



## Sculptor Tom Joyce fuses the art and science of metal making

**“W**hen you heat iron to a certain point, it moves like water,” says Tom Joyce, whose 45-year career could be seen to span several lifetimes—each a current of multidisciplinary investigation into the core substance that lures him. When he speaks of iron, a kind of amazement overcomes the soft-spoken and bright-eyed artist, who will set you at ease as quickly as he’ll surprise you with the quiet brilliance that earned him a MacArthur Fellowship.

Joyce works with iron, and that is to say he grapples daily with an element that defines us. Iron oxygenates our bloodstream, he marvels, and has a 4.5-billion-year-old connection with the planet’s earliest days, having formed much of Earth’s core and provided the gravitational pull that would one day keep humans tethered to the planet. It was iron that the ancient, single-cell cyanobacteria consumed in the primordial sea, releasing the oxygen that allowed incipient life to crawl onto the earth and eventually animate the frontal cortex of our species.

Which, for all its biological success, is a species unique in its self-awareness, preoccupied by wonderings about how and why we’re here. These are questions that Joyce poses with his sculptures that, through his use of iron, reference ancient origins and the potential for new life. He uses every tool available—from the basic sketchbook or anvil and hammer of his blacksmith’s training to computer-assisted design, CT scanning, 3-D printing, and forging on an industrial scale in factory settings—to illuminate the metal’s rare character.

As influential in blacksmithing communities and academia as in the art world, the artist, who turns 60 this year, moves fluidly through his Santa Fe studio. It’s brimming with hundreds of hand-forged tools, all made to their maker’s touch and hung like comrades’ swords on the wall while charred encyclopedias suspended in space and a pile of boulders next to a forge add to the tableau. The smooth, self-contained stones look as if they could fit in the hand and are part of *Cairn*, a peace memorial Joyce is crafting from industrial scrap metal mixed with soil that he’s collecting from battlefields around the world.

It’s in this studio that Joyce spent some 30 years training smiths and artists in an apprenticeship program he started in 1979. Now he juggles life between Santa Fe and Brussels, where he met his wife, Anne-Marie Bouttiaux, an art historian, anthropologist, and former chief of the ethnographic division at Belgium’s Royal Museum for Central Africa.

Wherever he may be, Joyce is a whirl of activity, driven from near dawn to midnight each day like a madman in love. “In a lot of ways it’s like waking up in a dream state,” Joyce says. “There’s this place I go inside the work where time collapses and it feels as though in this moment there are thousands of years of process and people sweating over this heated material to coax it into the forms we desire.” Most of Joyce’s source iron and stainless steel is scrap left over from large-scale manufacturing, and he often incorporates fragments of his former works into new alloys. “Everything from the past is pulled into the future,” he says. “There’s this unbroken thread. It’s the same overarching sense that I have about picking up a hammer.” >

BY CHRISTINA PROCTER | PHOTOS BY PETER OGILVIE

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**Iron**

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Imagine the hammer capable of installing 20,000 pounds of stainless steel sculptures above the subway at New York City’s Columbus Circle, where Joyce’s folded *Two to One* sculptures reside outside the Museum of Arts and Design. Or the responsibility Joyce shouldered when the National September 11 Memorial & Museum sent him sifting through a hangar of contorted debris from the former World Trade Center in order to forge from the collapsed structure’s iron beams a 60-foot-long excerpt from Virgil’s *Aeneid* in the museum’s main gallery: “No day shall erase you from the memory of time.”

Were it not for the maker’s pacifism, his sculptures’ tactile allure might feel like a trap—whether it’s the curved, too-soft-to-be-metal surfaces with a patina that emerges over time, or an achingly hard piece like *Aurzele* that pushes the material to its brink at inferno temperatures—it’s as if something is holding its breath on the other side. Joyce’s sculptures activate the sense one might get just before walking into a room as to whether it’s empty or not. Beyond the jolting proportions, cohesive distortions, and textural extremes, there’s the impression of something hidden.

