



Alyson Shotz: *Topologies*

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Hyperbolic Red Hook, 2005-6

Curiosity drives human exploration. The need to know through sight, sound, and touch defines much of the human experience and is the basis of our study of the world around us. Since the early 1990s, Alyson Shotz has strived to revisualize the natural world by utilizing computer modeling and scientific or mathematical ideas, such as the field of topology, a branch of mathematics devoted to mapping organic forms, defining space, and studying continuous forms. Although topology can be used for highly practical purposes— to create models of landscapes, predict weather patterns, and determine DNA patterns—it also deals with abstract and theoretical geometries. For Shotz, topology is a point of departure that allows her to think about shape and form and to envision natural surroundings as abstract “objects”—tangible works that invite us as viewers to step through her looking glass into the invisible world.

Shotz’s *Hyperbolic Red Hook* grew out of her interest in exploring topology and its relationship to the world. Fascinated by theories that postulate that the universe is a growing and infinite curving surface, Shotz photographed the water, shoreline, and land of the Red Hook neighborhood in Brooklyn then folded the printed photographs and assembled them into a model of a hyperbolic plane. Unlike Euclidean models of geometry where a line intersects at only one place with a flat plane, hyperbolic geometry stipulates that the universe is comprised of curves that do not touch but actually move away from one another. Central to Einstein’s theory of relativity, hyperbolic planes reimagine the world as undulating and expansive rather than fixed



Hyperbolic Red Hook (detail), 2005-6



Hyperbolic Horizon Lines, 2006

and planar. Shotz's paper installation therefore reflects a dynamic and unending landscape. In her words, the artist has described the visual effect of the piece as reminiscent of a branch where one cluster attaches to another and creates a seemingly infinite set of visual relationships.

The series *Hyperbolic Horizon Lines* depicts another landscape in flux. Each piece stems from a single photograph that is folded into a parabolic shape derived from the same mathematics as *Hyperbolic Red Hook*. One such work addresses the treeless land of Iceland while another gazes upward into the black background of the sky and reveals the white freckles we call stars. With Iceland, Shotz has chosen a land that is a dynamic system—forever morphing from volcanic formations and often evoked in folklore and mythology. To create the three-dimensional objects, Shotz used a technique devised by Eric Demaine, a mathematician at the Massachusetts Institute of Technology. Reminiscent of a Möbius strip, the object represents both a complex geometry and a complex geography at the same time. The juxtaposition of two varied perspectives of the same place and time draws attention to the nature of time-based interactions with landscape. The transfer of the work from Iceland to a different location or context alludes to the work of Robert Smithson whose mirror displacement and non-site pieces of the early 1970s researched the use of natural materials from specific sites. Together, Shotz's pieces remind us to think critically about human interaction with the landscape.

For both of the *Hyperbolic* pieces, Shotz used a geometric model devised by mathematicians as a way to explore landscape. For her series called *Spatial Propositions*, Shotz explored Calabi Yau forms—shapes that in string theory describe what the extra dimensions of a mathematical model might look like. Integral to theoretical physics, these abstract forms are folded in on each other and combine to form more than one dimension. Shotz created her own model by taking squares of polypropylene plastic and making two to three strategic incisions in each. Once folded, they hang in the gallery allowing us to experience shapes that we otherwise could not see. They are bulbous and graceful at the same time. They reflect and absorb light. They react quietly to the



Spatial Propositions, 2005

wind circulating around them. We might know such shapes exist or that equations can describe their arcs and curves, but they are not overtly expressed in our daily existence. In this sense, Shotz's works reveal a latent formulation of the world around us.

Shotz's *Allusion of Gravity* further explores the construction of space. Interested in theories of relativity—or the ability of relativity to explain how mass affects space, Shotz devised a way to express this abstract idea sculpturally. *Allusion of Gravity* reads like floating mountain peaks of various sizes. As conical and triangular shapes, they build on one another and seem to expand and contract simultaneously. Reflecting the light and architecture of the space in which it is installed, *Allusion of Gravity* questions the discrete nature of sculpture and allows it to interact with space in a nonlinear, seemingly chaotic manner. The viewer's perception of the work perpetually shifts with the interplay of light and space on the work. If gravity is defined as the relationship of mass to space, then this three-dimensional form plays out the drama of mass and acceleration for the viewer.

