

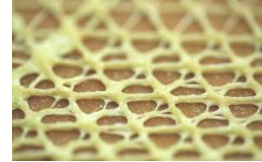
Lecture 6 – Jun'ya Ishigami

OSHER at CMU
Matthew Schlieb, Instructor
Lecture 6 - Jun'ya Ishigami
Cyert Hall - 2023.08.02Zoom Screen Share:
check box for **video audio on**

Last lecture in our five part series, **The End of Architecture**.

Today, **work of Japanese architect Jun'ya Ishigami** (june-hi EEshiEE-gah-mEE).

Aguahoja I (Media Lab, Cambridge, 2018)

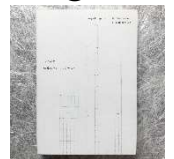


Last two weeks, explored the works **Philippe Block** and of **Neri Oxman**, who are taking architecture in the direction of the **microscopic scale**, studying from a **biological** perspective, with advent of **new scientific tools from the computer age**.



This is **sharp contrast** to observation by **Rem Koolhaas'** concept of **Bigness**, sited in his 1995 publication **Small, Medium, Large, Extra-Large**, where he stated: **"Beyond a certain scale, architecture acquires the properties of Bigness. ...the size of a building alone embodies an ideological program, independent of the will of its architects. ...structures taller & deeper – Bigger - than ever before conceived, with a parallel potential for the reorganization of the social world."**

We saw an **example of this bigness** in architecture, at the end of **Gehry's** lecture, in his design for **Facebook's West Campus** (Menlo Park, CA, 2015), where he was asked by **Mark Zuckerberg** to create **one continuous open space**, encompassing nearly **1 million square feet**, over an area of **22 acres**.



Another Scale of Architecture, Jun'ya Ishigami, LIXIL Publishing, 2019:

"Re-thinking our methods of constructing architecture (material/building science). In doing so, we will surely discover **an expansive new world of another scale**, never perceivable before. The **scales of space engendered by the natural environment**. The liberating feeling of a **landscape extending seemingly forever**, the **vastness of the sky**, the **lightness of a cloud**, the **firmness of rain drops**. Each has a scale never realizable in architecture until now."

“Architecture has been formulated as a shelter, we might say, in order to separate us from that natural environment – a small sheltering space built within that vast environment. The artificial environment we are creating has grown enormous in extent. So much so, it has even affected the natural environment, and the natural environment in its turn is heavily affecting our artificial environment. As the boundary between these environments, natural and artificial, has grown steadily more ambiguous, a new environment is taking shape. To conceive architecture for this new environment, not as shelter, but as environment, itself.”



1:05

Jun'ya Ishigami (june-hi EeshiEE-gah-mEE)

MFA in Architecture, Tokyo National Univ. of Fine Arts and Music (2000)



From 2000-2004, mentored under **Kazuyo Sejima** (Cuz-yo Sage-mah), in her office **SANAA** (founded with **Ryue Nishizawa** in 1995).

Kazuyo (Cuz-yo) studied architecture at **Japan Women's University** (1981), where she is currently teaching as a visiting professor, as well as at the **Osaka University of Arts** and the **Polytechnic University of Milan**. Mentored under **Toyo Ito**.

In 2010, won the **Pritzker Prize** (highest international award in architecture), (along with her colleague and former student **Ryue Nishizawa**), for her exploration of “the phenomenal properties of space, lightness, transparency and materiality to create a subtle synthesis.”



Rem's Big



Corb's 5 Points +2



Opened her own studio in 1987, and won the design competition for the **Rolex Learning Center at EPFL** (Lausanne, Switzerland, 2004-2009) selected over **Zaha Hadid**, **Rem Koolhaas**, as well as **Jean Nouvel**, **Herzog & de Meuron**, **Diller Scofidio & Renfro**.

During **Ishigami**'s time in her office (2000-2004):

1:10



+5



Meis' window as wall

Gehry's **Conte Nast** curved glass (2000)

Philip Johnson's **reflectivity**

Glass Pavilion (Toledo Museum of Art, 2000-2006) maze of large curved glass walls (**imported from China**), low horizontal form and public open space to interact with the world around the architecture.