Joyce was born in Oklahoma to a quilt maker and an archaeologist, both of whom taught him that every part contains a clue to the whole, whether that’s a color, shape, or artifact of civilization. There, an empathetic third grade teacher had changed the course of his life when she allowed him into the pottery studio one day after school, gave him a lump of clay, and let his hands do the talking.

Yet Joyce found his medium when family affairs took his mother and siblings to El Rito, New Mexico. At a time when blacksmithing was nearing extinction, having declined steadily since World War II, rural Northern New Mexico was probably one of the few places in America where a teenager could stumble onto a letterpress print-making studio and blacksmith shop. At 13, Joyce wandered into the premises of Peter Wells, who was restoring historic printing equipment for the Museum of New Mexico. Wells decided to give the earnest kid a shot, and Joyce ended up with a summer job.

“When Peter handed me that first piece of iron, it felt strangely familiar in my hands, as if I already knew what to do with it,” Joyce says. “There was no fear—only a sense of calm, like I was standing in precisely the right place. The older I get the more I realize that it’s such a mystery,” he adds. “I can’t begin to understand why we’re called to certain things, but boy, when it happens, don’t look back.”

When Joyce was 16, he had moved out on his own and was spend-

ing long hours toiling alone, learning all he could about hot work with iron. He cites various elders who offered him mentorship, shelter, surrogate familial love, “and generous knowledge in lieu of a conventional upbringing and education path.” Joyce was raised by the community he found in Northern New Mexico, one that in the 1960s and ’70s, he says, “had become a hotbed for the so-called crafts revival, both through indigenous roots and from those migrating from elsewhere.”

Back at the shop, Wells must have recognized the signs of a master smith, because one day he handed Joyce the shop keys and left with the letterpress. Joyce kept up with a stream of commissions for farmers, ranchers, and anyone else in need of useful items forged in iron. He dropped out of high school, set to work full time, and struck a deal with the Museum of New Mexico to let him spend hours in their basement with Spanish Colonial objects that he refers to reverently as “teachers.” He learned techniques by tracking the marks made by smiths, and built a canon of potential design solutions.

In his early 20s, Joyce moved to Santa Fe and opened his own shop. Graduating to more demanding custom architectural metal work, he continued to seek out teachers. While visiting communist Czechoslovakia in the 1980s, he was invited to aid sculptor Alfred Habermann with a Renaissance building restoration, an experience that made an indelible impression. “I went to his studio and realized that his scrap pile consisted of almost nothing. You could hold it in your hands. Everything was reused, every little fragment turned into a rivet or nail.”

Joyce worked out of the mud-plastered adobe studio that his family and friends helped him build from the ground up in Arroyo Hondo, then later in an adjacent house. By the ’90s, his commissions had shifted to art and public pieces, including folded bowls based on the Fibonacci sequence, a church’s baptismal font forged from iron objects contributed by congregation members, and the *Rio Grande Gates* for the Albuquerque Museum of Art forged from refuse retrieved along the river.

Reusing, tracing, and planting source material were early considerations for Joyce. “A lot of times a Fibonacci bowl would have something hidden within, like iron folded around a fragment from an experiment that didn’t quite work out, but which I knew had potential. Kind of like a little reliquary, a place where the idea can be

Fascinated by the terrestrial and celestial forces that create “violent upheavals, compression and expansion, extreme temperatures, and incessant erosion” in nature, Joyce forges under similar dramatic conditions to create sculptures like *Fissure* (2015), forged stainless steel and concrete, as well as *Berg XV* (2013/2014), forged high carbon steel (previous pages).





molded. You still send it out into the world, but it's a hidden idea."

