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PIRATES *of the* CARIBBEAN

~ AT WORLD'S END ~

Geoff Campbell, ILM 'Pirates' creature model supervisor takes a look back at a career in motion.
CGSociety :: Artist Profile
By Barbara Robertson

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You might not know his name, but chances are, you'll recognize the names of the CG characters he modeled or that modelers working with his supervision created. T-1000. Yoda. Davy Jones. And hundreds more. Geoff Campbell joined Industrial Light & Magic to work as an animator on 'Terminator 2: Judgment Day,' which won an Oscar for visual effects in 1992, as did the next two films he crewed on, 'Death Becomes Her' and 'Jurassic Park'.

Two years later, his title had changed to animator/modeler for 'The Flintstones,' and in another two years, with 'Jumanji' released in 1996, he became a digital model supervisor.



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Since then, he's modeled characters and led character modeling teams for such films as '101 Dalmatians', 'Men in Black', 'Star Wars: Episode I – The Phantom Menace', 'Galaxy Quest', 'Star Wars: Episode II – Attack of the Clones', 'Signs', and 'Pirates of the Caribbean: Black Pearl', 'Dead Man's Chest' and 'At World's End'.

The move from animation to modeling was due, at least in part, to a new system developed for 'Jumanji', a combination of "CARI" (for "Caricature") created by Cary Philips, and "iSculpt," created by Jim Hourihan.

"I could have headed in the animation direction," he says, "but the power of those two systems in one package was phenomenal. It was the first system we could use to do facial expressions and I felt that's where I wanted to be, creating facial expressions and working with animators to improve their performance."

Campbell's family introduced him to art when he was a child growing up in Toronto. When his family traveled, his mother took the kids to galleries and museums, and his brother Robin taught him about composition and shading.

"He had exceptional drawing skills," Campbell says. "I used to sneak down into his room when he wasn't there and study his drawings. I loved the Bainbridge art board he was using and those Staedtler pencils. I was hooked."

After graduating from the Ontario college of Art in Toronto in 1981, Campbell sculpted miniatures and foam models, sticking fake fur on creatures for the BBC in London. "I had a cousin living in a squat in London," he says. "So I had free rent and used that as a base for four years."





“ As sculptors, we have to read a face and know creating that expression takes a combination of five muscles. We have to know how to break that down for the animators. ”

In 1985, he moved back to Toronto and enrolled at Sheridan College, which had started a one-year computer animation program. “At that time, we didn’t even have a mouse,” says Campbell. “You typed into the computer and had simple primitives you could animate.” After trying to sculpt a character, he realized that would never work, so he created a human figure out of clay, dissected it section by section, and entered the coordinates into the computer. “It took my whole Christmas break to type in those numbers,” he says. “It was a really primitive process.”

Then, he went to a trade show and saw someone demonstrating Alias software. “I recognized the person doing the demo,” Campbell says. “He was dating my sister. He got me into Alias at night so I could learn the software.” That led to a job flying logos for a studio in Montreal, which led to commercial work for the Moving Picture Company in London. “They were using Alias software,” he says. “It was my ticket for getting around.”

But, his first-class ticket was a personal animation he had created after work while in Montreal that made it into SIGGRAPH’s Electronic Theater. There, it caught the attention of Steve “Spaz” Williams at ILM, CG animation supervisor for ‘Terminator 2: Judgment Day’.

“I got a call at two o’clock in the morning,” Campbell says. “ILM had gotten the time change all wrong. I was in my underwear. They had 20 people in a room asking me all these questions about the piece I’d done. But, Steve [Williams] only asked me about my cat. He knew he was going to hire me.”

At ILM, Campbell joined the Terminator 2 crew. “At that time we did everything,” he says. “I built the aunt who gets taken over by the Terminator. She steps over the body of her husband, who is the Terminator. I built it and animated it, and it was laborious. We could do only three or four minutes in nine months. With each show, the hardware and software has gotten better and faster and we’ve upped the ante in complexity.”





