How Annihilation's visual effects artists created those terrifying mutant creatures

The last time director Alex Garland and visual effects supervisor Andrew Whitehurst worked together, they created Alicia Vikander's Ava, the robot star of *Ex Machina*. For their follow-up collaboration, *Annihilation*, they had a much bigger set of challenges. Garland's newest film is a heady mind-trip that explores humanity's self-destructive impulses, but it's also a walking tour of the gorgeous and the grotesque. The story of Lena (Natalie Portman), a biologist who joins a group of women to explore an area of coastal America that's rapidly mutating due to an alien contaminant, *Annihilation* is full of improbably beautiful biological mashups, shimmering landscapes, and human-plant hybrids.

It also features one of the most terrifying creatures to hit the screen in years. If you haven't seen the film already, I suggest you stop reading now — but if you have, you probably already know exactly what I'm talking about. The *Annihilation* bear is a harrowing mutated beast that combines animal and human physiology, and it vocalizes with a mixture of roaring and the agonized screams of the last person it killed. It's a nightmarish creature, and one of the film's most indelible images.

I jumped on the phone with Whitehurst to talk about his work with Garland, how they created the movie's horrifying monster, and why combining practical and digital effects was so essential in bringing the bear to life.

[embedded content]

Instead of creating a single character here, as you did with *Ex Machina*, you're creating environments, monsters, and

mutating landscapes. What were Alex's initial creative directives?

Alex sent me the first draft of the screenplay a year before pre-production began. He sent me the script when I was about 3,000 meters up in the Alps, shooting second-unit stuff for *Spectre*. I was reading that in the evenings and then shooting Bond during the day.

"We got a lot of electron-microscope imagery of cells, a lot of reference imagery of lichens, spores, and mold growing."
Initially, we were just talking about the idea of mutation, about the idea of what a truly extraterrestrial entity might be like. We started by pulling together reference images of things we thought might be inspiring, even if they weren't necessarily going to end up being directly relevant. We got a lot of electron-microscope imagery of cells, a lot of mathematical practical shapes, a lot of reference imagery of things like lichens, spores, and mold growing. We tried to figure out the common qualities, and how we might apply those to the world we were trying to create. By that point, the art department was on the film, and they were in the same boat.

As we went through pre-production, shooting, and then post, things changed, because it's a film about a journey, and you really only know whether something's working in the context of the journey when you actually have a whole cut to look at. Several elements in the movie, we fundamentally redesigned in post-production, because what we thought was going to work [didn't]. We needed something else when we cut an edit together. Or because a performance on the day drove us in a different direction for an effect. We tried to plan, but actually ended up having to be very fluid, changing a lot right throughout the entire course of production and post-production.

Photo: Paramount Pictures

What were some of the pivots?

The alligator initially was albino, but not particularly diseased. When we were looking at it in the context of the cut, it seemed too clean and healthy. So we ended up adding a lot of lesions, and more vitiligo and other skin-mottling effects. Probably the biggest one was the crystal trees you see on the beach at the end. They were originally going to be human shapes emerging from lumpy columns of sand and salt. We got right into starting to put them into the shots. We built them and look-developed them, and we'd made them work. And then we thought, "This actually isn't right, it's not what the film needs here." It's something out of the blue, not connected to anything else. We were thinking, "What can we do instead?"

The scene before Lena gets onto the beach is in a forest of fir trees, and we'd gone and laser-scanned that forest, so we had these laser scans of these trees. Laser scanners don't cope well with very small, fiddly details like leaves or hair, for example, and it tends to come up with these strange, blobby shapes. So we have these trees where the trunks were quite pristine, then where the leaves started, it went into these weird, distorted blobs. And we thought, "Well, there's something sculpturally that's very appealing about that." So we actually ended up taking those raw laser scans, cleaning them up a little bit, and then making them into crystals and putting them on the beach. That suddenly felt better for the story.

The fact that a weird artifact of the scanning process inspired you feels like such a thematic fit with the movie itself.

