcome that probably would benefit him very much, so he has one of these eight arms and loads it up with these spermatophores and kind of does the sneak attack and pokes it underneath the sail and leaves the arm, just drops it off, and then he takes off with his seven arms, his seven remaining arms.

Dave:

I didn't see that in *My Octopus Teacher*, a movie that just came out, because that's not something that I want to learn as a skill in my life.

Emily:

No, you don't want to do that.

Dave:

Wow. When you sit back and you look at this incredible diversity of reproductive organs, but you find there's almost always something that's penis or penis-like, why do you think it evolved in that way?

Emily:

The going explanation for that is that it's just a more direct placement of the sperm that's being transferred. You're not just kind of broadcasting it under water, which is what a lot of marine animals do, like coral and that kind of thing. You're not just kind of dropping it on something and hoping something else comes along and spawns on top of it, which is kind of the behavior maybe like salmon, something like that. You are really picking out an individual organism, and you are placing those sperm into that organism. That's very directed. It's a target thing.

Dave:

You talk about the bad boys in bad studies of evolutionary psychology, it sounds like you kind of have a different bone to pick. I said bone to pick, I wasn't trying to.

Emily:

You can't get away from it.

Dave:

Anyway, a bone to pick with the traditional view of this. What's different about the way that you've seen this in your studies and in writing the book?

Emily:

The studies that I write about in that first chapter they bother me because they purport to kind of ask the question about what women want, and what would best serve them sexually, but then they center, on the answer to that question they always center it on a penis. As I point out in that chapter, when you do look at studies, and you do a broad group of women and you ask them what they want, what you find is that's kind of a secondary consideration when it comes to sexual satisfaction, and there are lots of other features that get involved, including hands and things like that. It's more how much do you know about what you're doing than the tool that you're doing it with.

Dave:

I got it. So, the studies were all very much around reproduction. A lot of them are pretty old studies, right?

Emily:

Well, a couple of them, a few of them, are not. It depends on what you think of as old. [crosstalk 00:09:49]

Dave:

Fair point.

Emily:

My sort of measure for that is getting possibly a little longer term than it used to be. There are definitely some from this century for sure, and they very much focus on a penis. So, can a penis induce an orgasm? Go ask a lot of women that question and how much they care, and what they really know works for that, and it's not going to just be just the penis at all. There's so much more involved.

Dave:

Do you think that human penises actually are evolved to cause orgasms, or is that kind of a side effect, because they're really evolved to get the sperm where they need to go?

Emily:

It's an interesting question because one of the things that evolutionary biologists fight about is why female orgasm exists at all. Why do human women have orgasms? There is one little study that I found

that's not in the book that suggests that in rabbits, of all things, that there used to be a direct connection between the stimulation, the orgasm, and ovulation. So, you can see those two things being really clearly connected and being passed on and being important. Anatomically where we register for orgasms has now been separated from where the penis goes in. So, now those two things are not anatomically linked like they seem to be in rabbits. So, everybody is like, "Why do women orgasm?" You can't just say, "Well, because it's super fun." This is not an optimal explanation for evolutionary biologists, so it remains kind of a mystery, but it's not about the penis being able to do it. Ask bonobos.

Dave:

I had a guest on recently who had extensively studied Abraham Maslow's hierarchy of needs. He read every paper published, unpublished, probably slept in his bed for all I can tell, and found unpublished work that was near publication when he died about the hierarchy of needs, food, shelter, safety, et cetera. His final unpublished thing was transcendence, and that that's actually a basically human function, and a basic human need. I definitely know a few people who would describe some of their orgasms as transcendent. Maybe it's there for that, at least if it's done right as you're saying.

Emily:

I think that if for evolution to work it has to give you some kind of reproductive advantage, and what my take on it is, is the advantage is a bonding advantage. It helps you bond with a person. If somebody can do that really well for you-

Dave:

Oxytocin.

Emily:

Yeah, that kind of thing. If they can do that really well for you, you might want to stick around with them as a partner, and that might actually boost reproductive chances. It's a really huge debate, though, about why we women still somehow manage to do this even though it's not needed for reproduction.

Dave:

You talk in your book about the many uses of the penis. By the way, your chapter titles just make me laugh. Tell me about some of the many uses of the penis.

