DECODING Art in Science

ANNE KRINSKY

OVER THE CENTURIES, ART AND SCIENCE HAVE CONVERGED IN SURPRISING WAYS. Examples include Leonardo da Vinci's inventions and Ernest Haeckel's detailed drawings of plants and animals. Sculptor Tony Smith and painter Terry Winters drew inspiration from D'Arcy Thompson's examination of the mathematics underlying organic structures, which he explained his 1917 book *On Growth and Form*. Today, the dialogue between contemporary artists and scientists continues at many scientific institutions, including the Wellcome Trust, a U.K. biomedical research charity, the Smithsonian Institution, and the Broad Institute in Cambridge. Three artists in New England also continue the conversations between disciplines: Rachel Berwick, Nancy Selvage, and Guhapriya Ranganathan.

Above: Rachel Berwick, *Zugunruhe*, 2009, cast copal (amber), wood, two-way architectural mirror, moss, metal, polyester resin; Blown and mirrorized glass, moving brass rod, text. Dimensions variable.

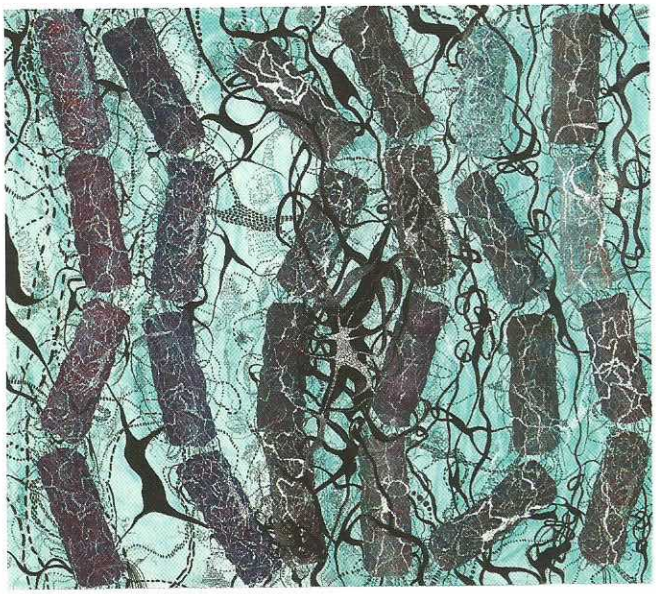
Sculptor Rachel Berwick heads the Glass Department at the Rhode Island School of Design. Her elegantly constructed installations address issues of survival, extinction, and loss. They have been shown at MASS MoCA, London's Serpentine Gallery, and the Istanbul Biennial. The sculptor describes herself as inspired by information. She takes a retrospective view of science, drawing particular meaning from dying species. Specifically, her work has focused on animals that have met extinction, includ-

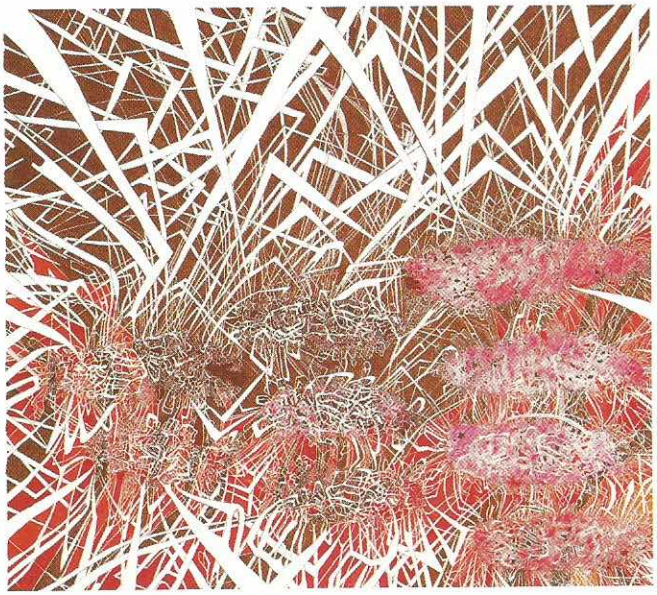
ing the Tasmanian tiger, a subspecies of Galapagos tortoise, and the passenger pigeon. The recipient of a 2007 Smithsonian Artist Research Fellowship, Berwick gained access to the rare book and ornithology collections at the National Zoo and the Natural History Museum in Washington, D.C., where she studied bird migration and the writings of seventeenth- to nineteenth-century naturalists.

Her latest work, *Zugunruhe*—a term coined in the 1950s by ornithologist Gustav Kramer to describe nighttime restlessness among birds at the onset of migration—is on view at Brown University's David Winton Bell Gallery through February 14. It is a poignant memorial to the passenger pigeon, which once numbered in the billions in North America. The species—slaughtered in vast numbers for sport and hog food—rapidly declined, until the last bird died at the Cincinnati Zoo in 1914. John James Audubon's engraving of two passenger pigeons in his *Birds of America* introduces the installation. In a small room, Audubon and Alexander Wilson's texts describe the species' vast migrations. A blown glass vessel contains a dial in which motion simulates migration patterns—a reference to the "orientation cages" used by scientists to study the way that migrating birds navigate by using magnetism or the stars.