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PIRATES

That complexity is particularly evident in the last two Pirates films. For 'Dead Man's Chest', Campbell supervised the eight modelers who sculpted Davy Jones and his crew, working in Autodesk's Maya to build bodies, ILM's Zeno to create face shapes, and in Pixologic's ZBrush to cover the creatures with briny details. For 'World's End', he worked with a much smaller crew.

"There were four of us," Campbell says. "Jung Seung Hong, Lenny Lee, and Mark Siegel and myself. We didn't know we'd have to build ten new characters. When we did get them, we had to build them really quickly." They did so using the pipeline from 'Dead Man's Chest' and the same tools, which allowed the modelers to mix and match parts from previous characters and then re-sculpt them. The eel peeking out of Quittance's stomach, for example, became Morey's head.

In addition to the ten new fishy crewmen, Jung Seung Hong, who had modeled Davy Jones, built stone crabs and models for the Tia Dalma effect, during which she grows to around 50 feet tall and disassembles into hundreds of crabs. And Campbell built Jack-Wyvern - Jack Sparrow's vision of himself embedded and encrusted into the ship like the character Wyvern in 'Dead Man's Chest'.

Campbell sculpted from a scan of Johnny Depp taken during 'Dead Man's Chest' while **Aaron**



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McBride drew concept art. "The question mark was whether he'd be an old man version or Jack as we recognized him now, but encrusted," says Campbell. "So I started building him more as Jack and then tried giving him old man features. When we couldn't recognize him, I pulled him back to the features of the real Jack."

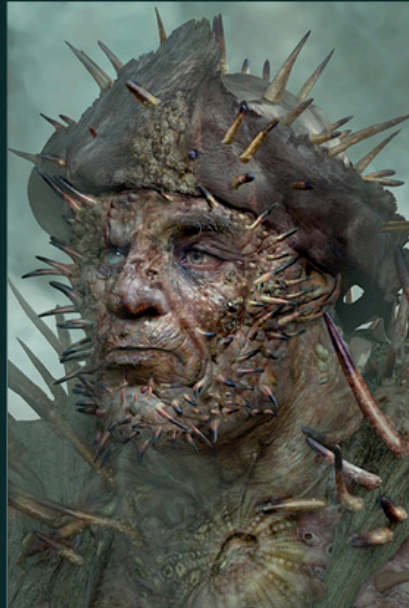
The face of Jack-Wyvern that Campbell ultimately created looked like Johnny Depp with barnacles, polyps and corals growing out of his forehead. When Jack pulls away from the ship, he leaves the top of his head behind. His brain goes with him, however, and he pulls it out of his head.

To create Jack-Wyvern's facial library, Campbell worked from footage taken of Depp on set. "The best part of modeling is when you're doing facial expressions," Campbell says. "We don't use any facial motion capture. To build his facial library, we looked at what he was doing with his face frame by frame, at the various muscles he uses."





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Campbell moved the team beyond libraries of phonemes and basic facial expressions to create Davy Jones in 'Dead Man's Chest'. "I've been working with characters over the years, but everything gelled with Bill Nighy's performance," he says.

In the past, for Yoda, for example, he and his team would create facial expressions – a smile, a sad expression, a pout, for example, and phonemes. They began doing the same for Davy Jones. "I was supervising Jung Seung Hong who was building a library of phonemes," says Campbell. "And the expressions, an angry face, a sad face. We were watching plate after plate of his performance and it really clicked in my head. No one talks that way. [Nighy] could talk out of any part of his mouth."

Moreover, as Campbell watched the plates, he saw Nighy deliver one line in various ways. He might show contempt, disdain, anger, or even playfulness. "He might say one thing and communicate something different," says Campbell. "There was a real subtext going on. I think of it in a primal kind of way – displaying his lower teeth in a way that called a bluff. When you have someone as expressive as Bill Nighy, you have to look at the emotional state of the character, at what the face is expressing, in a Darwinian way. I threw the old notions of a shape library out the window and looked at how the muscles pulled."

