



**Welcome** to The End of Architecture.

My name is Matthew Schlueb, registered architect, practicing for two decades. This is my third class teaching in the Osher program and I think will be the most exciting of the three.

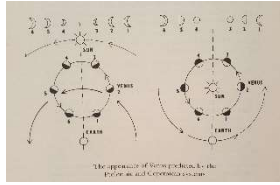
The last two classes (Arch.in the Modern Era & Arch.in the PostModern Era) **dissected five pivotal architects**, tracing their theories & works thru the 20<sup>th</sup> century. This class will take a similar approach, but go into **greater detail**, by selecting five seminal buildings and **examining each one closer**, one in each lecture.

Selected this format attempting to illustrate that **a thread is carried through** the five buildings and more importantly, demonstrating **how an idea can evolve** over time and space, at the hand of different architects responding to localized conditions, while reflecting **a larger arc unfolding** in the current modern era, which I believe and will attempt to prove, marks **the end of architecture** as we know it.

The course syllabus outlines these five buildings and the handout for today's lecture summarizes the **partis pris & leitmotifs** found in the first building – the Japanese Pavilion from the Chicago World Fair of 1893, as well as a bibliography listing for further reading. You will also find a map of the fair on the back side.

**Thankyou** for taking this course, it is a **pleasure to present** this material to you. I welcome your **feedback to improve** the class, as this class is for your benefit.

**Disclosures:** I do not speak Japanese, so please forgive my pronunciations. I am an architect, not an engineer. I work within the human condition, not the scientific method. I take liberty for the larger idea, not get caught up in the technicalities. Life happens in the meaningful and poetic. Though we may describe the natural world with equations, formulas and rules, “nature has no landlord”. **Poetry is disappearing in the age of science, architecture is ending along with it**, replaced by engineered structures sheltering physical needs, metaphysical forgotten.

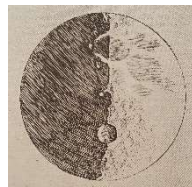


Historians mark the start of the **Scientific Revolution** in 1543 with the publication of **Nicolaus Copernicus's On the Revolutions of the Heavenly Spheres**, which outlined an alternative model for the celestial skies, one with the Sun at the center, upending the Ptolemy model supported by the church with Earth at the center of the universe.

He demonstrated how the motions of the planets in the night sky could be traced with fewer simpler circular movements, than the previous model that required more elaborate complex motions. This **belief in simple explanations** over historic doctrines was a departure, **a new faith in the scientific**, an enlightenment, the dawn of The Age of Reason.



For me, the first significant realization of this new idea, of the **discovery of truths through scientific observation**, was on March 12, 1610 when **Galileo Galilei** sent a letter to the Duke of Tuscany, describing his observations of the heavenly bodies through a new optical spyglass he had perfected (**Sidereus Nuncius**).



Through his telescope (20x magnification, convex objective lens and concave eyepiece in a linear refracting tube), he made discoveries about the Milky Way, nebulous stars, and four moons orbiting Jupiter. But, it was the **shadows in the Moon's craters** that demystified the heavens, allowed for scientific scrutiny of God.

He wrote, “the Moon is not robed in a smooth and polished surface, but is in fact **rough and uneven, covered everywhere, just like the Earth's surface**, with huge prominences, deep valleys, and chasms.”

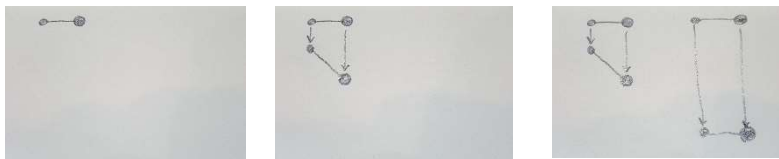


The heavenly bodies were no longer perfect, no longer unblemished spheres in the realm of God. They were objects like any other object found on Earth, imperfect, natural, the same stuff to be found throughout the universe.

And, by the **use of technology**, a telescope, observations could be made, to understand the world in a new light, **to become enlightened** not through religion, but through science. **Inquiry to find truth through technology.**

10:15

Twenty eight years later, **Galileo Galilei**, a professor of Mathematics at the University of Pisa, published **Discourses and Mathematical Demonstrations Relating to Two New Sciences** (1638). Establishing the **science of motion, of falling objects, as the foundation of Physics**. The book presented as a series of thought experiments, including one that has become the most well known in all of science – two spheres, one light, one heavy, dropped from the leaning tower of Pisa. The experiment is so well known, it is believed that he actually dropped them from the tower. However, it was only a thought experiment, **disproving Aristotle's false belief through reason alone**.



