

TALES FROM THE SHALE FIELDS ■ A HISTORIC HEAVYWEIGHT

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Derrick Campana with Petey, one of countless animals he's helped get back on their feet

PROSTHETICALLY PLEASING

MAN'S BEST FRIEND'S **BEST FRIEND**

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A GOOD SUBSTITUTE

Campana has made a series of prosthetic legs for Petey, a king shepherd who was born with one foot missing. Petey's owners are Melissa and Randy Derbin '97 Sci/Agr of Ashburn, Va.

DERRICK CAMPANA

has helped countless dogs—not to mention elephants, goats, donkeys, eagles, turtles, and even the occasional cat—get back on their feet.

How one alum's unexpected career turn has allowed him to travel the world, get just a little bit famous, and create a whole new industry.

IT WAS 2004, AND KIM DANOFF WAS RUNNING OUT OF IDEAS.

She had adopted a special-needs dog named Charles, a chow/vizsla mix with a malformed leg, and was anxious to find a way to improve his quality of life. Charles's right foreleg had a birth defect called ectrodactyly, or lobster-claw deformity: He could hop around on three legs, and would occasionally put weight on the bad leg, but he was clearly hobbled.

Danoff, who lives in Reston, Va., had driven Charles to New York state to see an orthotist who works with human patients; he built a makeshift brace that ended up not helping. An equine prosthetist closer to home created a device, but it didn't fit well and was causing pressure points—and then that practitioner moved out of state. Danoff started calling clinics that specialized

in prosthetic arms and legs for people, thinking perhaps they could make something for a dog. Only one clinic—Hanger Prosthetics in Bethesda, Md.—offered even a remotely encouraging answer: "We have one guy who did a prosthetic for a dog one time. So if you want to set up an appointment..."

Danoff remembers sitting in D.C. rush-hour traffic on the morning of the appointment, then having trouble finding a place to park, then having a long walk with her disabled dog from the parking place to the clinic—only to be told that the



GOATS ALSO WELCOME

The owners of Myrtle, a goat with a deformed leg, brought her from Iowa so Campana and coworker Cameron Willman could make a prosthetic. For a gallery of animals Campana has helped, check his Instagram feed (@bionicipets).





prosthesis she was there to see hadn't shown up for work that day. "But we do have this other guy," they told her. "He's never worked with an animal before, but he's happy to see you." Reluctantly, Danoff agreed.

The technician who offered to see Charles was **Derrick Campana '01 H&HD**, and Danoff liked him immediately. "Once we were in the appointment, I just knew it was going to go well," she says. "He had the skill set, he was very high-touch, and he was very good with Charles." Campana crafted a prosthetic out of thermoplastic and medical-grade foam. With it, Charles could finally walk comfortably—Danoff could even take him on hikes and camping trips.

That chance meeting 15 years ago between a dog owner and a young prosthetist did more than improve the dog's quality of life. It also ended up transforming Derrick Campana's career. Today, Campana works full-time on braces and prosthetics for animals. He's traveled all over the world to help more than 20,000 animals recover from injuries, congenital defects, or abuse. He's been featured on the *Today* show, on the PBS *Newshour*, and in *Reader's Digest*. His work to fit Jabu, an injured six-ton elephant in Botswana, with a giant leg brace was the subject of an hour-long documentary on the Animal Planet network last June.

Danoff, whose dog was Campana's first non-human patient, now looks back at the experience with a sense of wonder: "What are the chances that this other guy wouldn't show up for work, and Derrick goes on to become internationally famous?"

Derrick Campana works in a field that he essentially created. "It wasn't one of those things that as a kid you could dream of doing," he says, "because there was no such thing." He's standing at a counter in his workshop—a cavernous room that looks like an auto-repair garage—in the Washington, D.C., suburb of Sterling, Va. The



IT'S A DIRTY JOB ...

Campana's workshop has a closetful of plaster molds he's used for making orthotics and prosthetics for assorted animals. Above, left: A rescued sun conure is missing part of a leg and needs a prosthetic—a challenge because of its small size.

