Frozen Architecture

Kemper Room Art Gallery
Paul V. Galvin Library

January 26 - February 26, 2006

Opening reception:
Thursday, January 26, 4:30 - 7:30 pm

Exhibition hours:
Monday - Thursday: 12 noon - 6 pm
Friday: 12 noon - 5 pm
Saturday: 8:30 am - 5 pm
Sunday: 2 - 6 pm

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A fantastic architecture of a landscape, rarely seen outside a microscopic world, that is composed of the most common of all natural elements; one that simply disappears from our mere touch. Artistry captured from the research laboratories of the United States Department of Agriculture.

curator:
Robert J. Krawczyk, Assistant Professor, College of Architecture

Exhibition coordinator:
Mindy Ann Sherman, College of Science and Letters

gallery assistants:
Joseph Huang, College of Architecture
Rebecca Stovener, College of Architecture

Sponsored by:
IIT Office of the President, Lew Colliens, President
IIT Art Board, Judith Carr, Chair
Frozen Architecture

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Illinois Institute of Technology
21 West 33rd Street, Chicago, IL 60616

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Image 10701 by the US Department of Agriculture
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for additional information, complete hours, and related events:

art.iit.edu

Frozen Architecture
View a fantastic architectural landscape, rarely seen outside a microscopic world, that is composed of the most common of all natural elements; one that simply disappears from our mere touch. Artistry captured from the snow crystal research laboratories of the United States Department of Agriculture.

This exhibit explores the art of nature as the unintended result of scientific inquiry. A normal light microscope gives us an icy clear view of snow crystals, but by using a Low Temperature Scanning Electron Microscope (LT-SEM) the solid structure of the crystals becomes visible. Snow samples are very fragile and exposure to the light necessary to photograph them, using light microscopes, can change structures and even melt them. Using LT-SEM, samples are frozen to temperatures below -170 degrees Centigrade where they can be placed in a vacuum and observed for many hours with no structural changes. These photographs show the extraordinary symmetry of snow crystals even at high magnification.

These crystals have an architectural structure that is composed of massive forms that are extremely fragile, delicate and highly intricate; structures that seem to be impossibly supported, some are perfectly arranged others totally chaotic. Gravity, weight, and support have a new meaning at microscopic scales. Architecturally they almost remind us of some ancient ruins of unknown unearthly inhabitants whose entire world is composed of building blocks that average less than 10mm in diameter. These ruins seem to have eroded over centuries of unimaginable forces to form places that have as many perfections and imperfections.

Actually, these structures are formed by nature by the simple process of freezing precipitation as it tumbles through the atmosphere. An incredible variety of forms are shaped by the transformation of liquid into ice crystals that rival any human creation. The architectural vocabulary of crystals includes: plates, columns, dendrites, needles, graupel, and rimmed; not all that different from one we use.

These crystals also have a great variety of textures; smooth, grooved, etched, and pitted; many of them showing a high degree of a common hexagonal structure and symmetry as they viewed at a magnification that ranges from 150 to 1,500 times.

These images were all collected and created by the Electron Microscope Unit of the Beltsville Agricultural Research Center, United States Department of Agricultural, Beltsville, Maryland; http://emu.arsusda.gov/snowsite

The current Electron Microscope Unit's staff includes, Eric Erbe: specialist in scanning electron microscopy, Charles Murphy: specialist in transmission and electron microscopy and Christopher Pooley: specialist in digital imaging and computer techniques. Research collaborators have included: Dr. W.P. Wergin, Retired Research Leader/Scientist; Dr. Albert Rango, Research Hydrologist; Dr. James Foster, NASA; and Dr. Dorothy Hall, NASA.

Special thanks to Eric Erbe, Christopher Pooley, and the United States Department of Agricultural for use of the images in this exhibit. All images were cropped from the original photographs and rescaled for framing by art @ IIT.