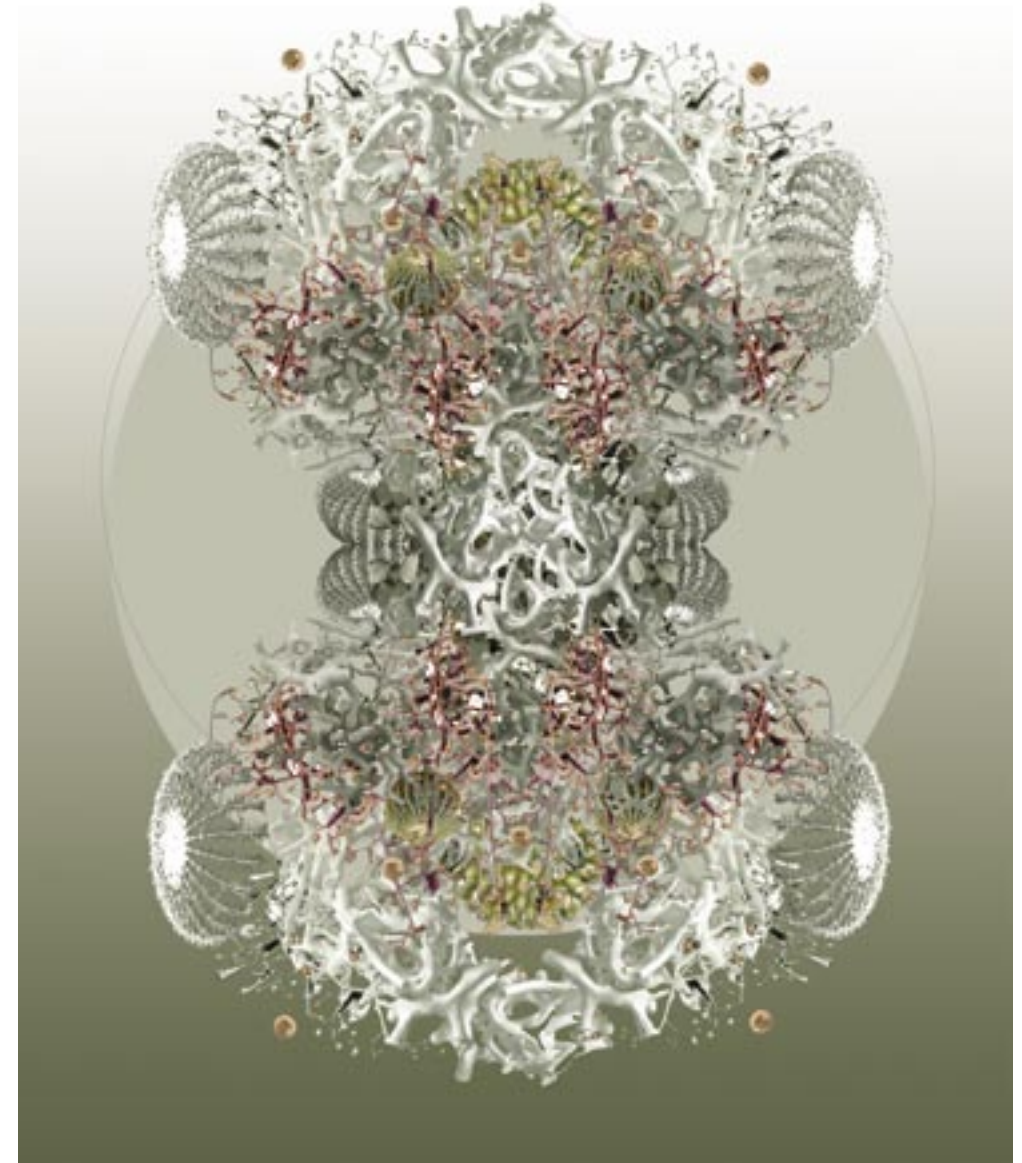
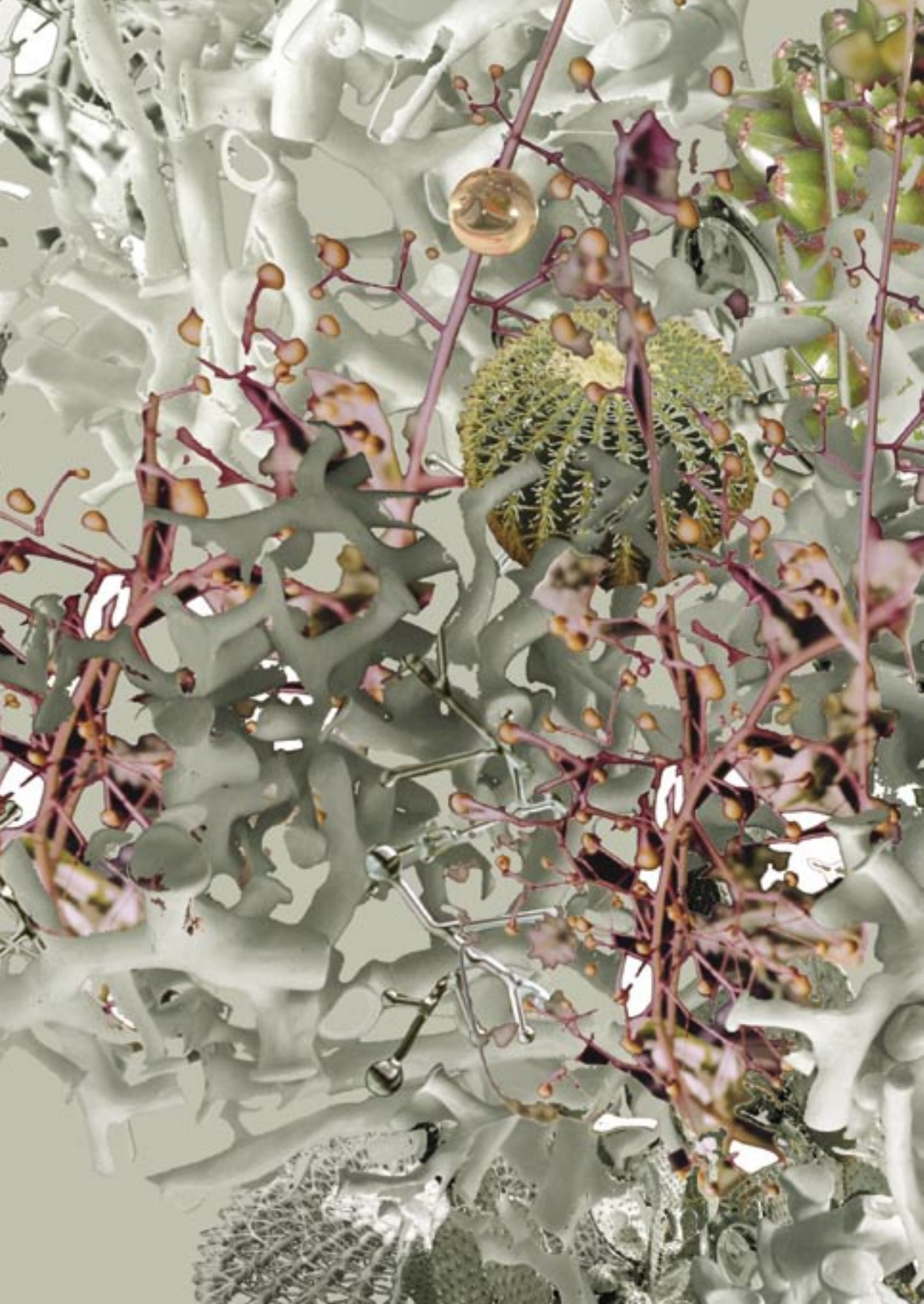
Since the 1990s, Shotz has created both two-dimensional and three-dimensional works. This exhibition includes three examples from her *Forced Bloom* series. Printed on paper and mounted on Plexiglas, these pieces combine biological and topological shapes. *Forced Bloom #1*, includes both white and pink structures in addition to eight spherical structures that evoke crystallized barbs. The forms are arranged on a