Emily:

Oh, it kind of depends on which animal you're talking about. There are some animals whose what we call, I made up a whole word for this because they use so many different body parts for this, but some animals use their legs. I talked about millipedes that use, actually, two pairs of legs. They have one pair that they use kind of to test things out. There's nothing in it they're just testing. Then, they then use another pair of legs to pass up sperm to the first pair, and then they go for the real thing. They're not the only animals that use legs for that.

Spiders. I know people don't like spiders but I've really come to love them because they have these two structures on the front of them called pedipalps, and they're sensory structures so they use them to smell, and taste, and that kind of thing. Then, they also use them to inject sperm into a partner. They have these little mitten-kind of things on the end that look like boxing gloves, but that's where the

sperm is packaged in, and they'll insert that into the female and release the sperm. They do a lot of other things, those structures do, just lots of different things.

Dave:

You also in your book you talk about female control as a whole chapter. So talk to me about penises versus female control and what you learned from that.

Emily:

So, that takes us back to this idea of if there's tension in the copulatory act, if it's sort of forced copulation, what we do see is on the male side all these structures. Let's talk about duck penises, which I talk about a lot. People really want to know about duck penises. They're famously, they're corkscrew shaped. They emerge ballistically. They just sort of wham, bam, thank you ma'am with a female duck. For a long time these penises have been quite famous, and pictures of them and all this. It wasn't until this century, which in my view is not that long ago now, in 2005, that somebody decided to look at what was happening in a duck vagina with this. It's kind of anti-scientific in a way not to have looked before, but if you see all that on the penis you should expect that's some adaptive response to obstacles in a vagina.

So, when the researcher who, by no accident probably, was a woman did finally look she found that the duck vagina had a cul-de-sac where sperm would get trapped, and that it even had a corkscrew that was in the opposite direction of the corkscrew of the duck penis. It was worth looking at, and we should do it more.

Dave:

Are you going to write a book about vaginas next?

Emily:

Well, I don't need to. Well, I guess I kind of ... I should say I don't need to. Jen Gunter wrote a book called The Vagina Bible which really covers so much territory about the human version that I feel like that's probably, she's got that covered.

Dave:

Yeah, in fact she recommended your book at one of the [crosstalk 00:16:01]

Emily:

Oh, that was nice of her.

Dave:

[crosstalk 00:16:01] I cover.

Emily:

Oh, yeah, yeah, of course.

Dave:

Now, that's about the human vagina, though. It seems like most of the research has been penis focused in the animal kingdom for a long time. Are vaginas as fascinating as penises?

Emily:

Yes, they are. I'm just going to state that one clearly. The problem is that they have been dismissed, just even explicitly. Researchers who focus on genitalia will say, "Oh, the male genitalia are so interesting, but we don't think there's probably much to see on the female side." So, I think there's a lot more to be done.

Dave:

That's because it's inside, ...

Emily:

I think we can still look.

Dave:

... it's still where you just can't see it as well.

Emily:

You can still look. They're cutting these little animals open all the time. They can look in there. It's just who's asking the question who cares about the answer.

Dave:

You have a whole chapter about size.

Emily:

I do.

Dave:

So, does size matter?

Emily:

It's an interesting question. In humans actually not really. You can ask people who engage sexually with penises about what their preferences are. There's kind of a tie between a certain width and a certain length, but it's not the crucial deal in all of sexual satisfaction for a lot of partners. When you get to other animals, though, it's kind of interesting. I sort of set up the size chapter as a competition and I awarded a gold medal [inaudible 00:17:28]. The way you determine size, you can do it in lots of different ways, absolute size in which case the blue whale is just going to be the big winner because it is a gigantic animal and has this gigantic penis to go with it. If you're looking proportionally there's this almost microscopic barnacle that has a penis that's many, many, many times it's body size, so it's really in that sense by far the big winner.

It doesn't matter so much in terms of reproductive success generally, although there are some specific examples where there might be. A mole, lives underground, can't see, and there might be some

effect of penis size in with whom the female will mate because she can't see. So, there's something sensory ...

Dave:

Playing the odds.

Emily:

... there may be at work.

Dave:

I bumped into something, it must be a penis. Sorry.

