

## ANTHROPOCENE PROJECTIONS

John Roloff 2014

By way of introduction, a public lecture, *Paradise Reconsidered/Projects and Research*, I gave at the University of California, Santa Barbara, 2007, included a series of terms that had been informing my work since the early-1980's were coalesced and presented as related concepts. The terms, anthropocene, anthroturbation, depositional environment, paleoclimate, paleogeography and *Synthetic Ecology* were defined and further placed in relationship to my work. The term 'anthropocene' entered mid-way into my work, where the boundary between the Holocene and Anthropocene Epoch was being considered and discussed. The definition of the Holocene referred to in several works previous to this talk conceptually included an unnamed Anthropocene often using the term "anthroturbation" a term developed in conversation with the geophysicist, Paul Spudich, circa 1998 and discussed in context of individual art works below. The following sections are text from slides included in the Santa Barbara talk:

### Anthropocene

1. A term used to describe the current geological period, starting from the 18th century when human activities began to impact global climate and ecosystems. Etymology: 2000 by chemist Paul Crutzen; Gk anthropos 'human' and kainos 'recent.'

2. A term used to describe the current geological period as a subset of the Holocene geologic epoch, beginning with the Neolithic period, the onset of agriculture and city states, marking a shift from Paleolithic attitudes of humans towards nature that began a period continuing to the present of significant impact of human activities on global ecosystems (including climate) in the form of anthroturbation. Expanded definition, John Roloff.

### Anthroturbation

Human disturbance analogous to natural and/or geologic processes, e.g., quarrying as erosion, construction as deposition, etc. Etymology: mid 1990's by USGS geophysicist, Paul Spudich in conversation with John Roloff; Gk antropos 'human' and Lt turbidus 'disturbance.'

### Depositional Environment

The area in which and the physical conditions, chemical and biological processes, under which sedimentary or similar materials are deposited, including material source; depositional processes such as wind, water or ice; and location and climate, such as desert, swamp or river channel, delta; depositional energy; depositional system, eolian, abyssal, baythal, neritic, biostromic, estuarine, littoral, fluvial, glacial, lacustrine, terrestrial. The total of sedimentary and biological conditions, factors, and processes that result in a deposit(s). Depositional environments in ancient sediments are recognized using a combination of sedimentary facies, facies associations, petrologic analysis, sedimentary structures and fossils, particularly trace fossil assemblages, as they indicate the environment in which they lived.

### Paleoclimate

The climate of a given area at a specific time in the past. Paleoclimates can be read from the rocks much as areas with different types of climates produce sediments with specific characteristics today.

### Paleogeography

A. The study and description of the physical geography of the geologic past, such as the historical reconstruction of the pattern of the Earth's surface or of a given area at a particular time in the geologic past, or the study of the successive changes of surface relief during geologic time.

B. The study of the relative positions of land masses as part of tectonic reconstructions of Earth history.

### *Synthetic Ecology* – (2009 update)

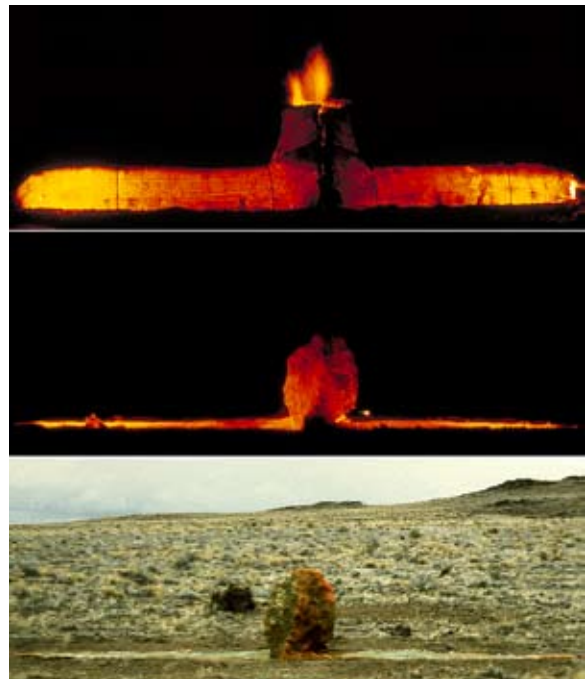
An outgrowth of the primal energy of the kiln furnace projects, focuses on symbiotic, trans-material intensities and relationships where matter and living systems are considered in a state of synthetic ecology, a merging of ecology, ontology, existentialism and aesthetics across all forms of substance and essence. One form of this dynamic examines "metabolism" in terms of a full range of anabolic and catabolic (life :: death) potentials and systems.

