

You're listening to Imaginary Worlds, a show about how we create them and why we suspend our disbelief. I'm Eric Molinsky. This is the last in my three part series on Doctor Who and once again before – spoilers ahead!

As I mentioned before, the experience for American Doctor Who fans was very different than fans in the UK. When Doctor Who was first broadcast here in the 1970s, American kids had to discover the show on their own. In fact, some stations played it late at night, so some of the first fans over here were college students. Even today, BBC America plays new episodes at 9 o' clock, which is very much adult prime time.

But in the UK, Doctor Who has always been a mainstream family show. Very often, kids are introduced to it through their parents. And the merchandise is everywhere.

That means for a lot of kids in the UK, Doctor Who is their first experience being frightened by something on TV. In fact, "hiding behind the sofa" because of the monsters on Doctor Who scared you, is such a common experience for British kids, the phrase "behind the sofa" has become a meme on its own.

ROBIN: Oh yes to the extent I can even remember the texture of my parents sofa as we say in the UK. I like the texture of it to this day because of the hiding behind it.

Robin Bunce teaches culture and history at the University of Cambridge. He raised his daughter to be a Doctor Who fan, and he actually found it endearing to watch her be frightened by the show.

ROBIN: Unfortunately when she was going out the room without television was too small to get behind the sofa. But she certainly buried her head and cushions.

Don't worry, she's not traumatized. She's now a teenager who cosplays as Doctor Who aliens.

What fascinates me about these aliens is that they're not scary looking. They're kind of campy and weird. And that's part of the show's appeal but that doesn't make them any less effective as villains.

At first, the campiness was not done on purpose. Doctor Who has never had enough money to pull off the ambitions of the writers. Sometimes the low budget solutions they came up with were ingenious. And some of them are laughable.

Mac Rogers recaps Doctor Who on Slate, and he says the first alien that scared him as a kid came from a 1970s storyline called The Ark in Space, where a crewmember on a ship realizes he's been infected by an alien parasite called a Warin (Weer-in.)

MAC: He's got his hand in his pocket, he pulls hand out of pocket, show green and slimy. He's clearly got bubble wrap that has been painted green wrapped all around his arm and he's looking at it. And the actor plays the scene for complete and utter aghast body horror.

CLIP: ARK IN SPACE

MAC: When I was a little kid watching that scene I was totally scared and I was totally repulsed. I was like oh that is the worst fate in the universe to be turning into a Warin larva. I didn't know until I was an adult that that was considered like one of the great punch line scenes of all time because he pulled his hand out of his pocket and he's wearing green bubble wrap.

Most of the reoccurring aliens on the show are men wearing full body rubber suits, like the Sontarans, which are a race of warriors with dome shaped little guys that look like Humpty Dumpty in space suits.

I am Styer, field major Styer as you would address me of Sontarian G3 military survey and your opinion of my looks is of no interest to my program.

Or the Zygons who wear a purple rubber costumes with giant cone heads covered with octopus suckers.

This one the one they call The Doctor is a threat to us, he has found out too much, he must be destroyed.

Since they were working with a limited budget, the costume designers had to rely a key principle of good design: use basic shapes like triangles, circles and squares. That's why you can look at a silhouette of a Doctor Who monster and know instantly which one it is.

The modern series has a bigger budget, but nothing compared to a Hollywood studio. So they've come up with their own ingenious solutions through editing and sound effects. My favorite is the weeping angles – which are statues that move when you're not looking at them. So a character sees a statue, looks away, looks back, and suddenly that statue is right up in their face.

The angels are coming for you but listen, don't blink, blink and you're dead. They are fast, faster than you can believe. Don't turn your back and don't blink! Good luck.

There are human-looking villains as well – most famously, The Master – who is a childhood friend of The Doctor's that went rogue. In the modern series, The Master regenerated into a woman called Missy. And they form a closer, more destructive bond as the only Time Lords left in the universe.

Why are you doing this?

I need you to know we're not so different. I need my friend back.

What makes the villains unique in Doctor Who is The Doctor's relationship to them. He is not out to destroy them. He tries to reason with them, figure out what they want, and broker a deal. And he's never afraid of them. Peter Capaldi's Twelfth Doctor put it best when breaking in a new set of companions.