Emily:

I don't know what that is.

Dave:

In some forms of like ancient Chinese practices around Taoism they go to great lengths when they're matching partners to match the male penis size and shape to the female size so that they don't have reproductive problems where one is too big or too small for the other. That's the only kind of example of that that I am aware of in human practice. Is there anything there around it just doesn't fit in other animals, or is that just because they're being a little bit obsessive about it?

Emily:

I think that sounds a little obsessive on the human side. We used to teach that animals had these kind of very interesting adornments on their penises because it was kind of a lock and key test to make sure you hit the right species, because lots of animals make that mistake. They just try to copulate with completely wrong species, which is an evolutionary dead end to do that. Now we've found that it's not necessarily that so much. That's not what's driving it, it's not always a lock and key so that actually doesn't matter as much. It does matter to get the right species, though. I guess they get selected out if they do that too often.

Dave:

All right. That's a pretty easy one then. Are there any other species besides humans who intentionally modify their penises, like circumcisions, piercings, and god knows all the other stuff you can do if you're really into that?

Emily:

It depends on what you mean by intentional. There are-

Dave:

We choose to remove foreskin in some percentage of the population.

Emily:

Sure.

Dave:

Are there animals were like, "Oh, before I have sex I'm going to bite off the tip." I have no idea.

Emily:

So, there are animals that chew one another's, like there are hermaphroditic slugs. There's an example of animal they call epochally where if they kind of get stuck they'll just kind of chew the penis off because they just do that to separate. I know that's sounds terrible but-

Dave:

That's why your book is funny.

Emily:

It's one way to get apart. There are some animals, again invertebrates, you don't see a lot of this with vertebrates because they're just put together very structurally specifically. In some invertebrates they have penises that have bespoke parts that break off, like little weak points where, there's one slug where they have three penises basically joined together by kind of serrations like you see when you like tear a coupon, or something.

Dave:

Wow.

Emily:

They might mate and then that little one end breaks off, but they've still got two there in storage waiting to use them.

Dave:

As the owner of a penis it seems odd that we would need this much variation versus like just a basic thing that like sticks sperm in. Is there a good explanation for why a slug would do that? Is it just ancient stuff, they didn't evolve far enough. I'm just trying to put together my piece of why does life do what it does, humans and otherwise.

Emily:

Right.

Dave:

That just doesn't make sense.

Emily:

Evolution goes back and forth with things. It's just what fits the environment at the time, and it may be really useful for that animal that has a tripartite penis to be able to leave it behind. One reason might be because when they do leave things behind like that, it's not the only animal that does it, it keeps anybody else from putting anything in there. So, it's a bit of a blocker on if another male comes along and tries to mate with that partner it kind of can't because there's some penis stuck in there, and you can't-

Dave:

Blast the hole, right?

Emily:

Yeah.

Dave:

Next.

Emily:

[inaudible 00:22:02] physical block. So, that's kind of it's adaptive for that male to have that capacity, so it sticks around.

Dave:

You also wrote a chapter called Small But Mighty Like a Sword.

Emily:

Yes.

Dave:

Which is an incredibly Freudian thing to put in a title which you, obviously, did on purpose. What is the mighty like a sword part of that mean?

Emily:

Speaking of what evolution does over and over again, all these unrelated animals, like squishy things from the sea, and things with exoskeletons on land, but one of the things that they seem to have in common a lot of them is they have what is called a hypodermic penis. I will just call it a penis. It is what it sounds like, it's kind of needle like, and they don't necessarily go for the partner's genital tract to deposit the sperm. In some cases they'll just kind of jab around on a mating partner until they insert that hypodermic somewhere in the body and release the sperm. So, that's sword like, right? Way more sword like than anything we see on ourselves, I think.

Dave:

I'm glad we're not into that. That doesn't sound very successful for having children.

Emily:

It works for ... It's funny you mention that because it must be so successful for these animals because it's such a common theme in these unrelated species to have these super pointy needle-like delivery systems.

Dave:

I guess it requires less decision-making, so sometimes if you have less compute power in an animal they're going to have to just go for the lowest common denominator and, thus, the penis would be hypodermic.

Emily:

Right. You just kind of get it in there because you don't really have to figure out where you're putting it [crosstalk 00:23:44].