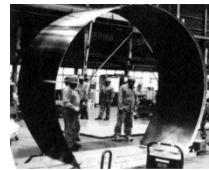
Opens his own studio: **Jun'ya Ishigami & Associates** (2004)



(Magic) Table (Yamaguchi restaurant, Japan 2006) 10m (31ft.) x 2.6m (8.5ft.)

Zaha & Gehry designing furniture before commissions. 3mm (1/8") thick

Table as architecture, legs as columns, top surface as roof.



Loaded with tableware, food, plants, to level out **pre-stressed curvature** required to support thinness.

Gaudi's

Inverting gravitational tensile sag, into **compressive arch** (**Estereostàtic model**).

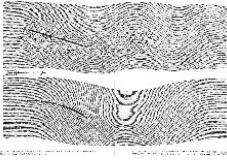
(0:50)



“Made from **700 kilograms of aluminum**, this table is actually **soft as paper**. A small touch and the table sway like paper on the water. So, the table, of a structure **soft like water surface, make a space.**” (**active, plasticity, immateriality** as Gaudi's **Casa Batlló** wood chair **feeling like clay deformed** by weight of sitting)

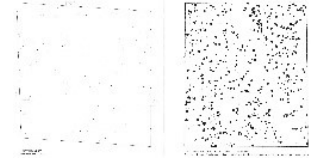
“Through this project, I want to think about a **new possibility of architectural space**, by thinking about a **new proportion of architecture's structure.**”

Another Scale of Architecture
studies of natural forces:

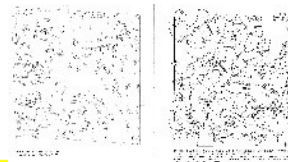


“Buildings designed to resist wind pressure, why not incorporate in structure as a force sustaining the flow of air?” Like the curved surface of a wing.

FOREST:



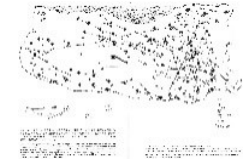
What if that building was like a forest? No walls (glass facades), only columns. Each different in proportion and orientation. One-room space (2000sq.m), but each time we take a step forward, entire room transforms like a kaleidoscope.



Position of trees in a forest determined by elaborate systems, but creatures living there are unaware why. Present trees/future trees. High density forest/thinned.

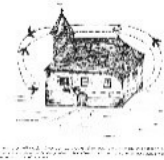
(subconscious)

Form (body) language
(Thesis)

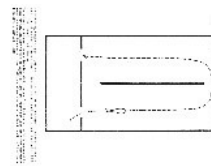


Jurassic Era Moenave strata (NEArizona) dinosaur footprints: pace, stride, direction

habitual behavior



Daurian jackdaw bird: habitual flying to turn back along well-known route to origin

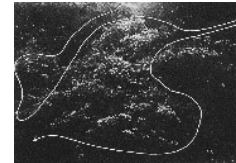
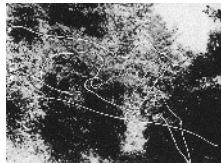


neural network

Tropical Betta fish: lured around divider, will follow route even with shortcut

(2013)

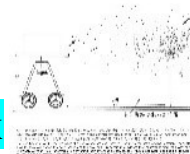
Oxman’s silkworms
influenced by light & heat



Red Helen Swallowtail butterfly: morning sunlight, summer heat cool shade

(2016)

Oxman’s bee hives/wax



Honeybees: return to hive box location they left, after it was moved (compass)



+2



KAIT Workshop (Kanagawa Institute of Technology, Japan, **2004-2008**)

Youngest recipient of Architectural Institute of Japan Prize (2009)

305 columns feel overwhelming, cumbersome: **thin, random, uneven placement.**

Like a **forest punctuated with clearings**, for tables and chairs. “A lot of students go there to work alone, so I wanted to **create a feeling of enclosed personal space**, while keeping the **sense of an open hall.**” (enclosure from walls, replaced by trees)

Abstract flexibility: without need for compartmentalizing different functions, providing fluent circulation and varied ways of appropriating workspaces.

