METAL OF HONOR

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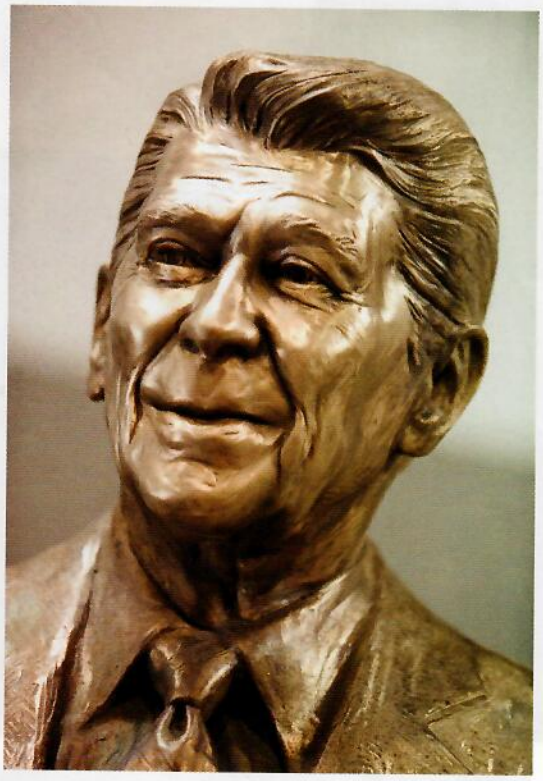
Step by step, a casting crew captures a famous figure in bronze at North Carolina's only fine-arts foundry.

Photography by Steve Exum



It's art, this larger-than-life sculpture of Ronald Reagan standing in the nation's Capitol. But it seems more than that — almost like alchemy, a transformation of flesh and blood into bronze through an ancient, arcane process that, despite technological advances, still requires plenty of patience and a human touch. "In bronze casting, you're always working with or against something that's either hot or cold, hard or soft," says Ed Walker, owner of the Seagrove foundry where the sculpture was forged. "It's always a challenge."

This one began in 2000, when Congress allowed states to replace their statues — each has two — in the Capitol's National Statuary Hall, essentially the nation's hall of fame. In 2006, California decided to yank one of Thomas Starr King, a minister whose speeches helped keep the state in the union during the Civil War, in favor of the 40th

Sculptor Chas Fagan touches up Reagan's bust in the early stages of a process that will lead to a bronze finish.

president. Charlotte artist Chas Fagan, a 43-year-old Yale University graduate and self-taught painter and sculptor, won the commission over nine competitors after submitting a painting, then a 2-foot clay model to the private Ronald Reagan Presidential Foundation. It paid for the statue, but Fagan won't say how much.

He contacted Walker, whose Carolina Bronze Sculpture Inc. has been producing castings for artists since 1990. Its works range from tabletop pieces to monument-scale projects. The business is small — nine employees — but it's in a nearly exclusive line of work. "We're the only full-time, fine-arts foundry I know of in North Carolina," says Walker, 54, a Burlington native who followed a bachelor's in art from East Carolina University in 1976 with a master's two years later from the University of North Dakota. He taught college students casting before starting his business.

Together, artist and foundry owner transformed Fagan's small clay model of Reagan in a business suit into a 7-foot bronze statue. The process, which Carolina Bronze repeats hundreds of times a year for artists, was first used about 2,000 years ago

in Egypt, but three-dimensional laser scanners and computerized routers have accelerated it. Just the first step — resculpting the miniature to its full size — once took artists three to four months but now is only a matter of weeks. "Our scanning and enlarging can make the full-size model quickly and with extreme accuracy," Walker says. What emerges is a plastic-foam core, to which the artist applies a thin layer of clay and sculpts details of his work. "Instead of the sculptor being bogged down building up a huge mass of clay, he can spend his time on the details, getting the finished appearance just right."

Then casting begins. It starts with molding the full-size model in rubber. The model is cut into sections — 15 in Reagan's case — to make the molds more accurate. When finished, hot wax is poured into them. After the wax cools, sections of the statue are taken out, and the artist touches them up again.

Clockwise from lower left, Reagan is sculpted in clay and digitally scanned before his bust is sprayed with rubber casting material. Right, Carolina Bronze owner Ed Walker removes a mold.

PICTURE THIS

Next, the wax sections are repeatedly dipped in a liquid ceramic solution and covered with fine sand until a shell forms around it. The shell is fired at 1,650 degrees, the wax melts out, and a cavity is left in the hard ceramic mold for the molten bronze. The Egyptians called it lost-wax casting — a name that still fits despite modern materials. While the ceramic mold is still hot, 2,100-degree molten silicon bronze — bought by the ingot from smelters for about $3 a pound — is poured into it. When it cools, the ceramic cast is hammered off, and the bronze statue emerges. But the process goes on. Pieces are welded together, seams and minor blemishes sanded and buffed out, and the statue's final hue — its patina — is applied.

Sandy-haired, Reagan gets a sprinkle between dips of ceramic material that hardens into a mold. Right, molten metal creates arms and legs awaiting removal of sprues, the channels where bronze entered the molds.


D.I.L.L.I.G.A.F.

Whacking a mold, a technician unveils a freshly cast section of sculpture. Using TIG — tungsten inert gas — welding, Reagan is reassembled before a patina is applied. His final haircut should last for centuries.

Elapsed time from small model to finished statue? Typically, Walker says, up to six months. Casting a life-size figure might cost $20,000 to $50,000. Still, Fagan says the authenticity is worth it. A Virginia artist who recently sculpted a statue of Winston Churchill uses a technique that occasionally leaves his fingerprints in the clay. When cast, they have to be sanded and buffed out.

Though it's an ancient material, bronze has unmatched character. Fagan says it lends a lifelike quality to his creation. Before the June unveiling, the statue had been crated for storage, and Fagan needed to ensure the finish hadn't changed. "I had the chance to go visit him. It was like seeing an old friend."

Walker has cast other presidents for other artists — Lincoln, Truman and Franklin Roosevelt among them — turning the images of mortals into metal. "In our throwaway society, we're bucking the trend," he says. "We're making pieces that will last for centuries. That's pretty satisfying." ■

— Edward Martin