Two spheres are connected by a string, one light, one heavy. Assuming Aristotle's **premise that heavier objects fall faster**, when dropped from a tall tower the string will soon pull taut as the lighter object retards the fall of the heavier. But, since the two are tied together and could be considered one object when taut, their combined weight would be heavier than either object alone, and should fall faster as one. How could Aristotle's premise hold true in both cases? The lighter object resisting the pull of the heavier, while at the same time acting as one object by the string pulled taut?

For me, his thought experiment has a more interesting implication. If Aristotle's premise is disproven, that all objects fall at the same rate (9.8 m/s/s) regardless of weight, size or material, then **one universal principle acts on all things**. [wu ji]

However, if Galileo had dropped a stone and feather from the leaning tower of Pisa, he would have found this not the case. Because in real world conditions, without the vacuum of space, objects are affected by the natural environment, wind resistance for example. **Living within nature that things become differentiated,** have unique characteristics, develop individuality.



In the vacuum of space, proven on the Moon by David Scott (Apollo 15), individuality is lost, a feather falls as fast as a hammer. In space, by **the second law of thermodynamics – entropy increases until all things become a single uniform, homogeneous mass.**

It is only through our connection with nature, living within the natural landscape, that entropy is resisted, differentiation occurs by the concentration of matter into objects, existing in a **continual state of change, the tendency toward an opposite force, of growth, life.**

## Chicago World Fair

10:25



We jump to 1893, the **World's Columbian Exposition**, the Chicago World Fair, planned for the 400<sup>th</sup> anniversary of Columbus discovering America.

Chicago had grown to a million people, surpassing Cincinnati and St. Louis in industry, to become the largest city west of the Mississippi. Two decades earlier, all of that growth led to the **Great Chicago Fire of 1871**, leveling much of the city, leaving many to think Chicago was finished.



A competition was held between cities to host the exposition. Chicago gained a nickname, the **'windy city'** not from the cold winds off Lake Michigan, but was coined by Richard Henry Dana of the New York Sun referring to all the 'hot air' coming from the Chicago boosters making extraordinary claims to win the bid.



Modeled on the **Paris 1889 Exposition Universelle**, which was the first world fair to make a profit since the 1851 fair held in the Crystal Palace of London. Paris boasted machinery and technology, marked by the erection of Eiffel's Tower.



Chicago not to be outdone, shifting the world's focus from old world to new world, was exploding with buildings over 20 stories tall, skyscrapers. Chicago would mark its claim as the center of science and industry with the world's first **Ferris Wheel**.

## Japanese Pavilion

10:30



Japan was the first country to respond to invitation. Japan had just restored the Emperor (Komei) to power 25 years earlier (Meiji Restoration) and wanted to dispel savage images of a feudal society, by showcasing their rich artistic history. **The Japanese Pavilion at the World's Fair introduced Japanese architecture** to North America. Admired by the young progressive Chicago architects, including FLW.



The climate in Japan is predominantly warm and moist. Its architecture developed in response, with **good ventilation by cooling breezes in an open structure**. However, even more importantly, the open buildings were also motivated by a love of **nature and a desire for intimate contact with it in daily life**.



Traditional Japanese construction are single story **wood structures**, with timbers **planed smooth and beautifully fitted**. Tile roofs with **wide overhangs**. Inside a dropped, **flat boarded ceiling** concealing the roof structure, keeping the interior a simple **rectilinear volume**. Ceiling stepped, reflecting floors rising in stages, elevated off the ground by posts.

Extremely light and graceful in appearance, an **open latticework** [FLW stained glass] in **horizontal band** around corners. Exterior walls made of a matting stretched across 1 inch square wood bars, set 6 inches apart. Behind these are **sliding sashes** made of black lacquered wooden fretwork eased into waxed grooves in the floor. With these sliding panels called **fusama** (foo-sah-mah) inside and **shoji** (show-gee) around the perimeter, spaces were not fixed, but flexible adapting to needs at hand. Space flowed freely throughout the house and with the garden.

These sliding frames are covered with varnish paper to close off the cold weather. The interior face displayed **pictorial art, combining painting with embroidery**. Faces, figures, and landscapes were painted on silk background, with costumes, animals and houses in embroidered relief. The gold gilding and lacquered finishes were used to **draw natural light into the deep shadow** recesses of the home.