It's been decades since he created these works, but Joyce is still finding new tools to help him hide his ideas or expose them. He used casting to create *Core Negative* sculptures from a mold first designed by sand-cast 3-D printing. "It's a subtractive process where I make a simple geometric shape, in this case a cube of sand, and I'm excavating it in all these different directions to create a hollow space." This was then filled with molten iron. "I wanted to make the most complicated interior shape, one absolutely impossible for me to build from a fabrication standpoint using just blacksmithing technology."

This mold was CT-scanned to create images projected as part of *Aftershock*, Joyce's show last summer at James Kelly Contemporary Gallery in Santa Fe. He describes imaging the interior of the sculpture, and being able to explore the materiality of iron itself, with fresh marvel. "I used a lens that could get inside the human body, and what I saw was this circulatory system that played with the light coming in from these different channels. It started to feel like this

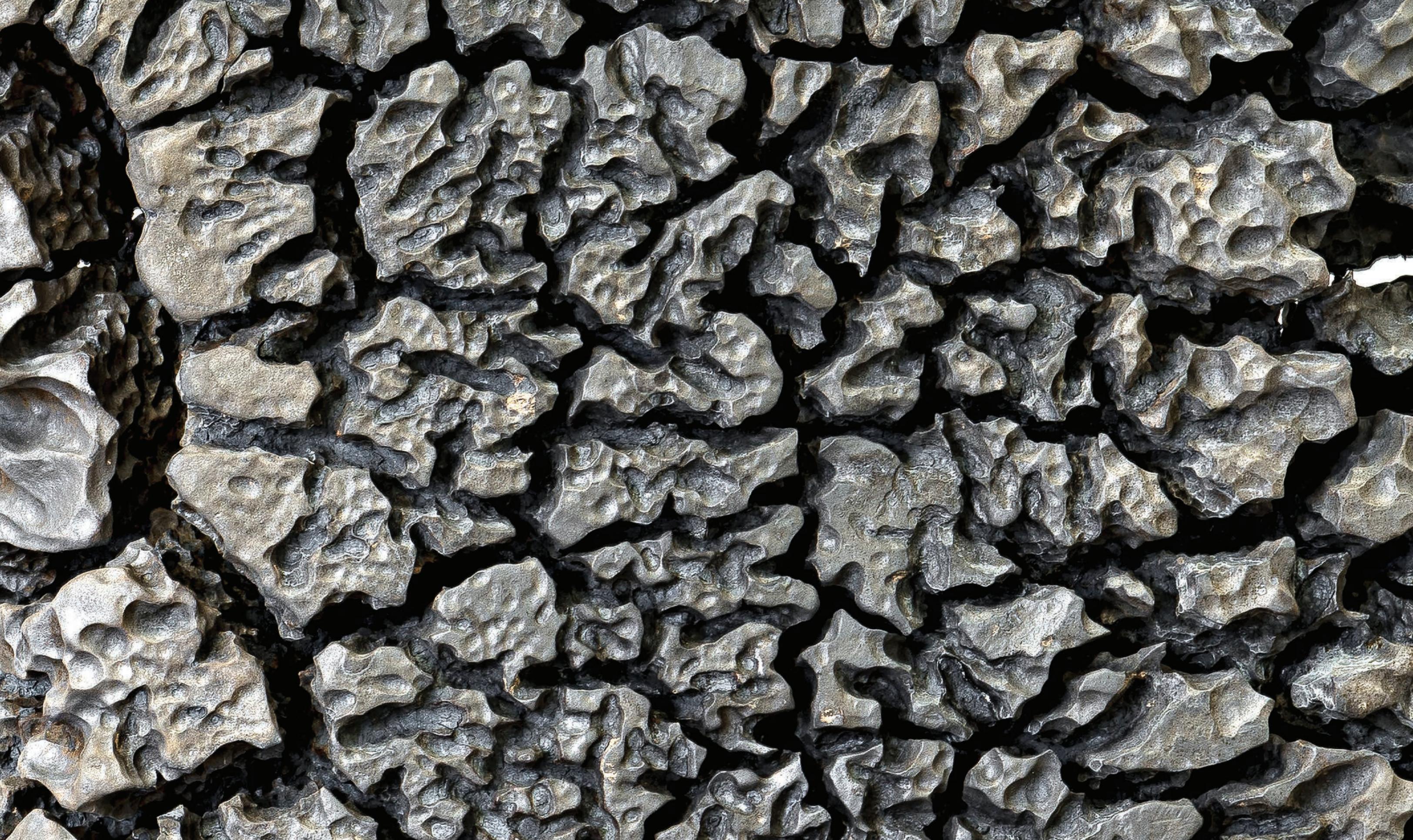
micro scale inside the body, but also a macro scale, like what we might experience with grand architecture or interstellar activity."