So how do we know this water thing is actually dangerous?

Because most things are.

Why is everything out here evil?

Hardly anything is evil but most things are hungry. Hunger looks very like evil from the wrong end of it or do you think that your bacon sandwich loves you back?

But there is one villain the Doctor is afraid of – a species of villains that really gets under his skin. They are his arch nemesis. Even before I became a Doctor Who fan, I knew who these villains were because they're so iconic. Besides the TARDIS blue police box, they are what would pop into my mind as Doctor Who. I even knew the word they're famous for.

CLIP: "EXTERMINATE!"

And like the best Doctor Who villains, the Daleks are made up of simple shapes – which can be an easily recognizable silhouette, which looks a salt or peppershaker that extends out on the bottom like a cheese grader. Up and down the side of the Daleks are these bumps, which look like candy dots made of chrome. Their head is a dome with a long stick jutting out a camera on the end. And the dome heads have two lights on the side that to me look like ears, but the lights are there to let you know which Dalek is speaking because they all look the same. And then coming out of its side is a sink plunger, and I think an eggbeater.

NICK: It's not eggbeater, I'm sorry, an eggbeater looks very different. I think that might look good as a third arm possibly.

That's Nick Randell from the BBC, who reminded me they're paint rollers with the foam cover pulled off. In fact, in the New Yorker magazine the writer Jill Lepore once joked that the Daleks would be useful around the house if they weren't so evil.

I asked Nick why Doctor Who fans have resisted every attempt to update the design of the Daleks, when all the other villains have gotten major upgrades.

NICK: Because at the end of the day that classic design has sort of terrified generations of children. Yeah the plunger I guess is a little bit obvious but then they've had it quite animated in recent series and you know suffocating people in all sorts of stuff.

CLIP: DOOMSDAY

When I first got into Doctor Who, the Daleks were baffling to me. Everything else about the show I got right away. I'm actually jealous of the people that got to experience certain moments in Doctor Who history when they were first broadcast. But I didn't understand why The Daleks are such cultural phenomenon, and why they're so feared by The Doctor.

As I looked into it, I discovered that story of The Daleks – on screen and off -- is surprisingly weird and complicated. And it touches on some pretty scary stuff in the real world. In fact, you may want to hide behind the sofa for this one.

>> BREAK

Let's get back into the TARDIS go back in time to the origin of Doctor Who, right when the show first went on the air.

It was November 23rd, 1963. If that date sounds familiar it's because John F. Kennedy was assassinated the day beforehand. People were glued to the news all over the world. No one was paying attention to this strange new children's show on the BBC. On top of that, the production was off to a rocky start.

ALYSSA: And they faced just about any challenge you could throw at it

Alyssa Franke writes the blog Whovian Feminist. And she says the woman in charge of Doctor Who, Verity Lambert, had her hands full.

ALYSSA: And Verity really had to fight for the show's survival. She faced a challenging environment. She was a young Jewish woman and she was the first producer the first woman producer at the BBC had you know she had to fight for respect and still does you know that we still have to fight as a fandom to get her the respect she deserves. That she got this position based off her merits and it's largely because of her that the show succeeded to be what it is today.

The first batch of episodes were not very promising. The Doctor and his companions went back to prehistoric times and met some cavemen. The next set of episodes had to fulfill the other promise of the show that they'd go into space and meet aliens. And those aliens were Daleks. The Daleks used to look like humans but they became distorted by radiation until they're nothing but eyes with tentacles. To survive, they have to live inside these metal shells that are like miniature tanks.

CLIP: Without radiation the Dalek race is ended, we need it as you and the Thals need air!

Lambert put everything on the line for this storyline. But her boss, Sydney Newman, was dead set against it. Their conflict was actually dramatized in a 2013 made-for-TV movie on the BBC, which was called An Adventure in Time and Space. Verity Lambert was played by Jessica Raine. Brian Cox played Sydney Newman, who was Canadian.

IN: I don't much like the way the shows going!

OUT: It's strong stuff, Sydney and I really truly believe in it!

But of course, the Dalek storyline was a huge hit. It literally saved the show.