Everyone **no longer look in same direction, individually different future.**

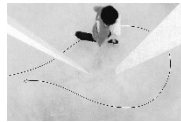
Architectural form **derived from table**, with many legs. **Glass as perimeter walls.**



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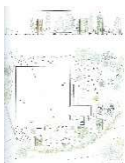


White-Cheeked Starlings birds: swarm in group, **disregard columns**, **redefine space**



Like Daurian jackdaw bird

and Tropical Betta fish, **people follow same route**, a **stable circulation path**



+1



Japanese Pavilion (11th International Architectural Biennale, Venice, **2008**)

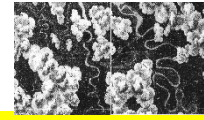
Solo show. **Inverted:** **Interior empty, exterior enclosed** with 4 glass greenhouses (**interior landscape**), precise structural calculations, just **barely able to stand**, with ephemeral physical presence **blending into surrounding environment.** Without conditioned air, nor a sealed barrier, **reducing feel of artificial environment.**



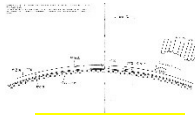
(HI-dee-kee OH-ba)

Botanist Hideaki Ohba selected **plants with slight fluctuation to landscape**, to **seem quite ordinary**, as a progressive approach to the environment. Architecture itself becomes equivalent to the plants. **Comparable scale to the built environment.**

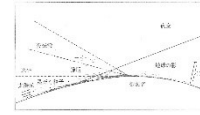
Architectural ruins merge into landscape, landscape emerges into architecture.



Pioneer Balloonist **Thomas Scott Baldwin** drawing **clouds overlaid with land**



Earth's layer of atmosphere has a **thinness**, proportional to large curvature radius



High altitude Noctilucent Clouds: **sun at horizon, sunlight below clouds, like waves**



+1

“**Largest space on our planet** able to be encompassed in a single view is the **landscape extending to the horizon**. Even if a bigger space could be made as a single room, the **curvature of the Earth would cut off the far distance**.”

“**Contemplating spaces in terms of the largest units of space** on the planet may help us **find ways of creating environments on a new scale**, transcending that of previous **artificial environments such as buildings**.”



+7



Plaza at KAIT (Kanagawa Institute of Technology, Japan, **2008-2020**)

100m long, 60m wide, 2.2m to 2.8m high, **permeable asphalt ground** slopes 5m, **12mm thick single steel sheet roof, without central support. (floating: cloud)**

“I made the forest (**KAIT Workshop**), now I want to make the sky.”

Catenary curve, ground & sky **appear to merge** (horizon), **sense of infinite space**.

“The campus’ existing outdoor spaces were mostly surrounded by buildings, resulting in distinctly **artificial environments that lack the ever-changing qualities of natural spaces**.” Plaza is intended to create the **feeling of a landscape stretching toward the horizon** (artificially where the **floor curves up to meet bowing roof**), where **changes in the seasons and weather affect** the spontaneous social interactions of students meeting to sit and chat, eat lunch or take a nap.

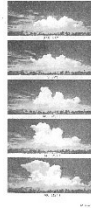


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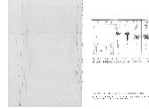


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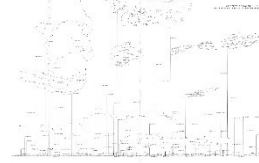
W/o wall, just roof, to create/define space.



“How much justification can there be for **permanence** in architecture within the natural environment?” Just as clouds change shape, architecture can gradually **change** depending on various conditions and stable qualities found in surrounds.



Minutely detailed **structure resembling dandelion seeds** same scale as current air.



“World takes on an **entirely different scale** when we move **vertically**, compared to when we move horizontally. When you walk 30 meters through town, the scenery around you changes little. Yet, when you ascend a 10-story building to a height of **30 meters, you will see scenery completely unlike that seen at ground level.**”

Radiative dampening:

Dense, flat foliage: incident radiation **absorbed & dispersed in upper third.**

Narrow, erect foliage: light is **evenly distributed** throughout the community.



varied

Water **vapor** condenses in air to form **cloud, raindrop**, to **fall**: number, size, velocity.



