

Today on The Lerner Podcast, we talk to Carlyn Beccia, author of *Monstrous: The Lore, Gore, and Science behind Your Favorite Monsters*. *Monstrous* is a fascinating nonfiction read that cover everything from the history of vampires to how to survive a zombie attack, and it's received 2 starred reviews from Booklist and Kirkus.

Hi, Carlyn. Welcome to The Lerner Podcast.

Hi, Libby. Thanks for having me.

How did you pick which monsters to use in *Monstrous*?

Oh, that's actually a really good question. Because I, I really struggled with it. And there were a lot that got cut. But my first criteria was the monster had to have a great origin story. And an example of that would be the say, vampires. The first fear of vampires originated in about the 18th century. And there was a lot of misconceptions about death that fed this vampire hysteria. So I thought that was a great origin story. Same with zombies. And oh god, the story behind Godzilla is just amazing--it's a heartbreaking story that I think kids really will enjoy hearing about. So that was the first criteria, it had to have a good history behind it.

The second criteria was obviously the book is about the science behind the monsters, so it had to have the right science hook. And what I mean by that is it had to teach some sort of science concept in an engaging way. For example, one of my favorite monster-related science lesson was if a vampire bites, say, the carotid artery, how quickly does blood loss occur? And that one teaches biology and medical science. Another example would be, which part of your brain still works if you become a zombie? And you know, that's teaching some pretty tough neuroscience concepts, but because it's taught through monsters, I, it gives me a way to engage the reader. I'll give you one last example is King Kong. His size is impossible due to the square cube law. So all these monsters had to have some way of teaching a science lesson.

I think that that graph with the King Kong falling off the building and exploding is maybe my favorite thing in the book.

It's so dark.

Yes, on that note, why do kids benefit from reading about monsters?

You know, I thought a lot about this question recently, because I--I have a daughter who is prone to a little bit of anxiety, and she doesn't really like scary stuff. But I believe monsters and really any scary book, if you think about it, it's a safe and contained way for children to confront their fears. I was thinking about this yesterday that if you look at some of the classic fairy tales, you'll find monsters big and small, with equally monstrous emotions in all of them. For example, the witch and Hansel and Gretel represents abandonment. The evil stepmother and Cinderella is greed and envy or the wolf and Little Red Riding Hood is death and rebirth. These are all emotions that kids eventually have to face. And it's easier to face them within the pages of the story book, or even a nonfiction science lesson than it is in the real world.

So I don't know if we're doing our kids any service by protecting them from scary, but I mean, obviously, there's a limit to you know, you don't want to scare a child to the point where they're actually having nightmares. But I think offering some of these contained ways to address fears--and I talk a little bit about this in the book, about what exactly is the science behind a fear, what's going on in our brains when we feel fear? I think if you can really break it down in a rational way, it helps you to be less irrational.

Could you describe your research process?

My research process really doesn't change much per project, I did a little for this one. But basically, I start out broadly by watching documentaries and reading secondary sources. Then when I get a feel for a subject, then I start to dig deeper and deeper. And my research gets more and more detailed into primary sources. This book was a particular challenge because it used all current research. So I had to pore through a lot of medical science, anthropological, nature journals, I was reading these, these very tough research papers, and some of them were a little bit out of my depth. And fortunately, I had a lot of help on that.

But I also had Google Alerts going on all the time. And a funny story that I tell in the end of the book is that it was frustrating because one science journal would come out with a bold statement like "T Rex was covered with feathers!" and you know it'd become clickbait and everyone, all the news media would pick it up. So I would sit there and I--for the Godzilla chapter (because he's, he resembles a T Rex), I drew all these feathers on this dinosaur, painstakingly. And then two years later, Google Alerts pops up. Another thing on T Rex, this time, it's, "Oh, it turns out T Rex actually didn't have as much feathers as we thought he did. He actually had scales and maybe a downy plume on his head." But I have to go back and delete all those feathers. And that was one of the tough things that was about this book was that the research I found kept changing. I would--I would discover one thing, and then they would say completely different thing two years later. So staying on top, my Google Alerts were blowing up on this one.

Well, yeah, that speaks to the public fascination with monsters. I mean, T--T. Rexes is are pretty dead, that we're still pretty interested in them.

Yeah, kids love dinosaurs. I think that's why Godzilla has such appeal.

So what kind of help did you have in researching?

Well, you know that your team also had a lot of fact checkers.

Oh, true.

Yes, I had, I had a few friends who--I had a friend in the medical field who helped me with the fact checking, I had my dad who is an engineer who helped me a lot with the square cube law. He used to teach me math as a child, too, so it was coming full circle. I had a lot of writers friends, I called in a lot of favors on this one, because it's a big book. So I had a lot of people in different fields, checking all my facts. I'm sure there's probably something that's going to change in the research that I might have got wrong, but I really did my best. And the people who helped me with it, I don't know how I could have got this book done without it. Because a lot of these science concepts were really tough. But you know, the zombie chapter with neuroscience, I will confess, I don't know a lot about neuroscience. So to teach that in a way to kids to break it down what's going on in the brain, say if you become a zombie, it was really, really tough. And I had to know my subject, like the back of my hand, in order to explain it to a 10-year-old.

