MILLER
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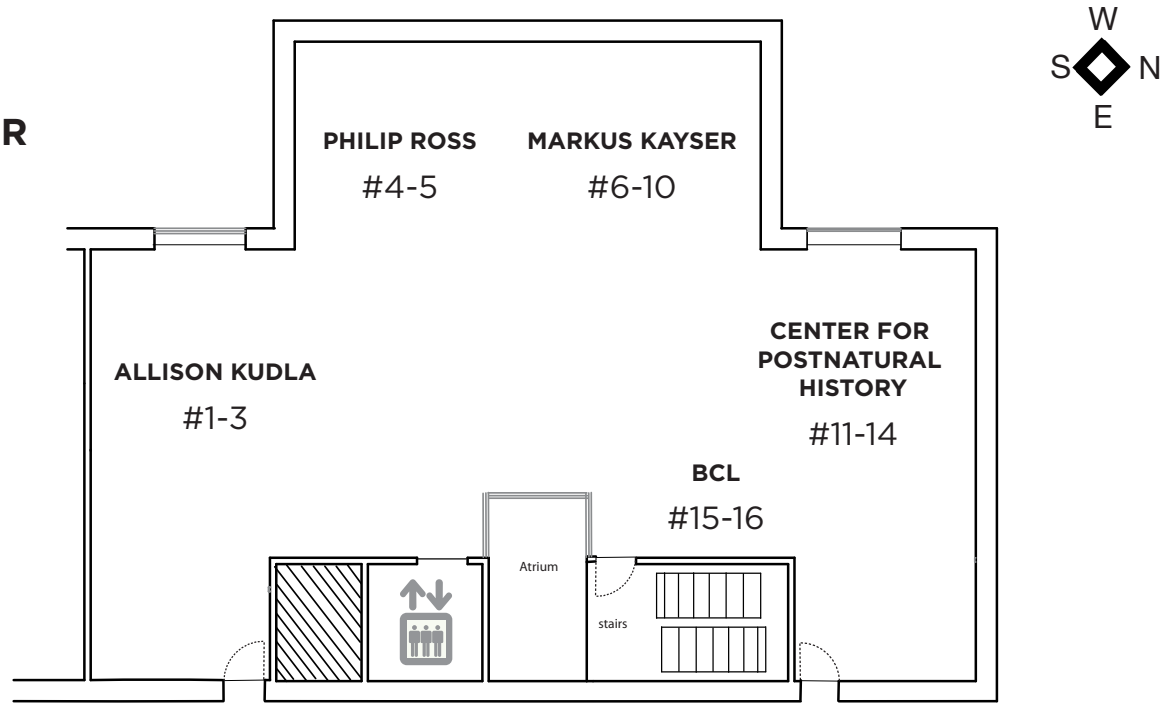
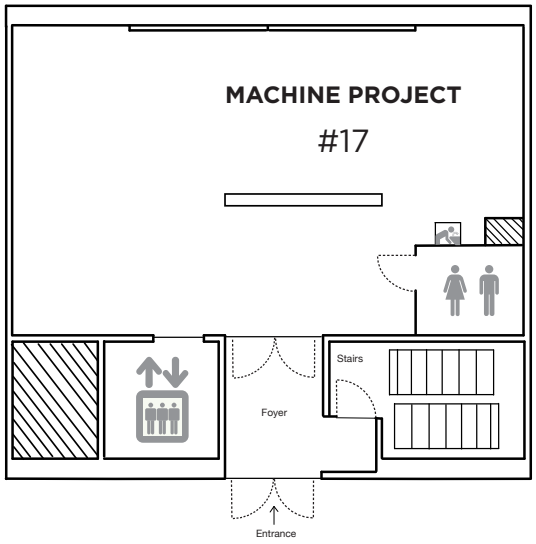
INTIMATE SCIENCE

Jan. 21 – March 4, 2012
Guest curated by Andrea Grover

3RD FLOOR



1ST FLOOR



READ AND RETURN TO SHELF WHEN DONE.
Exhibition checklist available online
www.cmu.edu/millergallery/exhibitions/intimatescience

CHECKLIST

Clockwise, starting with South wing:

Allison Kudla (Lives in Seattle)

1. ***Documentation Video: Growth Pattern,*** 2011
   Looped video, 4:55 minutes

2. ***Manicured Field: Diptych***, 2010-11
   Inkjet printed on archival paper, edition of 5
   These two photo montages depict the beginning and end cycle of the first installation of *Growth Pattern,* in which a living, natural system takes on the form of a manufactured pattern. Leaves are intricately cut from a die into a bilaterally symmetrical pattern and cultured in tiling square Petri dishes that contain the nutrients necessary to promote new leaf growth. Here the cultured leaves are provided with the hormones that cause the cells to produce new leaf tissue. Since the cells of the plant have the capacity to differentiate into any organ in the plant, the newly growing leaves are extending the form of the traditionally inspired botanical motif. However, as with any experiment, it is possible for contamination to occur. In some, the tissue may die; in others, parasites may take over and grow faster than the leaves.

3. ***Capacity for (urban eden, human error),*** 2007-09
   Computer controlled four-axis positioning table, algae, agar, seeds
   ***Capacity* is scheduled to operate from 12:30-1:30pm daily.**
   This system uses a computer controlled four-axis positioning table to "print" intricate bio-architectural constructions out of algae and seeds. Suspended in a clear gel growth medium, the algae continues to grow and the seeds sprout. The algorithmically-generated patterns drawn by the system are based on the Eden growth model, a surface fractal seen in both bacterial growth and urban sprawl, connecting the concept of city with that of the organism. This project demonstrates the idea of dynamic and fluid computer space altering the expression and formation of a living and growing biological material, via its collaboration with an engineering mechanism.

