

DYING TO LEAVE EARTH: MICKEY 17

An army of “creepers” swarm the icy environs of their native planet, Niflheim; these 20’-long, adult-sized iterations of the creatures were animated by Dneg.



VFX Planning and Strategies

By Joe Fordham

Mickey 17 demanded two key visual effects: the multiplicity of Mickey Barnes (Robert Pattinson) and the creation of the giant, grub-like “creepers” that Mickey and his 18th replica discover on the frozen planet Niflheim.

By the time visual-effects supervisor Dan Glass joined director Bong Joon Ho and cinematographer Darius Khondji, ASC, AFC on the project, Bong had already created meticulous storyboards and a creature design. Glass fully expected this, having worked on *Okja* as chief creative officer for Method Studios. “Bong is so prepared, and when there are creatures involved, he works with creature designer Hee Chul Jang, as he has since *The Host* [2006],” Glass says. “It’s part of his creative process.”

“Bong typically shoots [with] one camera,” Glass continues. “He has a very clear sense of the edit before he goes into the shoot, and he shoots only the angles he needs. When it came to visual effects, that enabled us to be quite specific about each shot.” In keeping with Korean tradition, Bong’s longtime editor,

Jinmo Yang, joined the team on set to create editorial assemblies. “Jinmo edits with the video feed,” Glass explains. “That went to editorial every night, so when the dailies arrived, they knew the cut. And the edits remained very consistent.”

The Twinning Illusion

For scenes featuring meetings of Mickey’s “printed” replicas, the filmmakers adopted a free-flowing, split-screen approach wherein Pattinson played opposite a photo double, Sam Woodhams, with whom he alternated takes.

Pattinson used small changes in hairstyle, costume and dental prosthetics for different Mickeys. For each twinning scene, the filmmakers selected the dominant Mickey to initiate the take. Performers then swapped roles. In post, Rising Sun Pictures created dexterous composites, digital face and head replacements, and occasionally CG rendering and animation derived from algorithms of

Pattinson’s performance.

“Having Robert play next to himself was the ultimate challenge,” Glass observes, “but it was also the best reference we could have. We could very quickly have him switch positions [with Sam] and perform the other Mickey, and we instantly had fantastic reference for what Robert looked like in that lighting through the camera from the same angles. In as many cases as possible, we were able to do split screens.”

Performance was key to characterizing Mickey 17 and his sharper replica. “Robert was amazing,” states Glass. “From day one, I was saying, ‘Okay, next shot, we’re going to have [Mickey] 18 first. Next shot, we’ll do 17 first,’ and so on — [and] his performances were always coherent between 18 and 17. Another thing that’s often forgotten in [twinning] effects is that you can have a perfect photo-real face or head replacement, but that will not succeed if the body proportions or movements don’t align. Human beings are

highly attuned to recognizing facial features, skin qualities and the way people move. One can sense if it isn't Robert's gait. That's why we had Sam alongside Robert as much as possible, and we often rehearsed with Robert playing both roles so Sam could observe."

To assist facial-data acquisition, Glass and volumetric animation specialists Volucap designed a portable array of high-resolution, machine-vision cameras, the Hydralite (known as "the Crazy Rig" on set). The custom-built cameras captured 63-megapixel uncompressed 16-bit Raw global-shutter data that enabled the VFX team to sample Pattinson's shot-specific likeness for each twinning take. "It was deemed 'crazy' because it's a big, hydra-headed thing," says Glass. "But Volucap did an amazing job of making it lightweight, so we could quickly shoot reference with Robert. The heart of the trick was to be smart about it. We were mixing a bag of tricks: Split screens were part of it, but we were massaging performances and, at the other end of the spectrum, making a CG variant of Robert. And there are different ways of approaching CG solutions these days, all of which help visual effects be flexible."

Frozen Landscapes, Creeping Creatures

Snowbound Niflheim exteriors added some complexity to the VFX work. "We had a lot of discussions with Darius and Bong about how to make a raging snowstorm more interesting than just white," Glass recalls. "We took a small visual-effects unit to Iceland, shot plates and elements, and observed snow conditions. Traditionally, snow scenes might have been shot against bluescreen, but I knew that would never get us the look we wanted. Snow has a very bright, 360-degree bounce light which affects the skin, and we could never achieve that with bluescreen because we'd never get that bounce."