“To construct **architecture at such a scale**, to **eliminate the boundaries between empty space and structure**, this will require thinking of **architecture as air**: **all around us, endlessly spreading, filling space as it goes.**”

Rem: Bigness (1995)



Carbon fiber sheets rolled into pipes of 900um diameter, **smaller than raindrop.**

What if an architecture could be made of this structure, mostly empty space?

“**Density reduces infinitely** until structure forming **building is as rarified as vapor**”



(1:45 - 4:12)



1:35

Architecture as Air: Study for Chateau la Coste (12th Venice Architecture Biennale, 2010) Curated by **Kazuyo Sejima**, first woman Director of Architecture. (Cuz-yo)

Golden Lion for Best Project



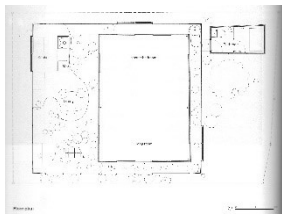
Slender structure **so thin and delicate, collapsed** just before the Biennale opening, sceptics **questioning if it was ever really there.**

1:40

[5 MINUTE BREAK]

1:45

Tohoku University Associate Professor (2010)

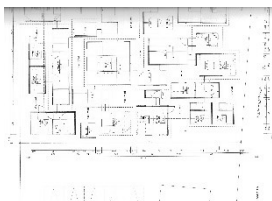


11th Biennale (2008) +5
empty inside: create space



Gehry's
asphalt floor

House w/ Plants, (Tokyo, 2010-2012) 15mm thick **non-structural** perimeter wall. **Earthen floor** (Japanese *doma*: cooking pit) and *niwa* (garden) **invert inside/outside**, **plants/nature between exterior and house**. Curving line of soil marks living room.



+1



Home for the Elderly (Akita, Japan, 2012-) suffering from senile dementia, **traditional houses create familiar environment**. 40 houses salvaged around Japan. Proportions determined by *tatami* mats (**modular, Metabolism**).

GARDEN:

1:50



Botanical Garden Art Biotop/Water Garden (Tochigi, Japan, 2013-2018)

318 Trees cleared for hotel, replanted in adjacent fields, with **160 small ponds**.

Rental farms artificial scenery (maximize crop yield), blend with existing scenery.



Dug out **ponds barriers (walls)** between occupiable **courtyard gardens tsubo-niwa**.

A highly **artificial landscape**, carefully modelled and dependent on technological artifacts (Zaha's **Hong Kong Leisure Club**: man-made landscape as architecture), yet an **undeniably natural and living organism that grows and changes by its own inherent dynamics**. Demonstrating how we can interact with and make our own **imprint on nature without destroying it**.

Curated natural landscape as architectural, **exterior as interior place/space**.

EARTH:



Noel House and Restaurant (Yamaguchi, Japan, 2013-2022) **Magic Table client**, requested “architecture that **feels as heavy** as possible, and that **acquires a patina** over time, something that embraces the **roughness of nature**. Authentic (French) cuisine requires a space like that.” Eating in an old wooden izakaya certainly lends more charm & depth to the food compared to eating in a new commercial building.

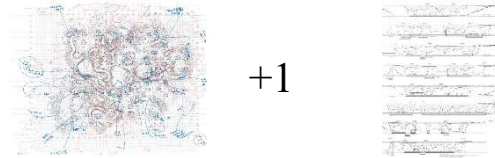


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“Not only should its **charm increase over time**, but the **degradation and stains** that accumulate over time should also be included in the design. Here should be no clear boundary between the two functions, with the **liveliness of the restaurant** and **everyday domestic life flowing into a space** that felt as heavy as a cave.”

Able to **serve food to his visiting acquaintances in the restaurant**, but also in his living room, and sometimes even have them stay overnight.

1:55



+1

Volume forms **defined by client's lifestyle (movements/habits)**. Final model **scanned into 3D coordinate data**, inputted into an optical surveying instrument,



+2

with **artisans digging holes by hand**, checking **positions/depth via iPad**.



+2



Concrete **poured into excavations as a mold**, then **excavating the soil away** from the hardened structure, to make caves **inverted from the solid ground**.



+5



No wall, no roof, subtraction of form to create space as space,

+2



Zaha's **artificial landscape**, rebuilding **The Peak** granite mountain.