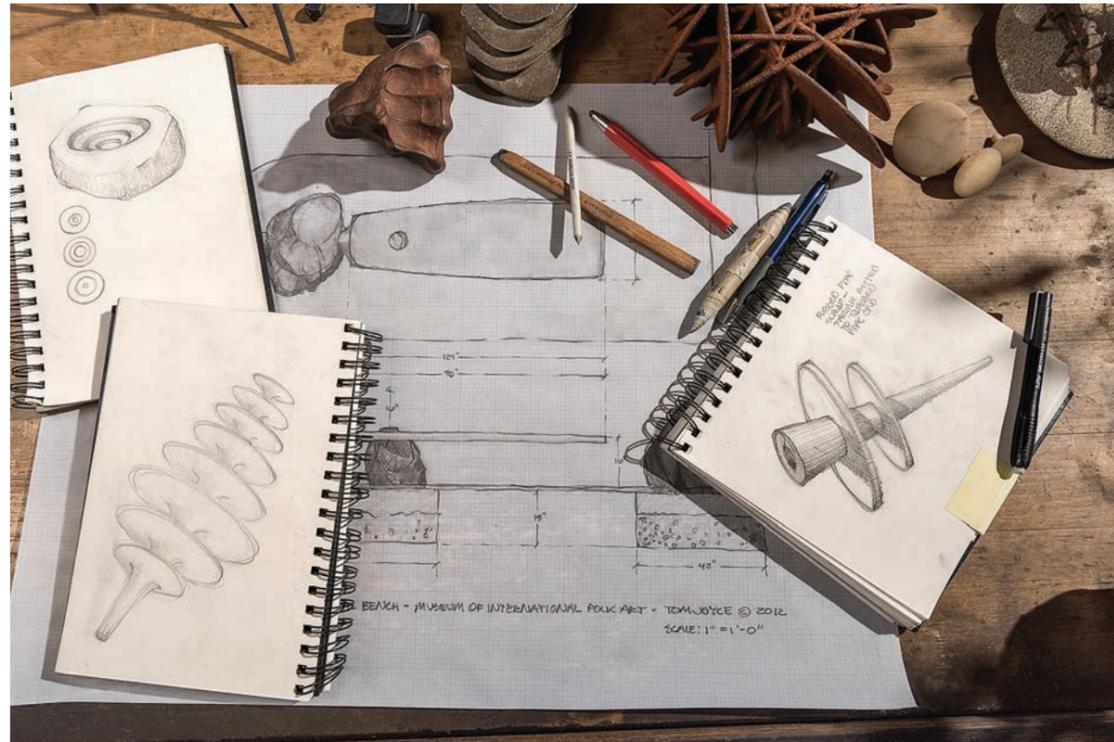
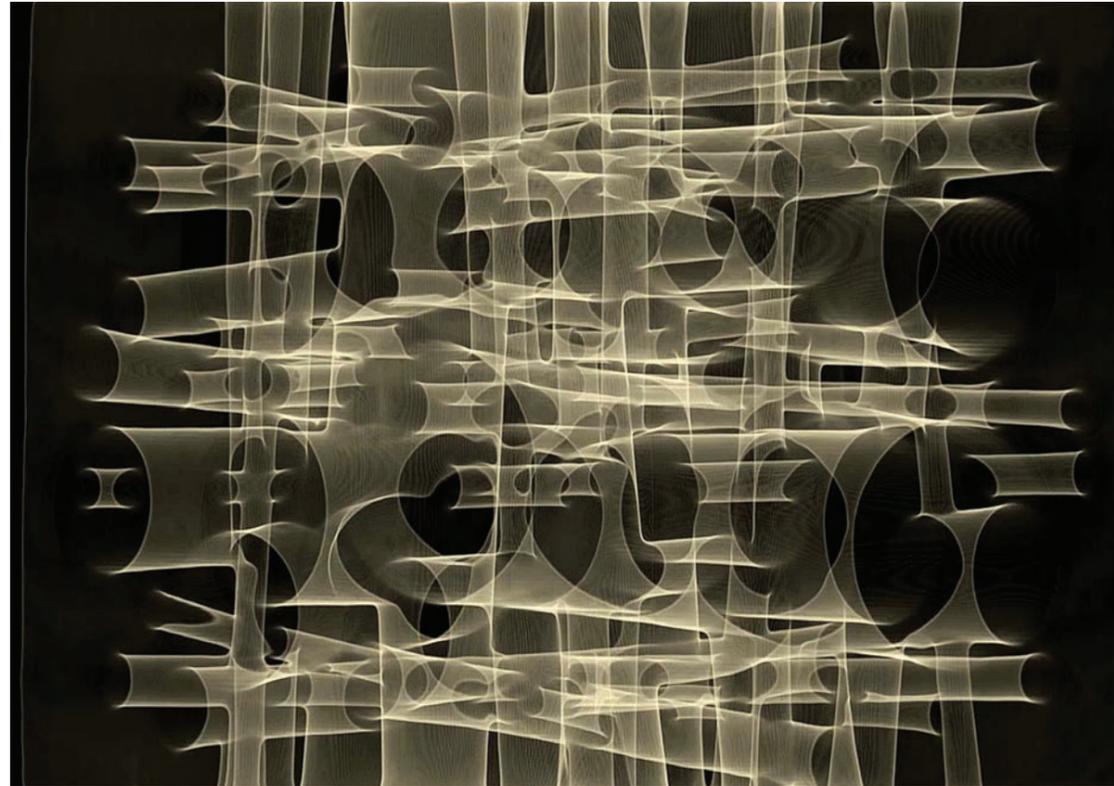
For the past decade, Joyce has taken his work to an industrial scale through a rare relationship with a large factory outside of Chicago, which is bound by a strict confidentiality agreement that forbids Joyce to identify most of what he sees made there. Instead of anvil and hammer, a several-thousand-ton hydraulic press and truck-operated monster tongs manipulate metal at some 2,600 degrees Fahrenheit into the massive sculptures Joyce creates out of "scrap" left over from the 250 million pounds of metal processed by the factory each month.