From the book, **In Praise of Shadows** (1977), **Jun'ichirō Tanizaki** describes the Japanese house: “In making for ourselves a place to live, we first spread a parasol to throw a shadow on the earth, and in the pale light of the shadow we put together a house. There are of course roofs on Western houses too, but they are built to create as few shadows as possible and to expose the interior to as much light as possible. There are all sorts of reasons for the deep Japanese eaves. The fact that we did not use glass, concrete, and bricks, for instance, made a low roof necessary to keep off the driving wind and rain. The quality that we call beauty, however, must always grow from the realities of life, and our ancestors, forced to live in dark rooms, came to discover beauty in shadows, ultimately to guide shadows to beauty's end.”



The main hall of the Japanese house is **open to the garden, no division** between inside and out. The perimeter of the house is made of movable screens, perceived as not fixed in place, and therefore do not close off the house from the garden.

Any sense of the division of space between the building and garden is not based on interior and exterior, but rather **the distinction between light and shadow**. The modulation of textures under foot, from the reed and grass mats of the room, to the wooden floored veranda, to the stone gravel of the garden.

### Byōdō-in 平等院

10:45



794 AD, Emperor Kanmu moves capital to Heian-kyo (hay-anne key-oh, Kyoto), initiating the Heian period. One of the earliest styles to develop at that time, was known as **Shinden** (shin-den, sleeping place), named after the sleeping hall located in the main pavilion facing a southern court. This was symmetrically flanked by two east and west pavilions in a garden with ponds and islands, attempting to recreate the ethereal paradise of Amida Buddha after death.

The design for the Japanese Pavilion was based on **Byōdō-in (bee-yo-doe-ing)**, an ancient Buddhist temple from 1053 A.D., during the Late Heian (hay-anne) period. Built by Fujiwara No Yorimichi (foo-gee-wah-lah no your-me-oo-lee), as a country retreat [prairie style] to escape the capital city, Kyoto (Japan), it maintained this classic Shinden layout.



A symmetrical building with roots in the Chinese T'ang style, that celebrates the garden of sensual pleasures (the Western Paradise of Amida Buddha), a pond of purest water, most fragrant plants, and birds signing celestial concerts. It is considered one of the **happiest products of Heian cultural fusion**, combining the pomp of the Chinese palace, the intimacy of the Japanese home and the otherworldliness of the Buddhist temple – a setting for paradise in everyday living.



Of the original Byōdō-in temple monastery compound, only one building still exists today, the **Hō-ō-dō (hoe-oh-doe, “Phoenix Hall”)**. The Japanese Pavilion structure is based on this building. The Ho-o (hoe-hoe), a mythical **Phoenix bird**, which appears very rarely, to herald the arrival of a new era. The main hall is flanked by a tail corridor and two corridors with smaller halls on each side, as if wings extended forward, in downward flight before landing, referencing the dawn of a new era.



It nests in Paulownia (key-lee, Chinese: pao-tong) trees [Une Petite Maison], hides from danger, and is both a **symbol of peace (when it appears) and disharmony (when it disappears)**.

Restored in 1950s, the temple is rebuilt every 20 years, following a Japanese tradition, as a reminder of **the impermanence of everything**.

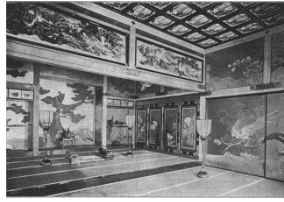
The Japanese have a custom of making tombstone out of wood. Those who are remembered after they are gone, their tombstone is taken care of, so it lasts. Those who have no one to remember them, their tombstone is not maintained and therefore **returns naturally to the Earth**.

The practice of rebuilding the temple every 20 years, keeping the structure **meaningful to those who restored it**, the techniques of construction are passed along to each generation, **not forgotten like traditions no longer practiced**. The Japanese Pavilion was built by Japanese carpenters with materials brought from Japan, dressed and assembled on site.

**[ 10 MINUTE BREAK ]**



### Central pavilion is in the style of Tokugawas (1700 A.D.)



Each of the three halls connected by corridors is representative of three prominent epochs in Japanese history. The **Central hall** in the Tokugawas (toe-coo-gah-wah) style of the 18<sup>th</sup> century, the sitting room of a feudal lord's palace. The ceiling had 270 gold phoenixes in frames of gold lacquer and gilt metal work.



Originally a permanent gift from Japan, the Japanese Pavilion was destroyed by an arson fire in 1946. In 2015, three of the original interior fusama (foo-sah-mah) screens were discovered in a Park District storage facility.

### Left wing in the Fujiwara / Shinden (900-1200 A.D.)

Left wing was in the **Fujiwara (foo-gee-wah-lah)** style of the 10<sup>th</sup> to 13<sup>th</sup> century. The Fujiwara family was the most important of the four great families during the era of emperors preceding the first shogunate (featured prominently in the Pillow Book by Sei Shonagon). The interior decorated as a palace of the nobles, who lived in refined leisure amid poetry and music, during the high point of the Heian period.