+2



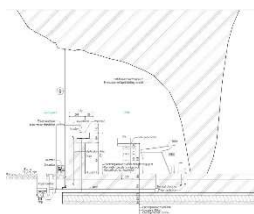
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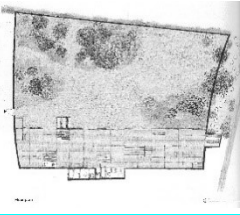
windows glazed to **define the interiors**.



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Living area made of **random functional spaces** (kitchen, bedroom, bath, ...)

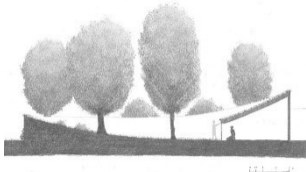


LIGHT:

Mother's House, Japan (2013-) grandmother's house, **rebuilding from memory**.

“My **childhood memories** of this site are of an **intimate south garden** surrounded by hedges and a windbreak formed by large trees, and the **sense of being drawn into** the inner depths of the adjoining, mostly tatami-floored house of my grandparents.”

“Instead of the large trees forming a windbreak, the plants that correspond to the scale of my mother's life will begin to encircle the house.”

**Plaza at KAIT:**

ground **curves up to horizon, extending space to infinity**.

“Drawing on my memories, I am making a house here for my mother on a **scale where she can reach everything**.”

Downward curving shed roof eaves below line of vision, to be one with ground.

Boundless low window **25m long, 1.3m high**.



Scenery and memory (drawn in) merge.

“the **low eaves** form a **gentle pause between the garden and the interior** of the house. From the **brightness by the windows** to the **darker areas at the back**, the long and narrow space will give rise to a **harmonious coexistence of both light and shade**. The ground extends continuously from the tatami floor,”

Harvard University Visiting Professor (2014)

Princeton University Visiting Professor (2015)

Academy of Architecture of Mendrisio Visiting Professor, **Switzerland (2016)**

Oslo School of Architecture and Design Visiting Professor, **Norway (2017)**

Columbia University Adjunct Assistant Professor (2017)

WATER:



2:05

Chapel of the Valley (Shandong, China, 2016-2023+) reinforced concrete curving walls, 45m height, **1.3m narrowest** width, **22cm to 180cm thick walls**,



“Because the **space gets wider** as one advances through the building, the **entrance is plunged into darkness** while the **altar receives sunlight**.”



+1



“its **monumental scale** radically exceeds that of the existing landscape.

A **new valley is created, open to the wind and rain.**”



No roof (open to sky), just wall, to create/define space. Yet too slender to let in rain.

“Just as **walls and ceiling partition a building to create rooms**, **rain** creates small **spaces amid the greater expanse of the landscape.**”

WEIGHT:



Hotel Null Stern (Swiss Alps, 2009)

Eight Villas (Dali, China 2016-) **living spaces within existing arrangement of stones** (becoming structural pillars), topped with 300m long wafer-thin roof. Each 500sq.m vacation villa occupying a stepped terrace of meandering riverbed. **Architecture without enclosure, natural stone megaliths (columns) define space.**

“Up until the twentieth century **architecture placed humankind at its center**. But **now we have to see humankind as part of nature**. So, the **human scale must not be the only scale for architecture**. We need to think of **a new scale. (Planetary)** ... Then we can think of things **from an animal's scale** or a **plant's scale** and that leads us to introduce a new type of scaling into architecture.” **Megaliths to feel small, humble.**



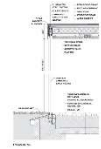
+2

Park Groot Vijversburg Visitor Center (Tytsjerk, Netherlands, 2017)

Historic building and park, where **no trees, nor paths could be removed**, built a sinuous **glass pavilion, without columns**, walls **following line of existing paths**.



Mies: **glass curtain wall**
(**hung off roof & floor**)



Glass façade as **loadbearing structure** (**window as wall**), by Japanese **engineer Jun Sato** and Dutch engineer **Han Krijgsman** of ABT. **Glass panels clamped to floor structure** without visible supports. **Roof structure a web of steel and wood beams distributing load** equally across glass panels. **Natural ventilation system** of hidden floor and roof ducts, to control interior climate.