Dave:

Barnacles aren't that smart, okay. I'll get you there. You move in the book next into Penis Free to Blurred Boundaries. So, what about penis free, what's going on there?

Emily:

There are two stories that I really focus on in that part. One of them is about an anaconda at a zoo that just suddenly went, she was female. Suddenly one day the zoo keepers looked in there, she had more than a dozen babies, like two-foot long little anacondas. There was no ... You would know if there were another anaconda in there, because these are enormous snakes. It turned out that she had done something called parthenogenesis where her eggs started acting like they were embryos, like just a single-celled embryo, and started dividing and made all these little anacondas. You see that in species like reptiles. Some fish have done it. There was a shark that very famously did that, I think maybe in Monterey Bay Aquarium. That is definitely penis free.

Dave:

There's one religious icon in human history who may have done that, as well.

Emily:

Yes, right. I think parthenogenesis actually means something like virgin birth so, yeah, that would be apt.

Dave:

So, what's the implication, you also have blurred boundaries in there. So, what does that mean for the rest of the penis-equipped kingdom there? Is this only reptiles or?

Emily:

No. If I'm remembering, I situated this in this chapter, there's also we tend to associate penises with male animals and that's our human need to sort of have a binary. We like to create two buckets and assign things to them. One of the things you see is that that's not really how it works out there in the animal kingdom. There's a continuum sometimes of the features that animals have that we would associate with being masculine features. An example is pigs. The pigs on [inaudible 00:25:52], this is actually genetic. There are pigs that are female but they have a lot of structures that we associate with being male, but for the pigs they're associated with being that female pig. So, you have to like break through that boundary and say, "Well, this is actually a structure occurring on a female animal, so it's not strictly a male structure."

Dave:

So, a certain species of pigs the females have penises but they don't use them in the normal way?

Emily:

They don't. They have some features, there are two different kinds of pigs on this island and they have these penis-like structures. They're also very aggressive. They show really aggressive behavior, because I

think they have higher levels of testosterone. It's not just a male thing. I think something that made news just within the last couple of years is in a pair of insects that they found in a cave and everybody was like, "Oh, my god, this female has a penis." You look at it and it is an insect and the one that makes the eggs has a structure that everybody says is very penis like, and what she does with it is that she inserts it, and this did not make the headlines, into what the male has, which is extremely vagina-like.

Dave:

Wow.

Emily:

He has a vagina. That didn't get talked about quite as much. So, she puts that in there and she draws up his sperm for herself.

Dave:

That's definitely unique. It's funny. The island where those pigs are from is famous in Bulletproof in keto circles because ...

Emily:

Oh really?

Dave:

... the native humans there also have an unusual diet. They smoke like chimneys, eat a lot of fat, and a lot of starch, and don't get heart disease. "How do they do that?" So, there must be something in the water on that island.

Emily:

Islands do interesting things to any animal, island living if for long enough.

Dave:

You talk about The Rise and Fall of the Phallus towards the end of the book. The fall of the phallus, tell me about the fall.

Emily:

The rise of it was interesting because it seems to have been associated, at least in some parts of the world with the rise of agriculture. You started to stake out your plot of land and you want things to grow on it. One of the most, at least to a lot of guys, one of the most obvious manifestations of fertility is the penis and what comes out of it. So, some very early manifestations of this are like the Egyptian god Min, M-I-N, is depicted with a flail, which is what is used to harvest grain, but he also has an erect penis. It's parallel to the ground, and it's this dual association of fertility with this kind of rise of agriculture. I am just speculating here, but I also feel like just the fact that people with penises tend to have greater physical strength. It's also associated with being protective, and I don't think it's any accident that Priapus, which is a very early Greek demigod, was both a scarecrow but he also, given his name, was priapic and was depicted with having a gigantic penis.

So, these were protective, and it was fertility, and they even put it on amulets in ancient Rome with little wings, a phallus to protect children. Somehow that transmogrified into removing humans out

of it entirely and just having a penis there. I feel like that was kind of the fall in a way, because it erased the person entirely.