In a larger, darkened space, a leafless tree stands inside an open-topped, heptagonal, nine-foot-high, mirrored glass enclosure. Some 200 passenger pigeons are perched on the tree's branches. They have been cast in copal (an immature form of amber) from one taxidermied specimen. The artist cites *The Hummingbird Tree* in London's Natural History Museum—whose fading, stuffed hummingbirds both fascinate and disturb—as a precursor to her own bird-filled tree. Moss covers the floor of Berwick's glass enclosure, resembling an outsized Victorian herbarium. Lit from above, the translucent, amber birds seem to glow. The mirrored, two-way glass heightens the play of light and shadow, amplifying the birds and reflecting the viewer. By bringing the bystander into the piece, Berwick poses a question: Are we canaries in a cage of our own device, orchestrating our own extinction?

Another artist who bridges the worlds of art and science is Nancy Selvage. As a child, she enjoyed building boxes for her rock collection and was on track to study biology or medicine in college. However, once she began making art in an unusual, hands-on art history program at Wellesley, her future changed. She took ceramics classes, and when she saw Picasso's exuberant and free-wheeling ceramics at the Picasso Museum in Antibes, France, she realized the possibilities of the medium—and of being an artist.





Top: Guhapriya Ranganathan, *Translocations*, 2009, acrylic, woodprint, acrylic and ink on paper, 60 x 66". Above: Guhapriya Ranganathan, *Regenerations III*, 2009, acrylic and ink on paper, 56 x 58".

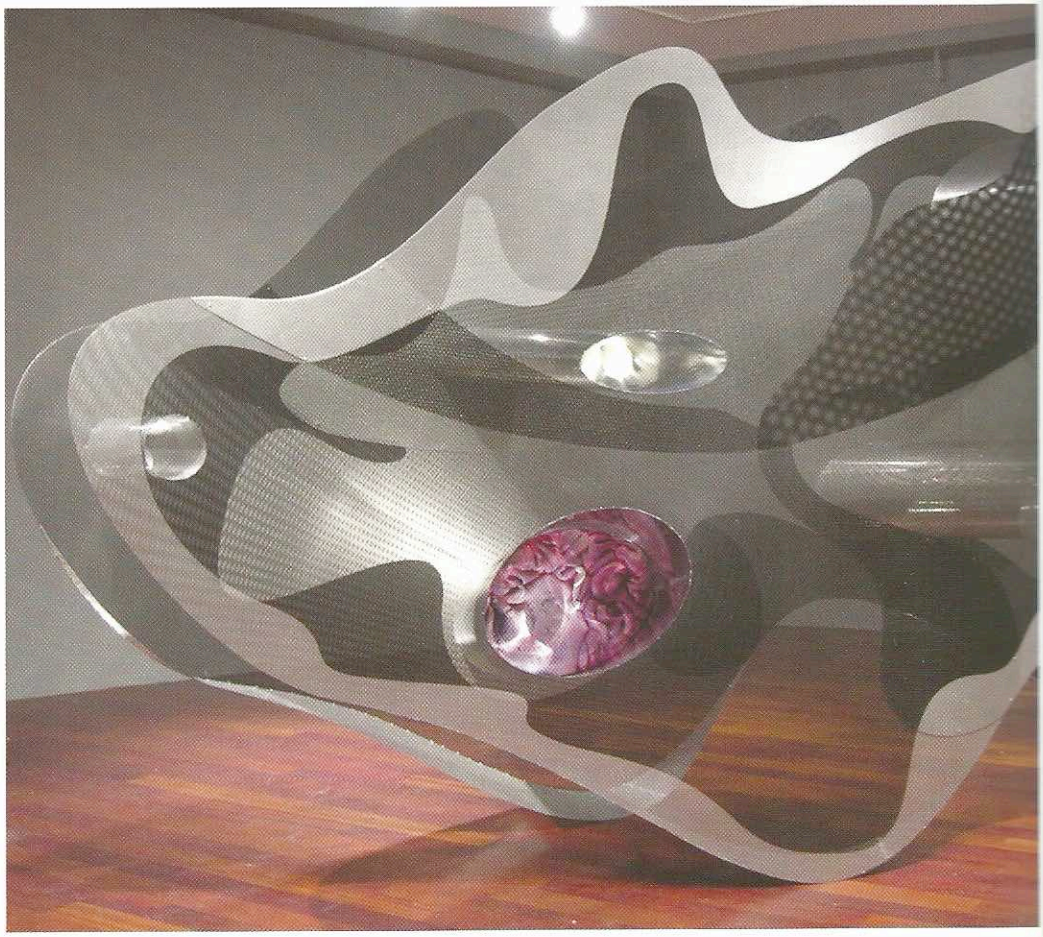
ZUGUNRUHE
David Winton Bell Gallery,
List Art Center, Brown University
Providence, RI
www.brown.edu/Facilities/David_Winton_Bell_Gallery
Through February 14, 2010