The modelers working on the Pirates characters didn't sculpt muscles, though; they worked only with surface topology. "A muscle-based system is a valid approach," says Campbell. "But there's a speed issue. With a shape override system, you can get in there, use your own eye, look at the plate, look at the rhythm and the volume, sculpt on the fly, save it out and animate that curve. That's the quickest way for us."

Even so, the shape library gives animators possibilities based on how an actor's facial muscles move. "We look at the 12 muscles of the face that are used over and over like the corrugator and the procerus," says Campbell, referring to muscles that produce frowns and intense looks. "As sculptors, we have to read a face and know creating that expression takes a combination of five muscles. We have to know how to break that down for the animators. They can then choose the combination of shapes they want to use."

Take Jack-Wyvern, for example. "He might pull the left side of his lower lip down and create straining on his neck," says Campbell. "That's the platysma, the neck pulling muscle. We might combine that with the mentalis, the chin muscle. It's inventive work." The animators use these muscle shapes first, as a base layer, to work on the emotional state of the characters. Then, they add the lip sync, lip smacks, and so forth, as a second layer.

Packaging the hundreds of shapes into a workable system for the animators is up to the modelers. "Sometimes, it can be too much," says Campbell, "so we have to slim it down and classify, or the animators are overwhelmed. The holy grail is the cross-over with animation. We want to automate the process more for the animators so they can work with fewer shapes without losing complexity."

The blend of modeling and animation continues through production. Once the animators finish, the modelers often take one more pass at the character. "Sometimes we have to get in there with another level of high detail and tidy things up," Campbell says. "We look for subtle things that might have gotten munched with the shapes, and do shape work to keep the character on model. We do a lot of sculpting, all the way to the end."





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BEYOND PRODUCTION

In addition to modeling and supervising character modelers for productions, Campbell also hires modelers and when he does, he looks first at their work to see what kind of "eye" they have, whether their work is sculpting, painting, or drawing. "We need to know someone has the ability to see complexity and we want to know how they work with it," he says. "I often ask, 'Where would you take this work from here?' Some people are quite happy with their work. I'll then point out some things sculpturally they could do to take it further. Usually, the ones who can grow into the role are the ones who know they have to go further and are working to get there."

His personal influences range from French Fauvist painters André Derain and Albert Marquet to Rodin. "I continually use Rodin's work as a way to go back and look at things," he says. "I love figurative sculpture like the work of Jean-Baptiste Carpeaux, Rodin, or Donatello, but I'm equally excited by constructivist artists like Lizzitsky and Malevich. And, years ago I saw some of the most serene and beautiful head busts I've ever seen at a show in London of Nigerian, Ife and Benin sculpture."

As for Campbell's personal work, he's excited about the relatively inexpensive 3D printers and about creating sculptures using ZBrush at home. "I bought all new equipment just two months ago," he says. "I want to play for a while. My wife has volunteered to be my model." But, then he thinks about his dog – a 122-pound St. Bernard Pit Bull mix. "Sometimes, I'd rather go hiking. It's hard to work on the same software you use all day." And then in the next sentence, he's back to sculpting. "He's marbelesque," he says of his dog. "He has short white fur. I tried to bring him in for the sculpting classes at night, but security wouldn't let us."

Like other successful artists in visual effects, Campbell has that unbeatable mixture of talent, passion and initiative. Even though he's received three Visual Effects Society nominations (for models in 'Attack of the Clones' and 'Black Pearl', and for character animation in 'Black Pearl'), he seems happy to hide behind his work. "I think modelers don't get a lot of recognition because we're at the beginning of the process," he says. "We always joke that animators take the glory. But, when you think of characters like Davy Jones and Jack-Wyvern - we really have to know the actors, to know how they use their muscles so we can replicate them through sculpting and create all the possibilities for the animators. It's so different from building an asset and saying, 'Make this move.'"

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