Dave:

In Cambodia, I hiked far up a stream near one of the temples, and they had carved thousands of phalluses, penises, into the bedrock. They wait till the river was low. They'd carve all these penises so they'd fertilize the water that would come down under the rice patties, and all. I was just fascinated at the amount of work it would take to do that much carving to have a bunch of penises. So, they represented something. You go into this in the book about penises representing dominance, and power and, thus, the flip side of that means vaginas are weak, or submissive. Do you think that that's shifting? I mean, at least from the research you're seeing, or from anything else you're seeing?

Emily:

This may be aspirational on my part, but I think it is, and I hope it is. If you're seeing what the younger generation is doing you see that they are not taking on the burden as some of this impossible masculinity we impose on boys and men in our society, weight freighting them with this kind of rigid ...

Dave:

Look at you laughing.

Emily:

... with this really constrained version of what masculinity should be, and that makes me really hopeful. I think that it would be great if people could relax about this one body part and focus more on the entire person around it, or a person who doesn't have it.

Dave:

What happens in the animal kingdom when women take charge of mating?

Emily:

When females do?

Dave:

Oh sorry, ...

Emily:

Women spiders.

Dave:

Yeah females. Yeah, sorry.

Emily:

It's another thing that from our perspective it looks like it's flipped, but it's common enough that it's not flipped, it's just kind of in a context dependent that you'll see a lot of species where the female's the larger, like the octopus I talked about. This happens with a lot of spiders. There's a springtail species I

write about in there because they have this really complicated dance. They are the ones who are in charge. The springtail, for example, the female's bigger. The male is very hopeful little guy and he makes these spermatophores, the sperm lollypops, sperm on a stick. He'll plant it on the ground and then she'll grab ahold of him.

She'll just grab him, start swinging him around like he's, I don't know, insect kind of pro wrestling performance, and then he kind of adjusts himself and he puts out a little bit of webbing, or mucus, or something, and tries to fix her in place, and tries to get her to kind of stop right over the spermatophore so that she'll pick it up with her genital area instead of eating it. So, the big tension here is will she eat the sperm as a snack, because they have a lot of nutrition, or will he succeed in getting her to position herself over it so that the sperm will go into what, I guess from his perspective, would be the successful place. That's a very ...

Dave:

Sounds like a bad date.

Emily:

... controlling female. There's video. You could go find the video.

Dave:

Maybe it's a good date, I guess. It all depends on your perspective.

Emily:

Yeah, if you're a springtail it probably depends on whether or not she eats it, I mean from his perspective, right?

Dave:

Right. Wow. I'm fascinated at the diversity in biology and what it means for us, because we are ultimately biological creatures, even though we think about it more than most spiders do, I believe anyway. One of the issues that has come up forever is in people's self-identify, at least men do, with the penis. You are your penis sort of things. Is there evidence from the animal kingdom, or from your research in general, that that happens elsewhere, or that that's changing?

Emily:

Again, I think this is probably aspirational, but I think that we're getting, I see culturally that we're getting recognition that the penis doesn't make a man, and a man doesn't have to have a penis, and a man is not his penis. I think when you look at the animal kingdom one of the lessons we learn from this big, big, take a step back, look at all of this whole array of penises is that it's not our most impressive organ. If you're going to compare organ to organ our brains are really impressive. It would be great if we could focus so much more on those, and from a sex perspective, agenda perspective, behaviorally, and a little less emphasis on ... I know the penis is an important body part. I'm not trying to diminish that at all, but it would be great for people to be able to relax a little bit about theirs I think.

Dave:

Have you studied, or has anyone studied, that you've come across anything about penis size to brain size ratios?

Emily:

I have not. You know it's funny because everybody is really obsessed with do your feet communicate your penis size, and I think that's because, and hands, feet and hands, because they're very obvious body parts. I think they want some kind of code that says, "Look I have gigantic hands, therefore my penis must be enormous." There's not, for some reason the NHS has actually studied the foot size thing. I don't know why they would do that, and they did not find an association between foot size and penis size.

Dave:

Wow. I do know one association. I've got size 16 feet.

Emily:

Oh, is that right?

Dave:

Yeah, so you can with 100% certainty say big feet, big socks.

Emily:

That's true.

Dave:

It has to be that way.

Emily:

That's true because one of my sons is size 13 feet and those socks, yeah.