The filmmakers tackled the issue by erecting large whitescreens around a backlot set in Cardington, Bedfordshire. "I remember fretting that it was going to be a nightmare to track and match cameras, but the instant we got there, the whole place felt cold," Glass recalls. "That was so important. It helped everyone understand where we were. We had a specialist tracking crew doing live tracking, and that fed into an Unreal [Engine] scene where we could create temporary composites very quickly."

Niflheim's creepers ranged from koala-size to 20'-long adult. Working from Jang's digital models, Framestore developed infant creepers for spaceship interiors and Dneg animated

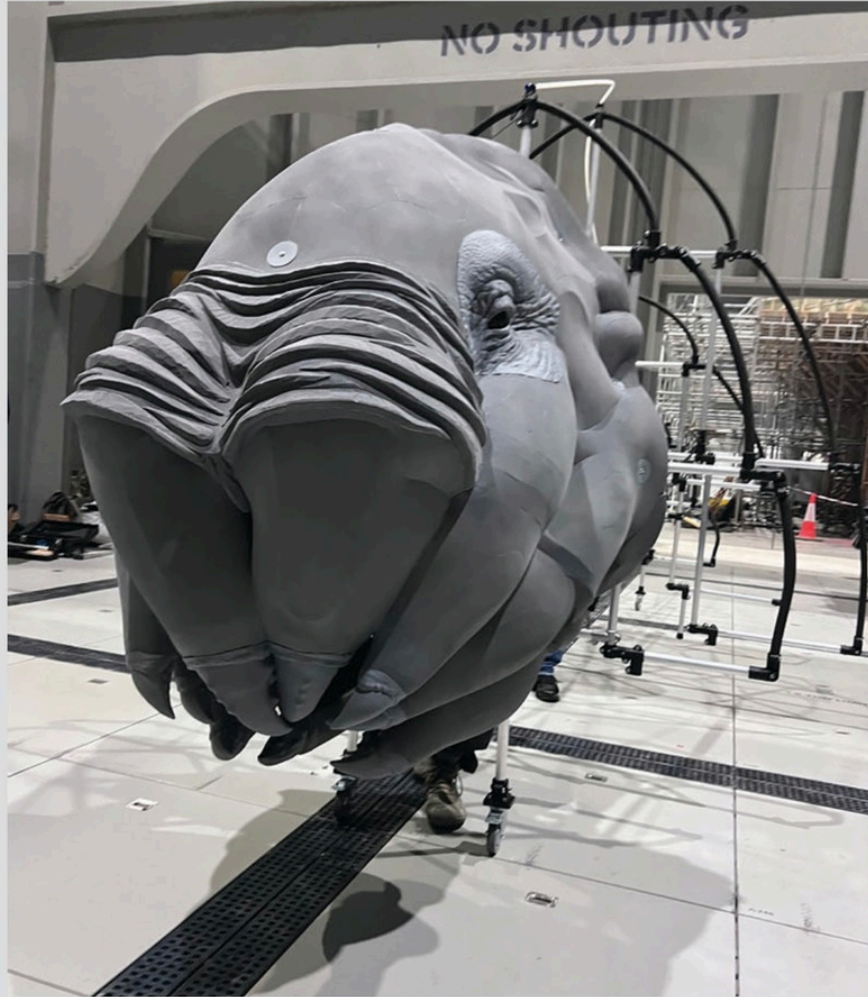


PHOTO COURTESY OF DAN GLASS.

larger versions that proliferate on the planet surface. Creature-motion studies influenced designs. "We reduced the number of legs on the mama creeper," notes Glass. "It was impossible to avoid her legs getting in the way of one another, and at one point she needed to move quite quickly. The other design change was that creepers were designed to fold out flat. They don't have bones, per se — they're hollow on the inside and can unfurl like a skate fish. That meant they were quite light." Lightness, however, did not sell the creature's presence. "We made sure they had a sense of bulk in the way that they moved. That was crucial to their credibility."

To help ground creepers in shots, creature-effects specialists Stitches and Glue provided puppets. Puppeteer Tom Wilton and

Creature-effects outfit Stitches and Glue created the puppet for the mother creeper, whose movements were performed by puppeteer Tom Wilton and his team.

his team performed the mama-creeper head using a 3D-printed head and a lightweight scaffold-structure representing her thorax, which the production intermingled with yoga balls and Space Hopper toys to represent creeper crowds. "I have to say, I wasn't sure we needed professional puppeteers until we saw them on set," Glass says. "They brought so much to the creepers' movement. We only used them for key setups, but that was very helpful to Darius and Bong."