This approach also includes research into “The Philosophy of Nature” of the 17th and 18th centuries and the relationship to poetic/philosophical systems that extend scientific thought and process into non-linear/poetic, meta-romantic, concepts of form and substance in nature: the lineage of Heraclitus, Dogen, Leibniz, Goethe, Coleridge, Gutarri, Deleuze, Serres, etc. Relationships of this thought to baroque art and architecture projecting towards a contemporary, natural, civic, personal, even absurd dimension (a building or project designed by the brain of an albatross, built by algae, maintained by glaciers..., Goethe’s color theory applied to the tints of gasoline, etc).

*Synthetic Ecology* strongly argues against the concept that nature is “unknowable” or even at many levels distinguishable from humanity. Synthetic ecology morphs into trans-scientific forms of empathetic vitalism/aesthetics, meta-ecology, and themes of alignment, indivisibility and equilibrium between living and non-living systems.

Examples of the works shown during the talk that relate to Anthropocene concepts, include but not limited to: *Land Monitor/Fired Volcanic Boulder*, 1980, *Metafossil: (Pinus: ponderosa, radiata, balfouriana)*, 1992, *Holocene Terrace*, 1999, *Holocene Passage*, 2002, *Original Depositional Environment*, 2001 and *Rapson Group: Geology Text Panels*, 2013 (concept drawings were shown in the 2007 talk), which are presented and discussed below.

*Land Monitor/Fired Volcanic Boulder*, 1980, is the second of a series of large environmental performance/kiln works constructed with the intent of examining the alteration of contemporary earth materials in-situ, in a geologic context to understand the land as a function of larger transformative processes. The steel and ceramic fiber blanket kiln was removed at the peak of the firing to expose the mafic (high iron/magnesium – low silica) basalt boulder, from the adjacent volcano, fired to a near-molten temperature, in an attempt for the viewer to physically re-experience the boulder’s birth/origin by returning it to a molten state.



*Land Monitor/Fired Volcanic Boulder*, performance kiln/furnace, sequence, 20 ft. long, steel, ceramic fiber blanket, propane, earth, borax, lava boulder, ‘J’ volcano outside Albuquerque, NM, 1980. Top: night firing, kiln in place, Middle: molten state, kiln removed, Bottom: cooled, fused state



*Metafossil (Pinus: ponderosa, radiata, balfouriana)*, 7 ft., 10 ft. and 12 ft. long, steel, refractory cement, species specific pine boughs and needles. Installed: Gallery Paule Anglim, San Francisco, CA, 1992, collection of De Young Museum, San Francisco, CA.

*Metafossil (Pinus: ponderosa, radiata, balfouriana)*, 1992, is comprised of three principal ‘ship’ elements in which the structure of each unit was developed by the layering of a single species of needle-laden pine branches in wet refractory cement over a steel armature to make a “fossil” of each variety in the form of a descending ship. The pine needles were each collected from their contemporary native habitat in the mountains of central California. The form of the descending ship refers to the process of geologic deposition of sedimentary material and the transience of ‘indigenous’ bio-cultures across the landscape as a result of climactic change.

Epoch, and was originally defined as constituting the last 11,000 years to the present. It follows the last glacial stage of the Pleistocene and is characterized by relatively warm climactic conditions. The sediments of the originally defined Holocene Epoch, both continental and marine, cover the largest area of the globe of any epoch in the geologic record. The Holocene Epoch begins with the late and post-Stone Age history of mankind and ends with Anthropocene time, in the new scheme of things.