Dave:

Yep. That's all you can bet on [inaudible 00:35:16] and equals one. I like to think I'm average but I don't exactly spend a lot of time comparing either because ...

Emily:

Well, see, ...

Dave:

... it doesn't really matter.

Emily:

... it's healthy not to. That's what-

Dave:

Exactly.

Emily:

It would be great not to feel impelled to do that.

Dave:

Then again, it's possible that I'm way above average and I just don't know it. I like to tell myself that.

Emily:

I do give the averages in the book if you want to check later.

Dave:

I'm totally kidding.

Emily:

[crosstalk 00:35:40] you can go find it.

Dave:

Like you said, it's not important. I've already reproduced. I like it at that.

Emily:

Been there, done that.

Dave:

Now, what is the most abnormal location for an animal penis that you've seen?

Emily:

Ha ha. So, I didn't personally see this, but there is a report of one being on the head of a mollusk with the penis just on the head.

Dave:

That's why they call it the unicorn mollusk, because they have to.

Emily:

You know, it didn't say anything about what it was called, and I dug around the literature trying like, where the hell is this mollusk, I want to see a picture of this thing. I would say one of the weirdest things is the velvet worm because it actually fits its head into the genital floor of the velvet worm female and she holds it there until the transfer is complete. There are things maybe you don't want to know about some of the invertebrate world. They get extremely wild actually.

Dave:

I hear that invertebrate orgies are all the thing.

Emily:

Oh yeah, dangerous but fun apparently, yeah.

Dave:

A lot of those invertebrates are also parasitic, so there's all kinds of strange connections between behavior of larger animals and parasites that's fascinating, but the reproductive cycle can be so weird it almost doesn't make sense.

Emily:

Yeah, they're pretty odd.

Dave:

Talk to me about Vikings and horse penises.

Emily:

This story was so interesting to me. I went to Iceland because that's where the world's, it was so claimed, only penis museum is. The story was interesting because one of the things I write about is how penises, and how women, kind of started to be treated by Christianity, and this story is right on the edge of the rise of Christianity in Northern Europe. There is a household, and for some reason they killed a horse. I don't know why, and then the woman of the house just took a really big interest in the penis of the horse. Like the son of the house brought it in and she was like, "Oh, my gosh, this is like a thing we need to pray to over dinner every night."

So, every night she would take it and they would pass it. She stored it with leeks and onions, I guess, so it wouldn't be like this super gross, to use a word from my youth, and she would pass it around at dinner and they would have to say something over it. It's really just horrible. The son of the house is just some just, I don't know, ...

Dave:

What the hell.

Emily:

... [crosstalk 00:38:04] seeing thing over it. Anyway, and then one day King Olaf, I think it was the second one, I'm not sure, shows up in disguise with some buddies to the house. One of his things he's known for is for bringing Christianity to this part of Europe. He shows up in disguise and they let him in and so having dinner and this woman breaks out this horse penis and starts this thing and he gets really mad so they end up throwing it somewhere and the dog gets it, and that's ...

Dave:

Oh my god.

Emily:

... kind of the end of the horse penis. It was a good representation of just kind of this shift between paganism to like Christianity and it's sort of treatment of these things.

Dave:

What about dick pics?

Emily:

Well, what about them?

Dave:

Talk to me about the first ever one. It seems like we've had some obsession about that. You write about it in the book.

Emily:

Oh my god, that story. That was such a strange story. There was a guy whose last name was Le Blon and he is credited with inventing, at least in the Western world, this kind of four-color printing, and he got connected to the anatomist for King George III, I believe, and that guy, the anatomist was kind of a nut. He actually fell for this story of some woman in some part of England who claimed that she'd given birth to 18 skinned rabbits, and he tried to, ... Sorry. Apparently she'd actually just taken a bunch of rabbits and shoved them up her vagina and then pushed them out like for witnesses.

Dave:

Oh my god.

Emily:

It was really odd, but in their sort of defense people used to think that women if you looked at a certain thing that your fetus might take that shape. So, there was a sort of a grounding for them to believe that. Apparently the king's anatomist could never look at a rabbit again. He just could never even, which you could imagine, why would you want to look at a rabbit again after that? Anyway, this Le Blon guy he invented this, and one of the first pictures that they did ... Invented the four-color printing, and one of the first pictures that they seemed to have done in working with the king's anatomist was a penis. It was a very detailed drawing of a human penis with labels, veins, all the body parts. I don't want to horrify you but there is one version of it where it's flayed open, you see the inside of it, which I didn't include in the book because that, you know, nobody probably wants to see that.

