ARCH V3312

SPECIAL TOPICS: ARCHITECTURE, NATURE AND TECHNOLOGY

Monday and Wednesday 1:10Pm – 3:00Pm / Location: Diana Center LL104

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ARCHITECTURE, NATURE AND TECHNOLOGY

There is no sense of nature, of human subjectivity, of the body (nor are there even concepts of sustainability and ecology) that can be thought of outside of, or separable from, ever more technologized societies and social relations. – Damian White and Chris Wilbert

More than half of the world’s population now lives in cities and this number continues to grow. Through technological means, we have expanded the site, reach and pace of human habitation. At the same time, we have seen profound transformations in the natural cycles and structures around us. Think, for instance, of recent super-storms (Sandy in 2012 or the 2011 earthquake and tsunami in Japan); or irreversible changes in vegetation; or extreme weather patterns. The rapid urbanization and corresponding environmental transformation – if not crisis – point to the need to rethink the physical footprint of our society. As tensions between development and available resources escalate, we must re-examine our assumptions and attitudes towards both nature and technology.

This seminar maps changing relationships between nature and technology or, in a wider sense, nature and culture. We will look at architecture and urbanism as sites that explore the contested yet constructed boundaries between nature and culture and trace the genealogy of recent ideas emphasizing environmental awareness and responsibility. We will address current conditions and future possibilities through the double framework of nature and technology and ask, what is the role of architecture? Can we respond as designers?

HAZARDOUS CONCEPTS

The history of Western thought reveals diverse attitudes towards nature, as well as diverse ideas of nature. While attitudes range from the romantic to the imperial, ideas of nature include: Nature as Divine Order; Nature as organic; Nature as the Great Machine; or Nature as the Biosphere. Seeking to describe “nature’s economy,” these models are constructed and mediated by a myriad of cultural, philosophical, political and social factors.

Similarly, technology is a complex term. A relatively new word, it gained popular usage in the early part of the twentieth century. In the form of tools or instruments, technology provides the ability to explore, discover, quantify and understand

1 See Technonatures, ed. By Damian White and Chris Wilbert, 6.
2 Concept dates back to 18th C Swedish botanist Carl Linnaeus. See Donald Worster, Nature’s Economy.
nature. Yet it also enables the transformation of the wilderness and the creation of human settlements, and thus negotiates the boundary between city / country, or urban / rural. Like nature, technology is a reflection of cultural and social values. It denotes not only specific objects (tools, mechanisms, etc) but also larger ideas—such as processes of innovation, progress and modernization. In the words of historian Leo Marx, technology is a “hazardous concept” precisely because it is endowed with agency and historical determinism and therefore appears to subsume human decisions and intentions.

Extending Marx’s definition, we can say that both nature and technology are “hazardous concepts” — at once disarmingly obvious yet veiled, changing and charged in their implications. We will explore the conceptual ramifications of these terms and treat nature and technology as mutually-dependent and entangled.

TECNO-NATURES

Though environmental concerns are not new to architectural discourse, calls for an urgent disciplinary realignment have intensified. Yet there remains a void in both ideas and consensus. The concept of “green,” sustainability and LEED have offered only myopic solutions and are still quite removed from daily architectural practice. Despite no lack of imagination, sustainability remains a concept limited in scope and deals primarily with the single building.

In this seminar we will go beyond the architectural object and look at larger scales — and ideas — of human development and habitation. Focusing on the latter half on the twentieth century, we will study architectural and urban interventions in relation to technological, ecological, cultural, political, social networks and events. We will follow the provocation that the co-joining of nature and technology will open up new ways of thinking about the present and the future.

The period following World War II heralded a period of unmatched technological advancement, as well as optimism and exuberance. The development of the atomic bomb (dropped over Hiroshima in 1945) expanded man’s reach into the depths and limits of nature and showed both the promises and dangers of technology. It also, ironically, gave birth to the Age of Ecology. Later events such as the 1979 oil crisis and the 1989 Chernobyl nuclear accident, or the exponential environmental contamination in China and other rapidly developing economies have brought into sharper focus the relationship between technological development and the natural environment.

We will study past and current theories, projects and projections and explore their implications on the architectural discipline as a whole.

Buckminster Fuller, World Town Plan (1927); “The Biosphere,” Illustration by Evelyn Hutcheson (1972); Cover of Life Magazine, 1968, showing first view of the earth.

3 Leo Marx, “Technology: The Emergence of a Hazardous Concept,” 577.
4 See Technonatures, ed. By Damian White and Chris Wilbert.
CLASS FORMAT:

This class will combine a research-based seminar and a hands-on workshop. On Mondays, we will meet in a seminar format. On Wednesdays, we will meet in a studio format. As in a seminar, students are expected to present their research to other students, complete readings, and contribute to group discussion. As in a studio, students are expected to produce works of original research and analysis, and receive feedback through desk crits, pin-ups and reviews.