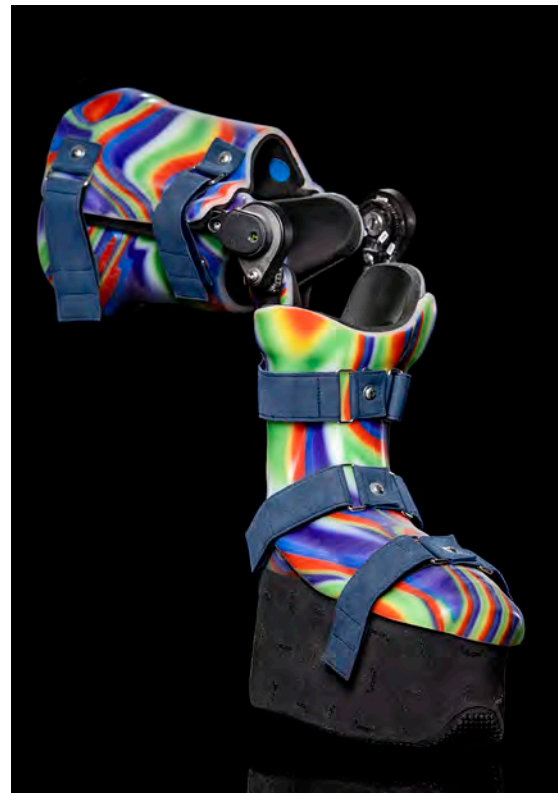
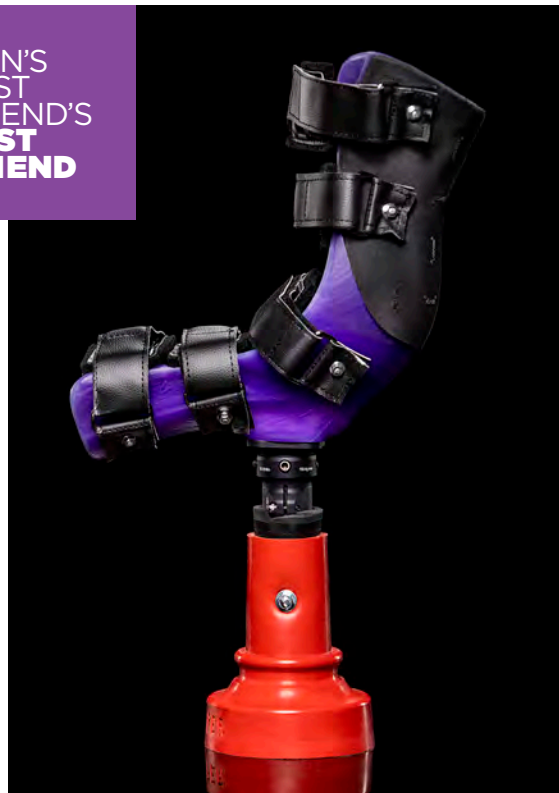
workshop is white, thanks in part to the plaster dust coating every surface. It's hard to hear over the sound of the electric tools that Campana's staff are using to create various orthotic devices for animals. Campana, wearing a white apron, is using a rasp-style file—not unlike the sort you might use to grate parmesan cheese—to sand a mold of a dog's leg. His company, Animal OrthoCare, sends casting kits and instructions to pet owners and veterinarians, who then make a fiberglass cast of the animal's affected limb and ship it back

to his shop. Campana tweaks the casts, fills them with plaster to form a "positive mold" of the limb, and from there custom-fabricates either a brace or prosthetic.

Today he has a bin full of more than two dozen molds to catch up on, because he's been away for a week in southern England, where he custom-built a pair of leg braces for a calf named Nipper Jackson. The calf was born with deformed front legs and, because it was useless as a farm animal, it would have been euthanized; instead, the Hugletts Wood

Farm Animal Sanctuary southeast of London took it in, and flew Campana over to design and fabricate braces for it.

Campana has gotten media attention not only for helping Nipper Jackson and Jabu the African elephant, but also for building prosthetics for Mosha and Motala, two Thai elephants that stepped on land mines; Angel Marie, a miniature horse in Maine whose front legs had been crushed by her mother at birth; and a golden retriever in Arizona named Chi Chi, who had been left for dead in a dumpster in South



Korea. (Chi Chi, who died in January, had four prosthetic legs and 55,000 Instagram followers; she was named “Most Heroic Dog” in the 2018 American Humane Hero Dog Awards.) Campana has also designed prosthetics and braces for sheep, goats, a bald eagle or two, even a few turtles and lizards. He has tried to help cats, but not many. “They’re the worst,” he says with a laugh. “Casting them is so hard. If I’m ever going to get bitten or scratched, it’s always a cat.” But 90 percent of his practice is dogs: ACL injuries, dislocated kneecaps, Achilles tendons, arthritis, amputated limbs.