"It stems from taking a precious material that's been developed for a specific purpose—and often that purpose is something that gives me pause, whether it's a dam or a mine or a spaceship," Joyce says, though he is obviously pleased about working with such technologically advanced alloys. "Whether it's for defense or space—you're on the edge—the furthest reach that humans have been able to achieve using three thousand years of knowledge to get

Iron boulders stacked at the foot of Joyce's forge are poised for loading soil from battlefields around the world. A vertical band saw, stock rack, and jigs and fixtures are on the shelves to the left, and on the right is a forging area with anvil, leg vice, workbench, working drawings, and the many hand tools mostly forged to form by Joyce. Opposite: *Stack* (2015), stainless steel, is a 36,000-pound sculpture forged from eight industrial remnants squeezed individually under a 3,000-ton press.







Joyce sketches early in the morning before beginning his workday in the studio and typically models in clay from his drawings; Top: *Detail of Corona* (2015), illuminated digital chromogenic FujiTrans that reveals the interior structure of a cast iron sculpture. Opposite: Joyce rigs an *Aureole* sculpture at the studio for finishing work, which he completes with the help of fellow blacksmith and studio manager Caleb Kullman. Previous pages: A detail of *Aureole* (2015), forged stainless steel, reveals the extreme edge of the material's potential—steel cools to a molecular grain structure as unique as the patterns found in wood or fingerprints.

TOP: COURTESY OF TOM JOYCE STUDIO; PREVIOUS PAGES: PHOTO BY DANIEL BARSOZZI, COURTESY OF TOM JOYCE STUDIO





to the next step.”

His *Berg* sculptures were cut from such “parent” material, which is more typically along the lines of an armament than, say, a massive solar array. “*Berg* refers to the tip of this larger thing, but I have the offspring, the remnant material, that holds all of the specific DNA, really, of that parent doing its job,” Joyce says.

To create the distorted cube sculptures that appear to be in motion, folding inward, he directed the press operator to make four angled cuts in the cardinal directions, based on a clay model he’d executed previously in his studio on a small scale. “I breach the grain,” Joyce explains, “and that breaches the structural integrity of the material. It was made to be the strongest material in the world, and with one cut I’ve rendered it useless for the purpose for which it was intended.”

Almost like the severing of an umbilical cord or a circumcision, there’s an element of ritual that one might perceive in the tensions of Joyce sculptures, which resonates with his many years of research into the smithing practices of various groups in Africa, including the Bobo and Mossi of Burkina Faso, the Dogon and Bamana of Mali, and the Ewe and Kabre of Togo. “There’s an idea that the smith tries to produce with a certain frame of mind, so that an object will have the best chance of being used in the proper way out in the world,” explains Joyce. “When they’re making something intended to harvest grain it could also be used to slit someone’s throat. That kind of responsibility is considered when a smith sits or stands at the anvil.”

Procreative terminology is used to describe the smelting process, and some groups use furnaces sculpted like female torsos. In hundreds of African languages, he notes, words for smelting and midwifery are often interchangeable. The bloom—which is the industry term for the point when rock-like iron ore becomes a spongy, work-



able iron-rich mass—is referred to as a fetus, and is delivered from the furnace chamber by master smelters.

Joyce has partnered with ethnomusicologist Stephen Feld to record footage of smiths in Ghana and Togo, work that will become just one part of a traveling exhibition of African art by blacksmiths that he’s co-curating for the Fowler Museum at UCLA. This survey will open in spring of 2018 and will make several stops before ending up at the Musée du quai Branly in Paris.

Fowler Director Marla Berns has been working with Joyce for years in preparation for the exhibit. “He can show you a piece of iron and tell you what makes it virtuosic. He can even identify the blows still evident in the material and explain what in the form reveals its mastery of the forging process,” she says, citing Joyce’s infectious reverence. “What makes him so significant to the field, and so important to this exhibition project,” she adds, “is

what we can learn from him that others can’t see.”

The *Berg* sculptures that sit outside his home weigh many thousands of pounds. Their weighty curves suggest closed lips, secrets kept. “You’re not sure if it’s clay or iron,” says Joyce. “It has all the soft qualities of what happens inside the center of the Earth when magma moves. There’s a violence, too, but there’s a calm, finished object.”

As for what’s to come, whether it’s new collaborations with industries or different tools in his hands, Joyce will continue to track, pantherlike, the character of iron, which also means he’s tracking ourselves. “I think our genetic code is much more than what’s in our bodies,” he says. “I think our environment forms us, and if there’s all this space around these subatomic particles, why wouldn’t we be completely absorbent in our osmosis of everything around us?”

Perhaps his sculptures hit us so viscerally because they are, like us, suspended in potential, but earthbound. \*

Above and opposite: Joyce’s earliest *Aureole* experiment in 2009 produced softer tones, and most of his sculptures are treated with a patina that allows the pieces to rust through different colors over time.