In the seminar, we will study primary and secondary texts, as well as projects. Topics will include: the notion of the wilderness; the machine aesthetic; technological utopias; urban networks; and ecologies, among others. We will also have several in-class guest speakers. In the workshop, we will undertake active research projects and develop critical ways of synthesizing, representing, and communicating multi-dimensional information. We will focus and expand on graphic techniques using the Adobe Suite programs, among others.

The assignments will be as follows:
- Project 1: Hybrids: A Contemporary Archive
  - Bi-weekly blog and (brief) presentation, documenting current intersections between nature and technology
  - Blog entries will critique contemporary images, language, and/or clichés relating to nature / technology
- Project 2: Utopia or Oblivion
  - Research project into utopias, technologies and environments of the 1960s; to be presented as visual narrative and short paper
- Project 3: What If?
  - Final project will be an analytical and explorative investigation into contemporary sites and technologies;
  - Final product will be graphic board (poster) and video/podcast.

COURSE REQUIREMENTS:

Readings and Assignments: You are required to complete the assigned readings and projects, in advance of each class session. All readings and information will be posted on Courseworks. (Refer to the Syllabus section on Courseworks for access to pdf of the readings). Each assignment will outline requirements for submission and deadlines. With the exception of prior approval due to extenuating circumstances, no late assignments will be accepted without a late penalty (1 letter grade drop per each 24 hrs).

Attendance: Attendance is mandatory at all scheduled classes. Please be on time, as late arrivals will be disruptive. The only excused absences are those for reasons of documented health or crisis issues and must be approved in advance. Unexcused absences, late arrivals, or early departures from class will reduce your course grade. Students with excessive unexcused absences will see a reduction in their final grade (one third letter grade for each unexcused absence, starting with the third one). Please let me know ahead of time if you know you will have to miss class.

Class Participation: Thoughtful class participation is essential. If you are not comfortable with speaking in class, please come to see me and discuss others ways to contribute.

GRADING:

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<tr>
<th>Component</th>
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<tbody>
<tr>
<td>Attendance / Class Participation</td>
<td>15 %</td>
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<tr>
<td>Project 1</td>
<td>10 %</td>
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<td>Project 2</td>
<td>30 %</td>
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<td>Project 3 / Final Project</td>
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LEARNING OBJECTIVES:

1. Visually communicate architectural concepts and research using discipline-specific techniques
2. Work independently and in collaborative groups on design research projects
3. Verbally and visually communicate architectural concepts in multiple media formats
4. Understand historical and theoretical context for the course material
5. Utilize multimedia techniques, at an advanced level, to present research and a final project on a concise thesis

OFFICE HOURS: Monday, 3:15pm-4:00pm (Diana 500H), by appointment
### COURSE OUTLINE AND SCHEDULE:

#### Week 01: Introduction

**Wed Jan 21**  
Introduction

**Required Readings:**  
- Beth Gardiner, “We Are All Climate-Change Idiots”

#### Week 02: Technology

**Mon Jan 26**  
Discussion  
Technology, Modernization, Innovation

**Required Readings:**  
- Leo Marx, “Technology: The Emergence of a Hazardous Concept”
- Bruno Latour, “Love Your Monsters”

**Further reading:**  
- Patrick Geddes, “Paleotechnic and Neotechnic”

**Wed Jan 28**  
Work session  
Introduce Project 1, Project 2

#### Week 03: Nature

**Mon Feb 2**  
Discussion  
Nature, Wilderness, Modernization

**Required Readings:**  
- William Cronon, “The Trouble with Wilderness: Or, Getting Back to the Wrong Nature”
- Donald Worster, “Healing the Planet,” from Nature’s Economy (pp. 342-387)

**Further reading:**  
- Ariane Lourie Harrison, “Charting Posthuman Territory” in Architectural Theories of the Environment

**Wed Feb 4**  
Guest speaker  
Ariane Lourie Harrison

**Saturday, February 9th – 1pm to 7pm:**  
5KL Water Symposium, organized by the Architectural League and The Cooper Union Institute for Sustainable Design.