Today, Nancy Selvage directs the Ceramics Program at Harvard University. Science figures into her work, through the transformative nature of clay, the complex chemistry of glazes, and the sites of her sculptural installations. Her permanent public art commissions include collaboratively made, interpretive ceramic reliefs at Grand Canyon National Park, the North Carolina Zoo, and the Science Center at Keene State University in New Hampshire. Each conveys a wealth of scientific or environmental information about the site itself. *Flow*, a sixty-foot-long ceramic mural, was modeled on the shape of the Ashuelot River, which intersects the Keene State campus. Contained within its borders are references to the range of scientific studies at the college. By contrast, *Water Wall* (2007), permanently sited at Trolley Square in Cambridge, MA, and *bi op see*—shown at the Boston Sculptors Gallery in late 2009—are among Selvage's ambitious "investigative" works, in which she aims to "transform the physical properties of space."

The sweeping metal arcs of *bi op see* were designed on a computer, using Adobe Illustrator, a two-dimensional program, and Autodesk Maya, a three-dimensional program, and then cut with a water-jet machine. The nine-foot-high, twenty-two-foot-long, five-foot-wide piece was assembled and bolted together in the gallery's large front room. The two curvaceous planes of perforated sheet metal that make up *bi op see* were held together—and penetrated—by tubular shafts, which framed views through the piece. A few of these cylindrical cores also housed ceramic or resin forms, suggestive of cellular

material or soft tissue viewed through a microscope. The subtle use of anodized paint, mirrors, and patterned perforations in the aluminum, created shifting interactions of light, moiré patterns, and mirrored reflections. The permeable membrane of the sheet metal dematerialized in daylight, with the sun streaming through, and took on more solidity at night. Each unique view of and through *bi op see* focused the viewer's gaze on its sculpted details and the complex patterns of light and shadow it created, as well as on the gallery space, its occupants, and the street beyond.

Guhapriya Ranganathan's brilliantly hued, intricate prints, drawings, and paintings allude to mapping, memory, and molecular biology. The work in her 2009 Simmons College show was informed by her Hindu upbringing and experiencing her grandmother's struggle with Alzheimer's. In the *Regenerations* series, fragments of collaged silkscreen prints, resembling tangled nerve centers, spin off in all directions. In *Translocation II* (acrylic, ink, and woodprint-on-paper), lively motifs in black, brown, and white swirl on a luminous turquoise ground.



Nancy Selvage, *bi op see*, 2009, aluminum, clay and resin, 9 x 22 x 5'.

Each unique view of and through *bi op see* focused the viewer's gaze on its sculpted details and the complex patterns of light and shadows.

The patterns suggest synapses and mitochondria, the energy powerhouses of the cell.

Ranganathan's themes cross boundaries. In genetics, "translocation" refers to a shift in position of part of a chromosome, which can result in genetic disorders. The word also applies to the artist's own peripatetic life. Born in Trichy in southern India, she lived in Malaysia, South Africa, the Netherlands, and Florida before moving to the Boston area in 1995. She had made complex ink drawings since childhood, but was encouraged to pursue science and technology. She became an engineer like her father and brother, working in computers, management, and advertising before turning to art.

Currently the artist-in-residence at the Broad Institute, Ranganathan specializes in genomics. Her interests include the potential regeneration of the nervous system—sparked by an accident that left her mother a paraplegic—and the way DNA folds and unfolds. She makes analogies to a kind of origami that springs open at a touch, and an insect folding and unfolding its wings. New research at the Broad Institute shows that a fractal globule structure allows cells to tightly pack DNA at an information density trillions of times higher than on a computer chip, while still enabling the two-meter strands of DNA to fold and unfold as needed. Of the residency she says, "It is very experimental. We're trying to see what we can do to help each other. I see things differently from how scientists see things." She is making sketches and wire models to visualize the researchers' results.

Ranganathan believes we are all pieces of memory, both genetic and cultural. As a girl, she learned to make *kolam*, rice flour drawings, on the ground, feeding the birds and insects. Each morning, her family swept the ground and created a new design. She explains, "Your grandmother does it. Your aunt does it, and it is just something that is passed down." Curiously, the *kolam* patterns mirror fractal geometries. "I found that very interesting—that this was something I learned in childhood that was very meditative, a traditional cultural practice—to see commonalities when you are studying fractals and genomics."

Ranganathan discovered, as have many artists, that art, culture, and science flourish together. ■

Anne Krinsky *is a Boston-based artist whose work is in the collections of the British Museum and the Boston Public Library. She is represented by Soprafina Gallery in Boston. She has also written on the visual arts for the* Wall Street Journal Europe.