Robin Bunce teaches history and culture at the University of Cambridge. He's a big Doctor Who fan, but he's always wondered why The Daleks made the show into a cultural phenomenon. So he wrote a paper on the origin of The Daleks. And he says the first strange thing about The Daleks is that the writer who came up with them, Terry Nation, was not a sci-fi writer. Terry Nation was a struggling comedy writer.

ROBIN: As far as I understand it Terry Nation took on the script for the Doctor Who on the basis that his central heating and heating are broken down and therefore he needed to make some money very quickly.

But there's nothing funny about The Daleks. In fact, the conventional wisdom is that Terry Nation based them on the Nazis since he would've grown up during the London blitz. Although in later interviews, Terry Nation has resisted any attempt to nail down where his inspiration for the Daleks came from.

ROBIN: So I started out thinking what everyone thinks I think which is that the Daleks are based on the Nazis and that would make sense in the context of the show because obviously a show made in Britain and one of the myths that we have as a nation our founding myth is that with a country that beat the Nazis we kind of overlook the contribution my Americans and the Russians to that project I'm afraid to say in Britain we kind of forget all that. So that's I was expecting to find.

But when he read the first script, he realized that Terry Nations mind was in 1940 – it was very much in 1963.

ROBIN: I was really interested in two things in the first script. One was the most had the Petrified Forest and the other one was the reference to the neutron bomb. Because I didn't really understand why Terry Nation would introduce this idea of a petrified forest. And I didn't really know what a neutron bomb was because you know I was born in the 70s and no one was talking about neutron bombs in the 70s.

The neutron bomb was invented by an American scientist named Samuel Cohen, who thought he had come up with a quote “sane and moral weapon” that could be an alternative to the atomic bomb.

ROBIN: Because the neutron bomb is a supremely brilliant scientific invention and it's an extremely brilliant solution to a series of practical problems. The big problem with nuclear weapons is that as well as destroying your enemy you also destroy all of the things that have made all of the good things you and me have destroyed US citizen technology and infrastructure the neutron bomb is designed not to destroy architecture but it destroys organic life.

In fact, that's exactly what The Doctor says on the show.

IN: How do you explain the buildings, they're in tact?

OUT: But leaves the building and machinery in tact.

That is why Robin thinks the Daleks were scary – not because they seemed very alien but because they were all too human.

ROBIN: And I think what Terry Nation was doing was he was commenting on the people who had developed the neutron bomb because there was something that is uniquely chilling and uniquely morally evil about the neutron bomb, which is not true of other kinds of kinds of weapons technology.

You don't hear much about neutron bombs today, but we are surrounded by technology more than ever. When I look at the behavior of vicious nasty trolls online, I feel like social media can turn people into Daleks.

And Robin says Terry Nation's description of the Daleks – the actual aliens inside that metal casing -- are based on a theory that HG Wells put forth on how human beings could evolve.

ROBIN: Before he writes the War of the worlds he writes an essay called The Man Of The Year Million in which he's imagining what human evolution is going to do between now and the year million and what he thinks is that the bits of humanity which are useful are our brains and our hearts. OK he thinks the bits of humanity which are kind of just gets in the way is the digestive system and the genitals and all of these bits. So he's imagining that as human beings get more and more you know evolutionary less sophisticated the brain will enlarge and the

fingers will enlarge and the other bits of our bodies which don't serve any useful function as far as H.G. Wells is concerned are the bits of our which can be replaced with machines will be. So the man of the year a million according to H.G. Wells the final point of human evolution is something which looks very much like a Dalek creature.

Back in 1963, the BBC was completely unprepared for what was going to happen. The Daleks weren't just a hit – they were a sensation. Kids were running around the playgrounds yelling, “Exterminate! Exterminate!”

FRANK: We played Doctor Who. That's how much Doctor Who meant to us as children we got down and recreate Doctor Who.

Frank Collins blogs about Doctor Who in the UK.

FRANK: And I think as children they are very easy to imitate. And it was just everywhere. They were a kind of the thing you had as a toy in the sixties that you got bought for you at Christmas. It was there was a period one Christmas which was called the Dalek Christmas because it was they were everywhere. It's amazing how they took off.