11:10

### Right wing in the Ashikaga / Shoin (1300 – 1600 A.D.)



Right wing in the **Ashikaga (ah-she-kah-gah)** style in the Columbian epoch (1336 to 1573 A.D.), influenced by Zen-Buddhism and Lung philosophy. Purity and simplicity was the motto, replacing the colored decoration of the feudal palaces with the plain ink landscapes in the style of Sesshin and Soami.

Simplicity and austerity were the rule, humble monk monasteries. **Uncluttered appearance, clean (shinto), purity, simplicity.** Balance and perfection in the basic form, that imagination was spent on the more subtle artistry of detail. **Exposed, honest joints, fitted through puzzling** that held together posts and beams by interlocking, highly complex mortise and tenon joinery, pegs and wedges made of wood, without nails.



The interior was reproduced from the **Ginkakuji (gene-kah-coo-gee)**, a villa of an Ashikaga Shogun. Located in the gentle hills called the Eastern mountains (Higashiyama), Ginkakuji was built as the retirement villa for Ashikaga Yoshimasa (ah-she-kah-gah yo-she-mah-sah), the 8<sup>th</sup> Shogun of the **Ashikaga Shogunate during the Muromachi period (1336-1573 AD).**

**Ginkakuji (gene-kah-coo-gee) means Silver Pavilion**, originally planned to cover the exterior with silver foil to emulate his grandfather's Golden Pavilion, but the Onin War halted construction and he died before completed. It became a temple upon his death.



Ginkakuji (gene-kah-coo-gee) is considered the epitome of the Eastern mountains (Higashiyama) culture (in the Muromachi period). The **Shoin (show-in, writing room) style** is one of the main contributions, based on the humble rooms of the monasteries, more modest than the Heian period.



Shift from heavy-hinged reticulated wooden shutters (shitomido) to light paper-filled fusuma (foo-sah-mah) and shoji panels, necessitating change from Chinese round columns pillars to Japanese **square posts.**



The sliding screens opened on multiple sides, **wrapping the view around corners** to place the room within the garden, not simply a static view out a single side.

Separation between rooms was purely visual, as the screens were loose and open above, **preventing any true privacy**. Any sense of division or privacy from the outside, is created by the wall surrounding the property, enclosing the garden and house inside, as one.

This is a return to **a primordial time, wu ji (woo-chee**, “not paired compliments, yin yang”), a time of **no separation of things, when all things were interconnected** as one. Without the separation from the outdoors, as in western houses, the elements influenced daily life, cold in winter, hot in summer, windy and damp when storms. The primary function of the house is **not to pamper the body, but develop the spirit**.



Fusuma (foo-sah-mah) were vertically oriented, the same proportion as the **tatami** (35.4” wide, 5’10.8” tall: FLW low ceiling hgt) grass mats (2:1) made of woven reeds, covered the entire floors of rooms instead of occasional cushions for sitting. The use of a drawing room dedicated to the reception of guests and was marked by the shift to **asymmetry in building form** and the placement of displayed objects.



This **shifted eye level lower** to the ground, **tokonoma (toe-koe-no-ma**, elevated recess built into wall for displaying Chinese art) and **chigaidana (chee-gai-dah-nah**, staggered shelves for displaying smaller objects). The installation of drop ceilings to lower the room, concealing formerly exposed interior roof structure.

[built-in desk (tsukeshoin) and small oblong table (oshi-ita), to hold a candle stick, flower vase, proportioned to the room.]



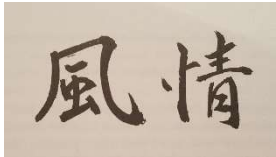
**Kogetsudai** (tah-kah-s-key-day, “moon viewing podium”), a two meter truncated cone in the Sea of Silver Sand Zen garden, is a representation of Mt. Fuji. From the second floor of Ginkakuji, the cone resembles a full moon reflecting on a silver sea, the **sand generating waves in the moonlight**.



The sand garden is designed to **reflect the moonlight onto the ceiling**, the first is Japanese landscaping to use sand to represent elements such as water and mountains.

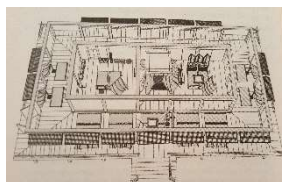
## Gardens

11:35



**Fuzei (foo-zee)** derives from the two Chinese words for breeze & feeling, translated as **atmosphere, mood, ambience**. **The space between the art object (garden/nature) and the viewer.**

Such moods/feelings in were traditionally found in the objects of the landscape (rocks, trees, flowing water, ...), as **kami (kah-mee, spirits)**. Fuzei marks the beginning of **awareness of feelings within the human through the senses**.