Allusion of Gravity, 2005

central axis, such that one side is the mirror image of the other. Additional balls, lines, and tubes abound in the work in what reads as a complex biological whole. *Forced Bloom #4*, revolves around a horizontal central axis. On both the upper half and the bottom half of the work, there is a white armature of intricate structures coupled with clusters of white lily pads. For many of these shapes, Shotz used the computer to augment and refine their shapes and then combined them with the other geographies we see on the walls of the gallery. In art historical terms, the works allude not only to Claude Monet's paintings of the gardens at Giverny, but also to Chinese landscape painting, in which depictions of natural settings float against minimal backgrounds. Shotz has incorporated the mathematical into the artistic in order to explore our visual surroundings with new information.

Shotz has often used mirrors and reflective surfaces in her work; glass beads, Fresnel lenses, and doomed mirrors are just some of the materials she has employed. *Arnolfini 360 x 120* consists of twelve surveillance mirrors installed in the corner of the gallery. Visitors see themselves in the sanctified space of the gallery, but they also witness the installation and the activities in the room behind them. The work encourages a heightened perception of our surroundings and a new perspective on an architectural space. The title of the work alludes to the famous Jan Van Eyck painting, *The Arnolfini Portrait*, now in the collection of the National Gallery, London. Van Eyck's



Forced Bloom #1, 2005

example of delicate Netherlandish painting shows a Dutch man with his wife in an interior setting. Hanging on the imaginary wall of the painting is a wood-framed convex mirror that shows a reflection of the interior scene with two figures, one of which could be the artist himself. Long a subject of study, the work contains numerous symbols and even addresses the role of art in culture itself. By situating her mirrors in the gallery and reflecting the act of viewing, Shotz probes a discussion similar to the one



Viewing Scopes, 2006

started by this seminal painting. With Shotz's installation, we are also forced to think about the contemporary role of surveillance and the interaction between ourselves and others in society.

Our ability to see and understand others is also the focus of Shotz's *Viewing Scopes*. This work includes thirty tubes that are mirror polished inside to create a highly reflective surface with lenses of varying magnifications placed at the ends of each. Arranged in a cluster, the work functions much like the viewfinders we find at scenic lookout points throughout the country. Instead of enhancing the experience of a sublime landscape however, these pieces compel us to see a given setting from a variety of twisted perspectives. At once industrial and polished, the tubes call attention to the act of viewing a work of art. They also move beyond the white walls of the gallery and draw our attention outward to other individuals and settings. Context is therefore incorporated into the piece, and the act of thoughtful observation becomes as much the subject of the artwork as the sculptural nature of the tubes themselves.

The recent work of Alyson Shotz explores space and how we perceive it. By synthesizing mathematical models of the environment with the dynamic use of reflective and digitized forms, Shotz's conceptual aesthetic offers us a fresh perspective on a world we thought we knew. Perhaps more than anything else, Shotz's work floods the invisible with detail and light, creates new ways of observing and mapping our surroundings, and illustrates how active participation in that process can increase our perception of a complex world.

Jane Simon, *Curator of Exhibitions*, Madison Museum of Contemporary Art

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Cover: *Forced Bloom 4*, 2006

Back cover: *Arnolfini 360 x 120*, 2006

Works in the Exhibition

Allusion of Gravity, 2005
Glass beads and steel wire
120 x 120 x 156 inches

Arnolfini 360 x 120, 2006
Twelve domed surveillance mirrors, hardware
132 x 120 x 14 inches

Cocoon, 2006
Clear glass beads, cut plastic fresnel lens sheets, and staples
60 x 30 x 20 inches

Forced Bloom 1, 2005
Lambda print on Fujiflex paper
60 x 50 inches

Forced Bloom 3, 2004
Lambda print on Fujiflex paper
60 x 50 inches

Forced Bloom 4, 2006
Lambda print on Fujiflex paper
50 x 40 inches

Hyperbolic Red Hook, 2005–06
Inkjet print on folded paper
11 x 90 x 74 inches

Hyperbolic Sky, 2006
Double-sided ink jet print on folded paper in six parts and glue
9 x 20 x 20 inches

Six Hyperbolic Horizon Lines, 2006
Double-sided ink jet print on folded paper in six parts and glue
14 x 12 x 12 inches (each)
Courtesy of artist and Carolina Nitsch Contemporary Art, New York

Spatial Propositions, 2005
Plastic and plastic grommets
Six parts: 16 x 12 x 12 inches (each)

Viewing Scope, 2006
Stainless steel tubes, glass, plastic lenses, and steel
72 x 48 x 48 inches

All works courtesy of artist and Derek Eller Gallery, New York, unless noted

All photographs by Alyson Shotz