Exactly, because it’s a film about corruption. And also, it’s the nature of any film where you’re telling a series of journeys: you have to be quite fluid in your outlook from a design sense, because things will change in the cut, and you need to react to that, and to the whole driving force of the film, if it’s going to have maximum impact. Every single design element has to be marching in lockstep with every aspect of the performance and every aspect of the rate of the cutting, and how the sound’s going into it. So you are inevitably going to end up changing things, which we did.

Photo: Paramount Pictures

I can’t shake the shock that comes from the bear. What was the description of that creature in the script, and what was the initial design process like?

In the original version of the script, it was described as being bear-like. Alex was, in the way he described it and the way he spoke to me, deliberately a little bit tricky. Do you know the creature called a water bear; a tardigrade? They’re these tiny microscopic creatures. They send them into space when they want to see how extreme life forms can survive. These weird, tiny, sort of eight-legged creatures. So Alex was saying, “Well, maybe I’m meaning it could look like a giant water bear.”

“We looked at that and went, ‘Yeah, okay, that’s horrible. That’s gonna work.’”
So the first thing I personally did in response to the screenplay was, I mocked up a concept of this half actual bear, half water-bear creature. Then when we started thinking

about it in a more formal sense, we thought, “Well, let’s be sure it should be a bear.” So we tried a bunch of other ideas, like making it a wild boar or some other kind of large, dangerous animal that you might expect to find in the forest. Ultimately, the feeling was, a bear works because it’s got the right capabilities of movement that we need narratively, and also bears — particularly when they stand up — have that sort of strange, not-quite-human but slightly human quality. Which is unsettling in a regular bear. So that gives us a leg up in terms of making it feel weird to begin with.

And then we knew we were going to try to suggest the idea of the mutation causing sickness, but also causing pronounced physical change and transformation, which was true for most of the creatures. We wanted to suggest the idea that some of [Tuva Novotny’s character] Sheppard’s DNA is somehow added into the bear, and maybe other humans it has encountered previously are part of it also. So we were struggling to come up with a clear visual way of describing that. One of the concept artists, in a piece of 3D software, got a scan of a bear skull and a scan of a human skull, and literally just mashed the two together. We looked at that and went, “Yeah, okay, that’s horrible. That’s gonna work.”

Then we thought, “Okay, let’s see what kind of bear we want.” So we looked at different bear shapes, different bear physiology, the different types of bear, and we ended up picking polar bears, because they’re slightly longer-legged, and they have a very distinct kind of curve to the top of their body down to their head, that has a sort of aerodynamic sleekness, and a real sense of precision and purpose. Because we’d been looking at the skull, we felt the whole front of the face tapered really interestingly. That’s the shape of the bear’s skull — if you get rid of the adorable, wet juicy nose, and all the fluff off the front of it, that’s what bears are like. So I thought, “Well, okay, we should probably try and keep that.”

“It needs to be terrifying, but I also hope people have a sense of empathy toward it.”
So we then pushed the idea that the sickness of the creature has either totally atrophied the flesh off its face, or there’s just a thin coating of skin over the skull. That then transitions back into a more naturally skinned bear-creature. When we were going through our reference collection process, we found an image of a baboon that I think had alopecia or vitiligo or both. It had mottled skin and was only partially furred, and even though it was actually apparently fairly healthy, it looked odd and uncomfortable. So we took that as an idea. We added a lot of mottled patterning to the skin, and then we only partially put fur onto it, and we tried to put fur into places that we thought would have a maximum dramatic effect. So the top of the head is mostly fur-free because that’s kind of freaky, while on the underside of the jaws and on the bottom, we put lots of fur, so that after it’s attacked people, that can be dripping in blood. It just has a lot more visual impact.