Roof floats

Resolution of FLW's continuous opening onto the prairie where did this idea originate?



shoji sliding screens open outside



Japanese Pavilion (Byōdō-in temple: Hō-ō-dō “Phoenix Hall”) (1893 Chicago's World Fair)



+2



+1

glass sealed from outside

Serpentine Pavilion (London's Hyde Park, 2019)

“Possessing the **weighty presence of slate roofs** seen around the world, and **simultaneously appearing so light it could blow away in the breeze**, the cluster of **scattered rock levitates**, like a billowing piece of fabric.”



Immaterial: Gaudi's Casa Batlló wood chair feels as if clay deformed by weight, Ishigami's **stone feels weightless, glass wall delicacy & slender columns.**

3D views: <https://www.nikcreations.co.uk/indie360/SerpentineGalleriesPavilion2019/>

NATURAL:



2:15

The past couple weekends, I have been **tearing out the wood deck** on my house. Western red cedar, a softwood, with **moderate resistance to decay**, insect attacks.

Installed 7 years ago, experimented with a **synthetic sealer, to preserve longer**, however, **prevented wood from breathing**, allow moisture content to match air.

Desire for low maintenance, resulted in premature deterioration, rather than **working with the material's** inherent qualities, to last **until no longer needed**.

Neri Oxman researching **bio-based materials - a living deck**, able to respond to sunlight, moisture levels, insect attacks, **self-healing**, then **naturally decaying away**.

The **addition (2020)** made of **plant-based materials, organic** in the **absence of synthetic, made-made, artificial materials** (primarily wood, paper, moss), also FLW's sense of organic design, **mimicking nature's processes, of the prairie**.

Our modern materials, **forever chemicals** (PFAS: Polyfluorinated Substances) intended **to make our buildings and products last forever, lower maintenance**, has made us **too sheltered from the natural elements, disconnected from environment, no longer proxemic**, we loose touch, **do not notice a planet growing imbalanced**.

The **addition** is **an architecture to restore a direct, tangible connection** between **interior place and exterior wilderness**, dissolve the **separation, isolation, disconnect**. Ishigami's sense of **humans as a part of nature, one system, of planetary scale**.

For 3 years, the **work on the addition has paused**, as my client work picked up after Covid, I did not have the time to work on it. However, has **given me the chance to live within the space without complete enclosure or shelter** from **cold of winter**, keeping out the **nesting birds and bees**. Realized **true nature for architecture**.
(90% indoors: dissolved, open)



Awareness: moss **sneaks in**, where we **don't notice**.

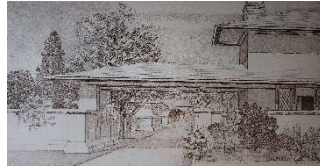
(Thesis: **proxemic envelopes** and **perceptual thresholds**)

Don't need Oxman's **laboratory grown bio-materials**, just **eliminate preservatives, nature will do the rest**. The **synthetic sealer was no match for living architecture**.

Recap:

2:20

We began this course, with a passage from **Frank Lloyd Wright**, speaking of “**American homes**... of slanderous **liars** and **poetry-crushers**, the suburban house parade.” “**monotony-in-variety** and **machine-made copies** of handicraft originals.” “**imitation patterns** and imitation textures” “these things thus **degraded**” “A cheap substitute for ancient art and craft which has **no vital meaning in your own life** or our time.”



more delineation rendering plants,
simple line architecture (ishigami)

Wright answered his critique with **A House in a Prairie Town** (Lady's Home Journal, **Feb. 1901**), calling for a **plastic architecture**, that **extends out to become part of the landscape**;



Le Corbusier's Villa Savoye (Poissy, France, **1928-1931**), **raise house off the ground**, for the **landscape to remain continuous, uninterrupted** below (& above);



Ludwig Mies van der Rohe's Farnsworth House (Plano, Illinois, **1945-1951**), **eliminating the wall**, replaced with **continuous window, disappearing glass**;



Philip Johnson's Glass House (New Canaan, Connecticut, **1948-1949**), **returned house to the ground plane**, **landscape layered in the space with reflective glass**;



Zaha Hadid's **The Peak Leisure Club** (Hong Kong, China, **1982-1983**),
Heydar Aliyev Centre (**Baku**, Azerbaijan, **2007-2012**), **merge building / ground**;