In fact, this little ditty hit the top of the charts in 1964.

CLIP: DALEK SONG

At this point, the producers at the BBC must have been kicking themselves because they didn't own the full rights to the Daleks – they shared the rights with Terry Nation, the writer who came up with them. Unfortunately, the guy that actually designed the Daleks, Raymond Cusick, did not get any royalties from those toys, even though it was his design that the kids were so crazy about.

Meanwhile, Terry Nation went to Los Angeles and tried to pitch The Daleks as a Hollywood monster. He was thinking they could go up against all sorts of different heroes. But the studios weren't interested.

But in the mean time, he continued to write more Dalek stories for Doctor Who where The Daleks became more Nazi-like. They were giving Nazi salutes with their sink plungers, and they became fanatical about their genetic purity and racial superiority.

We obey no one! We are the superior beings!

I think the Hollywood execs weren't interested in the Daleks because they don't make sense outside Doctor Who. They're the perfect nemesis for The Doctor. He thinks his way out of problems, but they can't reason. He's eloquent; they're barely verbal. He is full of compassion; they're full of hatred. He's a quirky loner. His worst nightmare is an endless army of monsters that look and think the same.

But Mac Rogers thinks the Daleks are scary for a simpler reason: the actors who played The Doctor are really good at looking scared.

MAC: The weight of the Daleks has to be carried by the actor playing the Doctor. It's that actor's job to sell the audience on the idea that the Daleks are the worst thing in the universe.

I've noticed that actually is in fact as often a rite of passage for each actor playing the Doctor to be utterly freaked out in a way we have not seen them yet when they have their first scene with the Dalek.

MAC: There's no other monster they look at and have that same reaction of fear with -- with Christopher Eccleston though is pretty much agreed by everyone as the person who utterly aced that -- he's the one who has set the bar.

This is back in 2005 when Doctor Who was brought back to the BBC. We haven't seen a Dalek on TV since the 1980s. The Doctor, played by Christopher Eccleston, thought he had committed double genocide, wiping out the Daleks and his own people to save the universe from being sucked into an all-consuming war. And then he discovers -- to his horror -- that one Dalek made it out alive.

I am a soldier. I was bred to receive orders

Well you're never going to get any.

You're never going to get any, your race is dead, 10 million ships on fire, the entire Dalek race wiped out in one second

You lie!

I watched it happen! I made it happen!

You destroyed us?!

As an actor, Eccelston made the choice to take the Nazi parallels more literally. He told the voice actor who played the Dalek:

MAC: I want to play this like a concentration camp survivor confronting a Nazi. It's almost over the top for Doctor Who but he went all the way.

*I know what you deserve. Exterminate.
Argh!*

MAC: And so inside your head this kind of stupid looking salt shaker with a whisk in a toilet plunger on it kind of gets transformed in your mind because of Christopher Eccelston's reaction to it.

It turned out there were Daleks left in the universe because behind the scenes, the BBC had to fight the estate of Terry Nation to get permission to use Daleks again, and once they got their most popular villains back, they weren't about to underplay that hand.

Now, as I was researching the Doctor's villains, I came across a fascinating article by a pair of cognitive scientists at Carlton University -- Deirdre Kelly and Jim Davies. In their paper, they argued that each Doctor Who villain represents an aspect of human psychology that has gone too far. Here's Deirdre.

DEIRDRE: I find villains to be really compelling characters because often villains are doing the wrong thing for the right reasons.

In their paper, they broke it down by species of villains but the villains that fascinate them the most are the Cybermen. And after The Daleks, The Cybermen are the Doctor's other biggest species of enemies.

Like the Daleks, The Cybermen are metal on the outside and organic on the inside. But the organic body parts inside the Cybermen are just there to make the cyborg bodies run more efficiently. If the Daleks are obsessed with racial purity, then the Cybermen are obsessed with self-improvement.

*We have been upgraded
Into what?*

The next level of mankind we are human point two. Every citizen will receive a free upgrade. You will become like us.

Here's Deirdre's colleague, Jim Davies.