Anticipating and originally including the Anthropocene, the Holocene Epoch as the second youngest interval of the Earth’s geologic history, is the second youngest of the three epochs that arguably comprise the Quaternary Period at the end of the Cenozoic Era (the Anthropocene may be considered post-Quaternary?). The Holocene Epoch follows the Pleistocene

Cities, architecture, roads and other civic constructions made by mankind of earth materials during our Epoch (the Holocene, now moving into or having been the Anthropocene, depending on the definition of it's origin) may be considered in a geologic context as forms of anthroturbation. This term describes the disturbance, dislocation and restructuring of geologic formations and materials by human agencies into new forms. These processes have analogies in the natural world, such as: mining as erosion, transport as flow and construction as sedimentation. Likewise, the built topography of a city can be understood in geomorphic terms: streets as canyons, buildings as plateaus, sewers as caves and plazas as playas.



*Holocene Terrace*, 8' h. x 6' w. x 18' d., wood, Plexiglas, sheetrock, moss, weather. Installed in the one person exhibition, *Morphology of Change*, at the Lance Fung Gallery, New York, NY, 1999

Installed in the one-person exhibition, *Morphology of Change*, at the Lance Fung Gallery, New York, NY, *Holocene Terrace*, 1999, is a transparent wood-framed construction, lined on its 3 vertical, interior sides with clear acrylic panels. The structure extends the opening of one of the gallery's street-facing windows into the center of the exhibition space. Within the chamber is a horizontal field of living moss from California and Massachusetts. For the length of the exhibition the moss was subjected to the environmental conditions of New York City; on dry days the moss is a dormant grayish color, on rainy days -- to the extent that weather can reach within the structure -- a vibrant green. *Holocene Terrace* is a climate-activated niche in the canyon wall of Soho's Broadway.

*Holocene Passage* is a site-specific architectural intervention for the Archivio Emily Harvey, in Venice, Italy, as part of 'NEXT' the Architectural Biennale, Fall, 2002. Aligned with a view of the Rialto bridge, the installation is an enclosed "passage" between two open windows of the gallery space. It is a transparent, glass and wood-framed structure lined with a field of moss collected from the forests of Northern Italy. The properties of the moss may be altered by daily climate change and other natural phenomena through the open windows at either end. Additionally, other forms of nature such as birds and insects may interact within the enclosed space. *Holocene Passage*, forms a channel of nature through the gallery space, much like the Venetian canals and their sinuous interaction with the architecture of the city.



*Holocene Passage*, wood, glass, sheet rock, moss, weather. Installed at the Archivio Emily Harvey, Venice, Italy as part of "Next," the 2002 Venice Architectural Biennale

*Holocene Passage* as with *Holocene Terrace*, investigates two resonate themes of Roloff's work, one that relates architecture and human activity to larger natural systems and geologic time, the second, in a similar way to the earlier landscape furnaces and other environmental works, where forces of nature are made visible in a confined environment and a dialog ensues between nature, the structure and its contents. Conceptually, the moss is seen as a bridge in time between the present and an ancient geologic past. Like the moss contained in *Holocene Terrace*, it is seen as a reference to the primal conditions of sedimentary deposition, the material that later became the stone used for construction of the city's architecture. In this context, the city is seen as a geologic formation, formed by parallel human activities: quarrying as erosion, transport as flow and construction as sedimentation. Conceptually as well as physically, *Holocene Passage* is a confluence of time, site, metaphor and process.

As in *Holocene Terrace* and *Holocene Passage*, the exhibition, *Original Depositional Environment*, at Gallery Paule Anglim in San Francisco, CA, references ideas of anthroturbation as a primary theme, in this case by the building's material and paleo-geographic origins. *Original Depositional Environment* further explores the concept that much of architecture is a special mineral-lithologic assemblage, a geologic formation created by humans. In the example of Gallery Paule Anglim, the building is clad in fired sedimentary clay brick cemented together by cement and sand derived from limestone, the internal structure of steel is refined iron ore and the 'sheetrock' internal wall coverings are a form of the mineral gypsum.