Frank Gehry's **Lou Ruvo Center for Brain Health** (Las Vegas, **2010**),
Louis Vuitton Foundation for Creation (Paris, **2014**), **plasticity** that **blurs the division between interior space and the exterior environment**;



Philippe Block's **Armadillo Vault**, (La Biennale di Venezia, Italy, **2016**),
Beyond Bending (La Biennale di Venezia, Italy, **2016**), working with the **inherent properties found in nature**;



Neri Oxman's **Silk Pavilion I** (Media Lab, Cambridge, **2013**), **Aguahoja I** (Media Lab, Cambridge, **2018**), building with **bio-based organic materials**;



Jun'ya Ishigami's **Magic Table** (2006), **Botanical Garden Art Biotop/Water Garden**, Tochigi, Japan (**2013-2018**), while **reducing the amount of built structure**, toward **open natural environment, without building**, **the End of Architecture**.

...or, **a new architecture**, **softer** (zaha), **malleable** (gehry), **lighter** (block), **breathes** (oxman), **sympiotic** (ishigami) with all other **living things**.

WITHOUT:

2:30

Two weeks ago, the question was asked, “**If you never build a building, are you still an architect?**” (Jeffrey Swoger), today I would like to **end the class and course, the End of Architecture**, with a question.

In the first class, we **defined architecture** as **something that defines space, creates a sense of place**. We took this further, reducing architecture down to a handful of **key elements: a wall, roof, window...** (...door, floor).

As we have seen in this course, over the last 6 weeks, these **architectural elements in the modern era**, since the industrial revolution reached its peak in 20th century, have **become more plastic, malleable, deforming as if soft clay or honey**.

Differentiation between roof and wall, wall and window have become blurred, thereby elements that define place, **divisions between interior space and exterior environment**, have become less clear as they **continue to dissolve away**.

So, the question is: if **building structures continue to dissolve away** going forward, **can architectural sense of place, space be defined without physical structures, without walls, roof, window... ?**

Can the **sense of enclosure**, the **sense of shelter**, the **sense of comfort**, be provided **by other means than a physical building structure?** For example, by **proxemic relationships between people living together with the natural environment?**

If so, does this mean we **can create architecture without a building?**
(...and, by extension, you **can be an architect without building a building?**)
(...or maybe, **architect** is **redefined as psychologist, proxemic counselor, ...**)

...or, **if not**, if the **sense of place, shelter, comfort, can only be created with a physical built structure** - as our buildings continue to become lighter, structures become thinner, **walls, roof, windows dissolving away until there is nothing left**, will that be **the end of architecture?**

...and, **end of humanity** (in need of **comfort** no longer provided)?



PIE Unit234 (2023.08.01 10:40am) Post Industrial Era Unit

“Baking planet, food and architecture”

1/32 scale study model (#910 red, air-drying clay, Standard Ceramics)

Air conditioning one of the biggest contributors to climate change, both in **electricity use / fluorocarbon refrigerants** depleting the ozone layer and enabling the **average American to spend 90% of their time indoors** (home, school, work, car, ...).
(disconnected, w/o proxemic relationship)

Subterranean: **passive cooling year-round**, w/o A.C., as the planet warms.

Air-dried clay tiles: **available** material, **organic**, **porous** (maintain flow through).

Garden: **wilderness infused** w/in habitat, maintain **proxemic relationship**.

(passage threshold backflow valve:

prevents domestication from easing back into wilderness) 2023.07.29 9:40am

FLW's **Prairie house neighborhood block plan** (Lady's Home Journal, **1901**)

Ishigami's **Subterranean House and Restaurant** (Yamaguchi, Japan, **2013**-2022)

Richard Serra's **Torqued Ellipses** (MOCA, Los Angeles, **1996**)

Anasazi's **White House Ruin** (Canyon de Chelly, Arizona, **1500 BC** – 1350 AD)

Guastavino's **structure tile vaults** (**1881**) with **organic clay mortar**

Regress / Restore:

Chimps (down out of the canopy: idle hands domesticate)

Chipmunks (burrowing underground for habitat)

Catfish (original home: ebb & flow of the current)