Dave:

Yeah. They had to do that for a hand-drawn thing. Wow, it's fascinating that that interest has been there apparently as long as humans have been alive. So, there's got to be a reason for it. There's also places where semen is a gift. Tell me about that.

Emily:

Well, I mentioned like the springtail sometimes she'll eat the spermatophore instead of taking it up and through her genital tract. One reason is that it's because that fluid has a lot of nutrition in it, and it has proteins that you can use to build things for yourself in your body. So, there are plenty of instances, and especially the insect and spider worlds where they have these huge outputs of semen, like more than their body weight by volume, that they deposit. The big wonderment of that is, my god, why is that so much? One reason may be that it's providing nutrition to the mate that's going to be responsible for making a lot of little baby versions of that species, and that takes a lot of resources. Nuptial gifts, they're called nuptial gifts, which-

Dave:

I guess it still works for humans. That's what you're supposed to do on your wedding night is reproduce. Now, Charles Darwin also apparently was a little bit repressed on lots of levels, even though he was a genius. He was kind of obsessed with consensual sex among barnacles.

Emily:

That barnacle thing.

Dave:

What was going on with that?

Emily:

Well, first of all he was obsessed with barnacles period, except he got really sick of them like you would anything that you spend years of your life working on. So, he wrote four really long monographs about barnacles. He apparently had never seen them in the act. Like I've mentioned, barnacles have these notoriously long penises, because they're stuck on things, and if you're stuck to something and you can't get anywhere, but you reproduce using this then you got to have a pretty long one to get it into your partner, so they're kind of notorious for that. He had heard that a friend of a friend had witnessed this act, and he got really excited about it and sent them this extremely long letter with quite detailed questions, one of which was, "Did it look like rape?" He really asked that question, and they answered him. "Well, it looked like it was kind of received pretty well," or something. Okay.

Dave:

How would you know whether the female barnacle was receptive at that time?

Emily:

I know, right, you wouldn't. So, anyway. He really was into barnacles.

Dave:

You can also see why. You're looking at reproduction and it's such a driver of evolution, if you don't know about epigenetics anyway it is, and you could see why, but I was always kind of keeping an eye on that, because when you study Darwin's work you definitely see he was ahead of his time for his interest in sex, ...

Emily:

Absolutely.

Dave:

... though, probably, a little bit repressed.

Emily:

Like I think a lot of men of his culture and era, right?

Dave:

Fair point. Why don't we have a penis bone?

Emily:

Yeah, we don't, and why is not entirely clear because a lot of other primates do, primates being monkeys and apes, you're right. We just don't have one, and nobody's quite sure why penis bones exist in the first place. There have been a million kinds of sort of tests done to sort of figure out is it because it keeps it in place longer? It's an instant erection, what is the point of this thing? Nobody's quite sure, but it's really common. What is the acronym for it, it's primates, rodents, insectivores, carnivores, and the acronym is PRIC.

Dave:

Of course it is.

Emily:

Of course it is.

Dave:

Someone had a fun time naming that.

Emily:

They really did, but we're an exception we don't have it.

Dave:

Emily, having studied penises for your PhD, and then having written this whole book about it, if there was one thing you wanted everyone to know about penises what would it be?

Emily:

You know, I would usually say that they don't make a male, and a male doesn't necessarily have a penis. That would be one of them. That's one of the life lessons from the animal kingdom. The other one is, is that we are gifted with such an amazing brain, and other parts that we can use to make our sex lives, and our partnering with other people, really enjoyable without putting all the focus on the penis and its involvement in that.

Dave:

Thank you for being a guest on the show, and thanks for just writing a really interesting book that is tasteful but also still funny.

Emily:

Thank you for calling it tasteful, and thank you for having me on. That was fun.

Dave:

If you guys want to know everything there ever was to know about penises around the world in all species, you want to pick up Emily's book. You can find her at emilywillinghamphd.com.