The **moya (moo-yah, central space)** was surrounded by **hisashi (hee-sah-she, perimeter veranda)**, divided by posts, no permanent partition walls or doors. [withoutdoors]



The introduction of Chinese Buddhism into Japan in 552 A.D., influenced garden design as a **miniature representation of the cosmos**. Raising a hillock to symbolize Mount Sumeru, the center of the Buddhist universe. Incorporating a pond to symbolize lake Anavatapta.

The traditional garden design of this period, had the main hall facing south, toward **a pond in the distance across an open court**. A curved bridge leads to an island, for a boat to circle with musicians playing music for guests gathered in the court. The bridge railings would be painted vermilion red, with all of the other wood on the house, beams, posts, roof, left **untreated, natural tones**, aging reflecting change.

The veranda floor and **overhanging eaves defined the transition** between the building and garden. This shadowed space under projecting eave prepares the mind for the internal room, just as sunlight reflected off the pond water is drawn in by glistening gold and lacquer deep inside. Building and garden blend as one.

11:45

Heian period starting in 794 A.D. began a time of **introspection**. Cultural imports of architecture, furnishings, clothing, art, the traditional methods and techniques from Chinese and Korean were reflected on, to clearly establish a Japanese tradition.



**Sakuteiki (sah-coo-tay-key)**, is the oldest written document on the art of garden design in Japan. It was written in the 11<sup>th</sup> century, by **Tachibana No Toshitsuna (tach-ee-bah-nah no toe-chee-gee)** who lived in Byōdō-in (bee-yo-doe-ing), the country retreat outside Kyoto. The book describes the shinden style garden design of the Heian period, in particular outlining the secrets for moving garden stones without arousing the wrath of the Shinto spirits inside.





**Shakkei** (shak-kay, “borrowed scenery”) is a Japanese technique of garden design, incorporating distant landscapes (mountain, moon,...) into the garden setting, uniting the work of nature (the distant) and the work of man (the garden) to blur the lines between the two.

This concept was developed by the Japanese into **fixed vantage point gardens**, where views were composed to be taken in from specific points within the garden and house. The garden, as viewed by carefully staged arrangements, had the power to reinvigorate the human spirit. The power of art to evoke, the power of garden to fulfill.

11:55



Of the objects in the garden, trees, water, ... the rocks were the greatest significance. **Each rock in the garden was given a name** and their placement was considered an art, handled by master garden designers, who created the feelings evoked in the garden through their selection, orientation and arrangement.

Within the guarded secrets of garden design, was a saying, **ishi no kowan ni shitagahite (ee-she no koe-wan nee she-tah-gah-ee-tay)**, “follow the request of the stone”). The word “request” is significant, signifying a respect for the stone, a belief that **stones were living and therefore consideration of their will in handling**.

An important shift in values began at this time, which is reflected in another saying, **“great rocks do not necessarily make great gardens.”** Rocks called **kuso-ishi (koo-so-ee-she, “worthless rocks”**, Chinese: wu wei sher), those readily available on site and without defining feature or characteristic, were placed so casually, that they appear almost without intent, arbitrary, thereby creating a sense of naturalness, not a carefully crafted landscape evoking a particular effect. Rather, almost spontaneous stones made the garden feel it was made by the hand of nature.





Some rocks were named **suteishi (stay-she**, “discarded, abandoned stone”), the rocks that lacked defining features or characteristics in appearance and therefore not used prominently within the garden.

However, at the end of the Edo period, marking the start of Heian, these rocks were **woven together into a sensory relationship**, an experience through the materials as a whole, something other than features on individual rocks.

The idea was taken to the final extreme in the 15th century, when certain rocks became **mumyōseki (new-mee-yo-set-key, “nameless”)**. Feelings produced that were so nuanced, they could not be articulated verbally, only felt, experienced. Things not spoken of...

**Couple not speaking (I love you) viewing the moon: “It is a beautiful moon.” “yes”**

Wooded Island and lagoons of Chicago’s World Fair were designed by Frederick Law Olmstead, with over **12,000 trees** (willows, poplars, water maples, cherries, elms and lindens) and more than a **million plants** from all over the world (50,000 roses). The island was “fringed with shrubbery and wild flowers growing in colonies as they do on the prairies and woodlands of North America (in the partial shade of the azaleas and rhododendrons are clumps of lilies in varieties blooming in different seasons for a changing display). 35 species of sunflowers, 32 native of America and 2 of Japan (one giant sunflower unknown).