Oh, yeah, that makes you a great translator. Because you know what you don't know and you know what you had to learn coming in. So--

Exactly. I always say to people, like writers, as a tip, never forget what you felt like when you first started researching it, like never forget that feeling. Because that's, that's what your audience feels when you start diving into it. And it almost becomes when you know a subject too well, you start to forget that your audience doesn't. And you'll start to use language or words or concepts that are just not translating correctly. So I always took notes that were very conversational to myself, you know. I take notes--when I research I draw a lot of pictures. And the reason why I do that is because pictures actually help you

remember facts better than words do. And I want to know a subject so well that I don't have to refer back to my notes. I mean, I will at the end, obviously, to fact check but I want to be able to just spit it out and recall all this information without having to look back and say, "What does this mean? What does that mean?"

So speaking of pictures, you illustrated this entire book. Do you have any favorite illustrations that you did?

Let me think, ah, it's like choosing between children. No, I, I really love the page where it says how to communicate to a werewolf. But it also says in tiny print, by the way, this is also the body language of dogs and wolves. I love that illustration. It kind of cracks me up, because it really is exactly how it dog communicates too. And I had fun illustrating that because I could really picture a child recognizing the body language from a dog and then you know, applying it--"werewolves are not so scary if you know how to communicate with them correctly." And communicating with these big scary dogs are also not as scary.

So you're saying that kids who own big scary dogs will be better at surviving a werewolf attack?

Yes, exactly.

Awesome. Good tip. So if kids like Monstrous, what should they read next?

You know, that's a good question. Oh, I know a book. One of the books that I love that helps to deal with fear and anxiety is Scaredy Squirrel. That's a pretty popular one. My kids love that book. I think I'm drawn to it because it's a way to confront fears and anxieties in kind of a silly way that says, "hey look this isn't"--it's just a great story. Another classic monster book that comes to mind--and this is more in the fantastical end--is Monsterology: The Complete Book of Monstrous Beasts, and they did a whole ology series. Those ones are always great for kids. Another favorite that I love is Giant Squid: Searching for a Sea Monster. I think that one was done really great. And then my favorite is, and I think this is a recent book, is called She Made a Monster: How Mary Shelley Created Frankenstein. And I just--I can't remember the illustrator off the top of my head right now. But I just love the illustrations in that book. You'll--you'll have to put it in like the show notes. Because this illustrator is definitely one--it's just perfect to portray Mary Shelley.

Yes, I'll add all of these in the show notes. So you've referenced it twice already, but could you describe the square cube law to us?

So the reason why King Kong's size is impossible is because of his--the weight and mass as it gets bigger and bigger. His mass can't support the weight of his bones. And so literally, he would turn to goo and crush underneath his own weight. So kids can learn a little bit more about that in the book.

And finally, could you share another one of your favorite facts from the book with us?

Yeah, let me think. Okay, it's so many. Oh, I know. I'll tell you one that has got kind of a personal story to it. I'm like the worst dinner party guests because I will spit out all this disgusting information.

No, I think you sound like the best dinner party guest.

It depends who I'm sitting next to. Not everyone always appreciate it. But every chapter in the book ends with a section called Real Monsters. And in the zombie chapter, the real monsters are parasites that have--that have managed to use mind control on their hosts. And there's actually a lot of examples I had to cut. I found so many zombie parasites, I had to cut some from the book. But one of the diseases that's both

fascinating and not completely understood is toxoplasmosis. And listeners are probably--that probably sounds familiar because it's--it's one that pregnant women can be, it can be really dangerous with pregnant women. It's why they're told not to clean cat litter. It comes from the *Toxoplasma gondii* parasite. And it can be found, you could get it from gardening in the soil and not washing your hands. But I think one of the common ways people get the disease is through cleaning cat litter, and then not washing their hands.

So *Toxoplasma gondii* parasite is really more interested in reproducing inside cats than it is people, and it uses mice as its conduit to get inside a cat. But the problem is, is that mice are terrified of cats. Normally, mice are very aware of the smell of cat urine. Just having a cat in the house will keep the mice away to some extent. But when mice are infected with this parasite, it actually rewires their brain to not fear the smell of cat urine, and they actually become attracted to it. So in the--you know, this is the way the parasite is clever because its goal is to reproduce inside a cat. So the mouse doesn't fear the cat. The mouse goes up to the cat. Cat eats the mouse, bingo, the parasite gets inside the cat.

But humans can also be infected with toxoplasmosis. And, oddly, this is just in men that they found. But in men, if they're infected, studies have shown that they rate the smell of cat urine as more pleasant than those who are, who are not infected. And this is called the fatal attraction phenomenon.

So I have this leather couch in my basement. And about five years ago, I had a really old cat and he peed on it. And I never got the smell completely out. So whenever I have guests over, I asked them to smell the couch. And I tell them, I said, What do you smell? And if they don't recognize the smell of cat urine, or they don't immediately turn up their nose to the smell, I have to inform them that they've probably been infected with *Toxoplasma gondii*. And that's my scientific whiff test.

So what do they do after that?

You know, it's one of those diseases where you will get sick for like a day you'll feel like flu-ish, but it doesn't harm--you know, you just move on.

Yeah, you're not a mouse. So you're not gonna go get eaten by a cat.

Yeah, exactly. But it's just--it's just fascinating to me, because they--they have linked it to schizophrenia, not completely. It could be because a lot of--I'm sure my Google Alerts will eventually tell me what the research is on that. But there was this research study that said, if you--if you've been infected with *Toxoplasma gondii* at any point in your life and you're male, you will actually not be turned off by the smell of cat urine. And I find that fascinating. And there's other examples in the book of zombie mind control on hosts that are just you know, they're just too wicked to be true.

Thanks so much for sharing some fun facts with us about, oh you know, fatal attraction and exploding King Kong.

Thank you. Thank you for having me.