Campana’s unlikely career started with an interest in sports medicine. He grew up in the small town of Clinton, N.Y., near Utica, and initially attended Norwich University, a private military college, on a soccer scholarship. His twin brother, Darrell, went to Penn State. “I was super jealous,” Derrick recalls, “because he was having fun and I was at a military college.” Eventually Derrick transferred to Penn State, where he majored in kinesiology, intending to work in athletic training or a similar field. (Darrell ‘02 A&A is now a landscape architect in Philadelphia.)

As an undergraduate, Campana worked in the Center for Locomotion Studies under Peter Cavanagh, distinguished professor of biomechanics. For a NASA-funded project simulating locomotion in zero gravity, Campana designed a plastic shell for volunteers to wear while suspended in a harness; that experience in molding plastics to the human body was his first exposure to orthotics. After graduation,

he moved to the D.C. area and, to gain experience in prosthetics and orthotics, volunteered as a back-room technician at the Hanger Clinic. Then he went off to the Feinberg School of Medicine at Northwestern to get a master’s in orthotics, and returned to D.C. for a residency—which is when he had the serendipitous encounter with Kim Danoff and Charles.

Danoff, who herself is a veterinarian, was impressed enough with what Campana did for her own dog that she started referring some of her patients to him. Then he started marketing his services to other veterinarians—“I sat in my apartment in Arlington hand-addressing 500 envelopes for all the vets in the area to send out these little brochures”—and business picked up some more. When the first check he got paid for his entire rent for a month, he realized he might be able to make a living at it. He kept working as a prosthetist for human patients until, in 2012, Animal OrthoCare had grown enough that he could quit his day job and focus entirely on animals.

The building in Sterling is home to both Animal OrthoCare and a sister company Campana founded, called Bionic Pets. Next to the building’s workshop is a front room where Campana can meet with dogs and their owners. On this day, Amber Hoff of Leesburg, Va., has brought her 10-year-old boxer, Frank, in for Campana to see. Frank

has arthritis in his right hind leg, and after pain medicines didn’t seem to help, Hoff’s veterinarian recommended they take him to Campana. (Campana says some veterinarians were skeptical of his work at first, but he gets plenty of referrals from them now—and pet owners appreciate that his custom-made braces, which range in cost from \$250 to just under \$1,000, can in many cases eliminate the need for far more expensive surgery.)

Frank sports a brace that Campana built a month earlier from red, white, and blue heat-molded plastic. The straps seem to be pinching his skin, and that’s why Hoff brought him in for a look, but the brace has otherwise been a good thing. “It seems to help him stand up a little bit straighter,” she says, “and when we first put it on him, he was like a puppy again.”

Campana and an assistant, Cameron Willman, sit on the floor with Frank to check the fit of the brace. “Don’t fart,” Campana tells the dog. Hoff responds with a laugh: “Can’t make any promises there. Boxers are gaseous creatures.” Campana decides the placement of the strap needs to be changed and the padding adjusted—something Willman can do in the workshop in a matter of minutes. He suggests Hoff also put a special stocking on Frank’s leg before putting the brace on. “We should also talk about putting a PEMF device over the knee,” he tells her, referring to pulsed electromagnetic field technology, something that’s been used to provide pain relief and promote healing in humans. Campana

has developed a garment that contains a PEMF unit for dogs to wear.

That’s the thing about Campana: He’s built his business, and his reputation, in part by applying his background in human prosthetics to animals, and in part by being entrepreneurial. He’s always thinking about the next thing he could try. He aims to launch 10 new products a year. He’ll buy a smaller company just to gain their patents. In an oversized closet in his workshop, he’s amassed hundreds of dog leg molds, which he plans to use for developing off-the-shelf customizable braces—the idea is that, eventually, a pet owner or veterinarian could tell him, “I have a 50-pound male English bulldog with an ACL injury on its right hind leg,” and Campana could pull out the proper mold for making a brace for that size and breed.

He wants to develop a mobile lab, so he can take his brace-and prosthetic-making operation on the road. And he’s building a facility at Goats of Anarchy, a sanctuary for special-needs goats in New Jersey, so that he can build orthotics and prosthetics on site.

And always, there are patients waiting. He’s scheduled to travel to Washington state to help a kangaroo with an Achilles problem, by fitting it with a spring-assist joint. There’s a donkey in Saudi Arabia that needs an artificial leg.

Asked if there’s an animal species he hasn’t yet worked with, but would like to, he laughs. “I want to make a neck brace for a giraffe,” he says. “I think it’d be so cool.”