#### Week 04: Ecology

**Mon Feb 09**  
Discussion  
Ecology; eco-sophy; environmentalism

**Required Readings:**  
- Barry Commoner, “The Ecosphere” in The Closing Circle

**Further reading:**  
- Felix Guattari, The Three Ecologies
- Damian White and Chris Wilbert, “Introduction,” Technonatures

**Wed Feb 11**  
Work session  
Project 2
### Week 05: Machines
**Mon Feb 16**
Discussion: Tabula Rasa; Machine aesthetic; Spaceship earth; systems; grid vs. spine

**Required Readings:**
- Le Corbusier, “The City of Tomorrow and Its Planning”
- Buckminster Fuller, *Operating Manual for Spaceship Earth*, 7-63
- Banham, Reyner. “Functionalism and Technology”

**Further Reading:**
- Frank Lloyd Wright, The *Disappearing City*, excerpt
- Ludwig Hilberseimer, *Nature of Cities*, excerpt (pp. 257-286)

**Wed Feb 18**
Guest speaker: *Jannette Kim*

### Week 06: Machines, Hybrids, Cyborgs
**Mon Feb 23**
Discussion: Human/non-human; robots; cyborgs; cybernetics; information

**Required Readings:**
- Manuel De Landa, *War in the Age of Intelligent Machines*, excerpt
- Catherine Ingraham, “Introduction,” *Architecture, Animal, Human: The Asymmetrical Condition*
- Norbert Wiener, “Information, Language, Society” in *Cybernetics, or Control and Communication in the Animal and the Machine*

**Further Reading:**
- Donna Haraway, “A Cyborg Manifesto”
- Bruno Latour, “Crisis” and “Relativism” in *We have Never Been Modern*

**Wed Feb 25**
Work session: Project 2

### Week 07: Project 2 due
**Mon Mar 02**
Project 2: Presentations

**Wed Mar 04**
Project 2: Presentations; Introduce Project 3

### Week 08: Networks
**Mon Mar 09**
Discussion: Networks; information

**Required Readings:**
- Gilles Deleuze, “Postscript on the Societies of Control”
- Erik Swyngedouw, “Circulations and Metabolisms”

**Wed Mar 11**
Guest speaker: *Lydia Kallipoliti*

### Week 09: No class
(Spring Break)
Week 10: Urban Flows
Mon Mar 23 Discussion: Water; urban waste; transportation; physical/digital infrastructure
Required Readings:
- Andrew Blum, Tubes, excerpt
- Matthew Gandy, “Water, Space and Power” in Concrete and Clay
- Reyner Banham, Los Angeles: The Architecture of Four Ecologies, excerpt
Further reading:

Wed Mar 25 Film Screening Forgotten Spaces by Alan Sekula

Week 11: Land / Density
Mon Mar 30 Discussion: Lawns; parks; land; territory; density; suburbia
Required Readings:
- Rem Koolhaas, “Parc de la Villette” in S,M,L,XL
- George Teyssot, “The American Lawn: Surface of Everyday Life”
- “5KL: Land / Land, Climate, and Culture,” conversation between Rebecca Solnit and Cassim Shepard (video)
Further reading:
- Ian McHarg, Design with Nature, excerpt
- Charles Waldheim, “Landscape as Urbanism” in The Landscape Urbanism Reader

Wed Apr 01 Work session Project 3

Week 12: Science, Policy, Politics
Mon Apr 06 Discussion: Science and policy; political ecology
Required Readings:
- Greg Asner, “Ecology from the air” (TED talk)
- G. Evelyn Hutchinson, “The Biosphere”
Further reading:
- Copenhagen Accord, Draft Decision
- The Economist’s “Climate Science, A Sensitive Matter”
- Mason Inman, “Carbon Is Forever”

Wed Apr 08 Works session Project 3

Week 13: Activism / Ethics
Mon Apr 13 Discussion: Activism; ethics; climate change; climate justice; social justice
Required Readings:
- Rachel Carson, Silent Spring, excerpt
- Bill McKibben, The End of Nature, excerpt
- Naomi Klein, “Capitalism vs. the Climate”
Further reading:
- Naomi Klein, “How Science is Telling Us All to Revolt”
- Ulrich Beck, “Social Inequality and Climate Change”

Wed Apr 15 Work session Project 3
### Week 14: The Future

**Mon Apr 20**  
Discussion  
Required Readings:  
- Melissa Lane, “Sustainable Citizenship”  
- Donella Meadows, *The Limits to Growth*, excerpt  
Further reading:  
- Gus Speth, “A Vision of America the Possible”  

**Wed Apr 22**  
Work session  
Project 3

### Week 15: Work session

**Mon Apr 27**  
Work session  
Project 3

**Wed Apr 29**  
Work session  
Project 3

### Week 16: Conclusions

**Mon May 04**  
Presentations

**Note**: Dates and readings may be adjusted. Stay tuned for announcements in class.
BIBLIOGRAPHY:


---. Whole Earth Catalog. (link)


Latour, Bruno. “Love Your Monsters: Why We Must Care for Our Technologies as We Do for Our Children.” *The Breakthrough Journal*, 2012. (online)


Swyngedouw, Eric. "Circulations and Metabolisms: (Hybrid) Natures and (Cyborg) Cities." in *Technonatures*. 


**OTHER RESOURCES:**


The Breakthrough Institute: [http://www.thebreakthrough.org](http://www.thebreakthrough.org)


Yale Environment 360: [http://e360.yale.edu/](http://e360.yale.edu/)