*Original Depositional Environment I*, 2001, 18 ft. x 8 ft., algae, water, wood, acrylic, central gallery skylight. Wall left to right: *Landscape Projection (for an Unknown Window) No. 10*, 6 and 7, 9 ft. x 6 ft., b&w photograph.

Central to *Original Depositional Environment's* concept are the installations, *Depositional Environment I and II*. These are transparent, water-filled constructions containing living algae inserted into its skylight wells of the gallery. The algae and water are used as signifiers for primal marine, estuarine, fluvial and paleo-climactic environments of the geologic past and the process of deposition of silts, sand and other materials collecting in these conditions that would later be lithified into slate, sandstone or shale. As in the *Holocene* projects, which both used moss in a similar manner, the botanical material's visual presence and vitality are dependent upon external conditions such as sunlight, rain or temperature, the current "depositional environment." Completing the exhibition are five digitally augmented photographs of landscape imagery wrapping a central window/void from the *Landscape Projections (for an Unknown Window)* series, 1998-2001, installed on the gallery walls subtly receiving algae influenced illumination and further echoing the theoretical and actual reference of architecture to natural systems.

*Site Index* includes *Rapson Group* and the West Garden, commissioned for the College of Design, Rapson Hall, University of Minnesota, Minneapolis, MN 2001-13. Descriptive geologic text for *Rapson Group* was created in consultation with the geologist, Carrie Jennings, MNGS and UMN faculty and *Site Index*, was designed in collaboration with artist and landscape architect Rebecca Krinke.

Initial research for *Site Index* included an extensive investigation into the Rapson Hall site, defined as troposphere to the mantle, a minimum of a 100 mile radius from Rapson Hall and deep into geologic time. Research included site visits to quarries and related bedrock exposures. Aeromagnetic studies of Minnesota revealed evidence of an aborted deeply buried Proterozoic rift system originating in Michigan, looping up through Lake Superior and ending much further south in eastern Kansas. The rift system composed of intrusive volcanic rock passes some 14,000 ft. beneath Minneapolis. The rift system and similar discoveries formed the catalyst for numerous proposals and site studies for Rapson Hall, culminating in *Site Index* and *Rapson Group*.



West Garden, Rapson Hall, view of indexed anorthositic gabbro slabs, native oaks and ground cover. The concrete bench inscribed with *Rapson Group* geologic data is visible beneath the oak bosque to the center left.

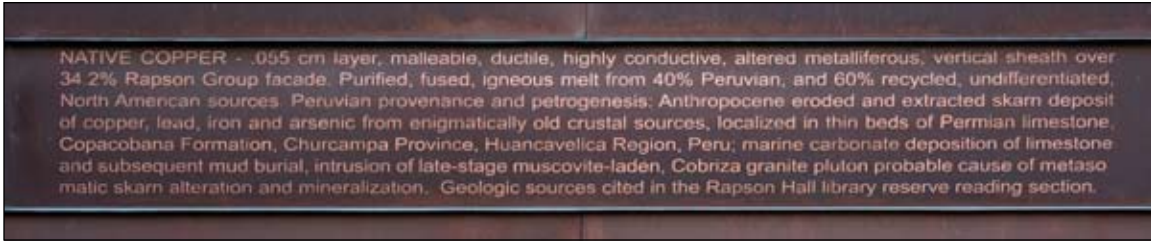
The West Garden component of *Site Index* is part of a larger plan of four gardens surrounding the Steven Holl Architects designed annex to the original brick sheathed Rapson Hall. West Garden is the only garden to be completed at this date. All the gardens (as well as *Rapson Group*) were conceived to be pedagogical spaces in the context of a college that includes architecture and landscape architecture. In addition to demonstration and formal concepts a material/site, indexing element comprised of large cut slabs of Duluth Complex anorthositic gabbro (> 75% plagioclase and pyroxene dominated mafic minerals) from a quarry near Ely MN, in northern Minnesota. The Duluth Complex gabbro was originally formed in the magma chambers of the rift at a depth of >1-2 km, later tilted and exposed near the shores of Lake Superior. The gabbro blocks used in the