Main space, South side:

Philip Ross (Lives in San Francisco)

4. ***Pure Culture Series,*** 1996-present
   Ganoderma lucidum fungus
   The mushrooms on the shelves are all Ganoderma lucidum, known also as Reishi, and familiar to many forest visitors as a type of shelf mushroom. These specimens are no longer living. This mushroom does not look very much like the way you would see it in the wild. These were grown with low levels of oxygen and high concentrations of carbon dioxide. This stress makes the mushroom grow into unusual shapes. All of the Ganoderma lucidum fungi that you see here are clones, meaning that they are genetically identical to one another. Though they are separated in space and forced to take on different shapes they are actually all aspects of the same organism.

5. ***Mycotecture Series*****,** 2006-present
   Ganoderma lucidum fungus
   The *Mycotecture* series is an experiment in growing architectural structures from Ganoderma lucidum, also known as Reishi or Ling Chi. The fungus is environmentally beneficial as well as a low cost substitutes for wood, Styrofoam and other home building products. Ross writes, "Mushrooms digest cellulose and transform it into chitin, the same material that insect shells are made from. The bricks have the feel of a composite material with a core of spongy cross grained pulp that becomes progressively denser towards its outer skin. The skin itself is incredibly hard, shatter resistant, and can handle enormous amounts of compression. Shaping and cutting the bricks destroyed our files, rasps and saws." (The artist has a patent pending for these building materials.)

   The models represent possibilities for future fungal structures.

Main space, North side:

Markus Kayser (Lives in London)

6. ***Solar Sinter Project,*** 2011
   Looping video, 6:07 minutes
   Solar Sinter explores the potential of desert manufacturing, where energy and raw material occur in abundance. In this experiment in the Sahara, Kayser operates a custom-built 3D printer that uses a giant Fresnel lens to sinter desert sand into 3D glass objects. Solar-sintering aims to raise questions about the future of manufacturing and triggers dreams of the full utilisation of the production potential of the world's most efficient energy resource - the sun. While not providing definitive answers, this experiment aims to provide a point of departure for fresh thinking.

7. Example of material produced by *Solar Sinter,* 2011
   Saharan sand converted into glass via the *Solar Sinter*

8. ***Sun Cutter,*** 2010
   Aluminium, acrylic, MDF, glass sphere, photovoltaics
   The *Sun Cutter Project* explores the potential of harnessing sunlight directly to produce objects. The machine is a low-tech, low energy version of a laser cutter. It uses pure sunlight, focused by a ball lens, to repeatedly cut programmed shapes in up to 0.4mm thick plywood as well as paper and card, and a cam system, moving an X & Y- board to control the shape of the cut. The cams are set into synchronized motion by a small solar-powered motor driving a timing belt. Each pair of sunglasses made, even though very similar in shape, is still unique, creating a juxtaposition between the repetitive, machine-made object and the individual, unique object.

9. Sun shades produced by *Sun Cutter,* 2010
   Plywood cut via the *Sun Cutter*

10. ***Sun Cutter*****,** 2010
    Looping video, 4:16 minutes

In North wing, from left to right:

Center for PostNatural History (Based in Pittsburgh)

The Center for PostNatural History is dedicated to the advancement of knowledge relating to the complex interplay between culture, nature and biotechnology. The PostNatural refers to living organisms that have been altered through processes such as selective breeding or genetic engineering. The mission of the Center for PostNatural History is to acquire, interpret and provide access to a collection of living, preserved and documented organisms of postnatural origin.

11. ***Transgenic American Chestnut Tree Display,*** 2012
    Chestnut specimen, photographs

12. ***Transgenic Mosquito Display,*** 2012
    Mosquito specimen, 3D photographs

13. ***GloFish™ Display,*** 2012
    GloFish™ specimen, diorama

14. ***CPNH Orientation*** *and* ***Permitted Habitats****,* 2012
    Looping video, 5:00 minutes, audio

Near stairwell:

BCL (Georg Tremmel + Shiho Fukuhara; Live in Tokyo)

15. ***Common Flowers/Flower Commons*****,** 2009
    Acrylic encased plant tissue cultures of “Moondust” GM blue carnation
    The *Common Flowers* project is based on the first commercially available genetically-modified flower, the blue Moondust™ carnation developed and marketed by Japanese beer-brewing company Suntory. BCL reversed the plant-growing process by growing, multiplying and technically “cloning” new plants from purchased, cut flowers using plant tissue culture methods. The blue GM carnations are brought back to life using DIY biotech methods involving everyday kitchen utensils and easily purchasable and ready materials. This action is intended raise questions about the state of intellectual property, ownership and copyright issues surrounding the bio-hacking and bio-bending of plants.

16. ***Introduction Video: Common Flowers/Flower Commons*****,** 2009
    Looped video, audio, 6:28 minutes

On the first floor:

Machine Project (Lives in Los Angeles)

17. *Select Machine Project Events (Mind Reading for the Left and Right Brain workshop at Miller Gallery, Confustatron at Berkeley Art Museum, Meet the Earbees [or] Games for Ears at Walker Art Center, and Enormous Microscopic Evening at Hammer Museum),* 2010- 2012
    Looping video, 17:06 minutes (includes narration and ambient sounds)

    Machine Project is a Los Angeles based not-for-profit arts organization and community event space dedicated to making specialized knowledge and technology accessible to artists and the general public. Machine Project events emphasize intersections between fields and practices, particularly where the arts and sciences meet. Their style of presentation promotes hands-on engagement and atypical collisions between multiple branches of knowledge.