Then we added the sores and lesions, to suggest that the creature is sick. At that point, we were doing animation tests, and talking with the animators and with Gwilym Morris, the lead. We thought it would be interesting to give the bear a bit of a limp to suggest that it really is properly unwell. It needs to be horrific and terrifying, but I also hope people have a sense of empathy toward it. That there’s this poor animal that doesn’t know what to do anymore. It’s been put into a world it can’t possibly comprehend. It’s been mashed up in ways it can’t comprehend, and it’s clearly suffering. So it was important to us that it didn’t feel like this killing machine or that all it’s there to do is destroy things. We tried to sell the idea that all this mutation, all this physical change, is being forced on these living creatures, and often has a direct consequence on their well-being, which should provoke some sort of response in an audience.



Photo: Paramount Pictures

When they were shooting, was there a prop version on set for the actors to play off?

Yeah, absolutely. Different creatures got designed in different ways So, the alligator, Tristan [Versluis]'s special effects team built a full-sized one, which we scanned and used as the basis of our digital one. With the bear, we designed that in visual effects and then gave a 3D model to Tristan, and his team built a full-size animatronic head and neck that could be puppeteered on set. So for any kind of close interaction between the cast and it, we used that, because we got some sense of performance out of it, it gave the actors something to work against, and you get all the interactive shadows and lighting in the right places in the plate. Then we replaced it with CG in the finished shots.

In the wider shots where it's walking around, Tristan's team also built, out of foam, a full-sized silhouette that could be worn by a performer. So we had a really big guy, I think he's a gymnast called Jack [Jagodka], and he had stilts on his arms and his legs to make him the right size, and he would walk around. Again, that helps with the performance and the

interactive lighting, and it also helps [director of photography] Rob Hardy when he's framing up the shots, because there's something physically there to get in frame. It's very difficult to shoot a sequence when you're entirely missing one of the main participants.

"It was important to us that we definitely had something on set."
So it was important to us that we definitely had something on set. It meant we could figure out our timing, it meant actors had something to work against, and our framing was gonna work. It meant they could start cutting sequences straight away, because there was actually something in frame to work with, so they weren't having to wait until we did our first pass of animation before they could start assembling an edit. Then they could send us that, which is what Barney [Pilling] did, the editor. He did his first pass, they sent it to us, we did a pass of animation, and then there's back-and-forth between visual effects and the edit, of us saying, "Well look, in this shot, we'd like for him to pause and stare for a moment, and then move on, so could you possibly open up the edit a bit on that shot?" It was that kind of conversation always happening, so we were working very closely with the edit to make sure that narratively, the whole sequence was fitted together to give it the maximum amount of atmosphere possible.

Did you run up against animation issues as you were trying to give the bear that visceral, raw, real aspect?

The trickiest shots tend to be the ones where there is strong interaction with somebody on set. One example is the shot where after [Gina Rodriguez's character] Thorensen has been killed, and the bear charges Lena and punches her across the floor. The way it was done on set was that the stunt performer was in a chair that had a cable attached to the back of it, and Jo McLaren's stunt team pulls her backward into the wall. Then Jack, in the [bear] suit, was running along at the same time in front.

The problem that we found when we were trying to animate is that Jack’s a big guy, but he doesn’t weigh anywhere near as much as a bear, which means he can stop very quickly. “Okay, we’ve got a bear that we need to charge, but we then need to be able to get it to halt in a way that’s believable for something that weighs half a ton, or whatever we’re saying this bear weighs.” We tried a whole bunch of different things, and it always ended up making the bear feel light, so we ended up animating it. So as it ran along, it gave her a big shove, and she slid away from it, and then that’s when it started to brake itself so it came to a stop. And that was very hard, because you’re tied into the action in the plate in terms of timings and the framing of the shot, and you still need to maintain the weight of the creature to have it feel plausible. So that was a particularly difficult shot to achieve.

There were other, more minimal examples of that kind of tricksiness, like when the bear is attacking Thorenson on the ground. Gina was amazing. She did all her own stunts, so when you see Gina getting slammed against the wall and chucked around, that’s Gina getting chucked around. You know, she spent the whole day having the crap beaten out of her, but it’s amazing because you get this totally believable performance. We just have to work with that and put the bear on top. There are benefits to it, as well as it sometimes being complex just having this stuff in camera. But I would always say that the benefits vastly outweigh the difficulties.

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