JIM: The Cybermen are my favorite too. They're not cruel at all. You know they're not some like you know mustache twisting villain that just wants to cause chaos and awfulness from a certain point of view you can really see their point.

At one point, the three of us were discussing this really wild episode from 2006 where the Cybermen faced off against the Daleks because they were both invading the Earth at the same time.

But consider our technologies are compatible, Cybermen plus Daleks together we could upgrade the universe

You propose an alliance?

This is correct.

Request denied!

Sustained elements will be deleted!

Exterminate!

Here's where our conversation took a strange turn --- even stranger than Daleks and Cybermen shooting lasers at each other in an office building in downtown London. Until that point, Jim and Deirdre were completely in sync, almost finishing each other's sentences. Then Jim said something, which turned our conversation into an argument. It's a bit long, but I want to play the whole thing.

JIM: Well I'd rather Cyberman get their plan in place than Daleks.

DEIRDRE: I think the Daleks would rather they win.

JIM: The better for people. I mean I think you'd be better if the people.

DEIRDRE: There wouldn't be people.

JIM: Well if all humans became Cyberman I think would be a better universe than of all humans were destroyed by Daleks.

Really. Wow that's so interesting. I feel like they're both equally bad.

DEIRDRE: Well yeah. Neither are better for humans because humans ceased to exist.

JIM: Well if you consider Cyberman to be non-human yes. Rather than a hybrid

Well the Cyberman they take sort of the raw genetic. You know we're just meat to stuff inside us Cyberman but I feel like the things that make humans unique the qualities that make humans human they are you know the first things to get rid of.

DEIRDRE: I think I would agree I think that if look at psychopaths as strangely among others is a lack of affective empathy. This idea to fill with other people and or if you see someone not reacting when they when you cause someone pain it's weird. And so if we you know get rid of our ability to feel pain and suffering and in so doing now we don't suffer anymore. But how human are we?

JIM: I think it's very funny. You guys are getting so essentialist about this you know like to me I would much rather be an entity that can think and not feel anything than not exist at all.

DEIRDRE: Are you still Jim Davies without your emotions?

JIM: If someone threw brain injury lost their -- lost all emotional effect would you say they're better off dead and we should kill them?

Well no but I think with a Cyberman is that they don't really have freedom of choice either. Yes you lose all emotions but you are just one of a million millions of Cybermen that are doing whatever the you know the collective hive mind wants you to say that's a little bit different.

JIM: Now I don't know what a hive mind but you know they've got different goals that you would then pursue. Yeah they might be the more uniform than human goals. That's what I'm thinking.

DEIRDRE: But I don't think I would exist. I think I'd be so far removed from where I am right now that it would be kind of irrelevant.

JIM: Yeah that's unfortunately not a scientifically answerable question

DEIRDRE: No unfortunately not.

It's a strange discussion to have, but I think they're to something.

There's something recognizably human about all these alien villains. And what makes The Doctor stand out as a hero is that he always has empathy for his adversaries. He wants to reason with them, figure out what they want and help them achieve their goals without anyone getting hurt.

So in that sense the show is a dialogue between different parts of ourselves – almost like a dream where every person in the dream is an aspect of the person dreaming. I think The Doctor's ongoing battles with these monsters is on going dialogue about what makes us human, and what makes us inhumane.

And who better to have that conversation than a bunch of aliens?

That's it for this week and my mini-series on Doctor Who. Thank you so much for listening. Special thanks to Nick Randell – who by the way has a great podcast of his own called SNS Online -- Jim Davies, Deirdre Kelly, Frank Collins, Alyssa Franke and Robin Bunce who says his paper on the history of the Daleks almost got him on the BBC.

ROBIN: So about four o'clock I got a phone call and hoping I get to say jump on a train come to London you're going to be on television tonight. And what the woman said to me is Oh we'd love to have you on to talk about Daleks but actually we got some breakdancing Cyberman so I'm never going to forgive the BBC for that.

Extra thanks to Stephanie Billman -- who helped me with the production process.

Imaginary Worlds is part of the Panoply network. You can like the show on Facebook. And if you've got a favorite GIF of a Doctor Who villain, let me know. I tweet at emolinsky. My website is imaginary worlds podcast dot org.