West Garden were surveyed by a professional survey team to an accuracy of .001 degree/second as it existed in the quarry. The quarry blocks were cut into 6 in. thick slabs, placed in the West Garden to abstractly refer to fallen architecture and act as an entrance and communal site at the north entrance of the west wing of Rapson Hall. Each slab was etched with its unique GPS location in the quarry with the intention of the viewer being able to mentally assemble the slabs and place them back to the site of origin in the Duluth Complex of northern Minnesota.



Left: West Garden detail of an indexed anorthositic gabbro slab with its unique GPS inscription of longitude, latitude and altitude.





Rapson Group, copper text panel, 15 in. x 109 3/4 in., etched, oxidized copper.

The geology text panels that comprise *Rapson Group* are based upon extensive research and analysis of the provenance (natural and industrial), geologic origin, paleo-geography, depositional environment and geologic naming of four primary materials, brick, concrete, glass and copper, used in the construction of Rapson Hall at the College of Design. The descriptive text panel of the geologic interpretation each material was etched directly into its corresponding material on the building.



Rapson Group, concrete text panel, 14 in. x 188 in., etched concrete, paint.

*Rapson Group* is an allegorical vision of Rapson Hall as a Holocene/Anthropocene geologic "meta-formation," identified by these four materials/formations whose geomorphology is that of the college's architecture. In these terms the Rapson structure's paleo-geographic/paleo-climatic provenance is expansive: Permian Peru, Carboniferous Belgium, Devonian Iowa, Pleistocene and Cretaceous Minnesota, etc. In this sense Rapson Hall may be seen as an Anthropocene landscape constructed of other landscapes, climates and conditions.



Rapson Group, glass text panel, detail, two text blocks, 145 in. x 7 1/2 in. each, etched Proflit glass.

In addition to site and general geologic research into their origin, samples of each material have been subjected to laboratory analysis as if they were rocks collected in-situ. The analysis included: Scanning Electron Microscopy (SEM) and Energy-Dispersive X-ray Spectroscopy (EDS) analysis, the brick and concrete also underwent X-ray diffraction (XRD) analysis and the glass was also analyzed using X-ray fluorescence (XRF) technology.

The works presented here, are exemplary of an approach to producing work as an artist in the Holocene/Anthropocene that has been developed over 40 years, beginning with the desire to be a marine geologist, gravitating to art for its openness, range of questions and embrace of serious play. The concept of *Synthetic Ecology*, outlined earlier in this document, is a product of that journey, perhaps most influenced by lines from Gary Snyder describing the wilderness as a metaphor for the unconscious as well as the monadic attitudes of Gottfried Leibniz, co-evolving with an interest in those long days that Black Elk was seen as ill as a youth in his family's tent undergoing a profound transformation. Like some notions of what is called "object oriented ontology," to my understanding, a level, non-hierarchical, playing field for all matter (and probably energy as well as they are the same thing, according to some), the concept (that I derive from Black Elk and others) is that of 'asking.' The works presented here employ a form of the 'negative' as in the missing time of *Land Monitor* and *Rapson Group* or missing space of the *Holocene* installations and window/void of *Landscape Projections*. Perhaps this idea as a function of *Synthetic Ecology* is best understood through the un-presented, *Seventh Climate (Paradise Reconsidered)*, 2006, an artificial climate system programmed to simulate the 1960 climate of Seattle, WA, installed under the I-5 freeway, built in 1961. This climatic system essentially "dissolves" the concrete structure, one who's installation was arguably not sufficiently 'asked' of the neighborhood it split in two. In this sense the 'negative' (along with its positive counterpart) becomes a working, synthetic analog of the metabolic system of anabolism and catabolism of *Synthetic Ecology*. Perhaps an alternative model is being suggested for the Anthropocene, one of integrating across the spectrum of matter, species and being, 'asking,' 'un-making,' and 'un-doing' into our current notions of progress.