



THE LIFE AND WORK OF FRANK LLOYD WRIGHT

PART 1:

Birth to Age 19 (1867-1886)

Mostly in Wisconsin, but also New England

©

JT Wunderlich PhD

website: <http://users.etoyn.edu/w/wunderjt/> [Architecture Portfolio](#)

8/28/2018



PART 1: Frank Lloyd Wright Age 0-19 (1867-1886) [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#) **THIS LECTURE**

Context: Post Civil War recession. Industrial Revolution. Farm life. Preacher/Musician-Father, Teacher-Mother. Mother's large influential Unitarian family of Welsh farmers. Nature. Parent's divorce.

Architecture: Froebel schooling (e.g., blocks). Barns/farm-houses ([PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)). Organic Architecture roots.

PART 2: Frank Lloyd Wright Age 20-33 (1887-1900) [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)

Context: Rebuilding Chicago after the Great Fire. Wife Catherine and first five children.

Architecture: Architects Joseph Silsbee and Louis Sullivan. Oak Park. Home & Studio. "Organic Architecture" begins.

PART 3: Frank Lloyd Wright Age 34-41 (1901-1908) [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)

Context: First Japan trip ([PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)). Arts & Crafts movements. Six children.

Architecture: Prairie Style. Oak Park & River Forest, Unity Temple, Robie House, Larkin Building.

PART 4: Frank Lloyd Wright Age 42-47 (1909-1914) [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)

Context: Secession movement. Lived in Italy ([Page](#) [MP4](#) [YouTube](#)). Built Taliesin on family farmland. Mistress murdered.

Architecture: Wasmuth Portfolio published(Germany). Taliesin. Many operable windows for health & passive cooling. Sculptures.

PART 5: Frank Lloyd Wright Age 48-62 (1915-1929) [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)

Context: WWI, Roaring 20's. Short 2nd marriage. Lives 3 yrs in Japan, then California and Wisconsin. 3rd marriage (Olga).

Architecture: Tokyo Imperial Hotel. Textile Houses in California (with Mayan influences).

PART 6: Frank Lloyd Wright Age 63-78 (1930-1945) [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)

Context: 1930's Great Depression. WWII. Taliesin Fellowship/school. Utopian-Ideals(communal-living) Winters in AZ.

Architecture: Broadacre City, Fallingwater, Johnson Wax Building, Taliesin-West, Hanna-Honecomb House, Usonian Homes.

PART 7: Frank Lloyd Wright Age 79-91 (1946-1958++) [PDF](#) [MP4](#) [PPTX-w/audio](#) [YouTube](#)

Context: Post-WWII boom. Cold War. Communal living at Taliesin. FLW dies in 1959. Fellowship/school continued at Taliesin & Taliesin-West by Olga for 27 years -- and still exists today with some very recent changes (2020)

Architecture: Price Tower, Churches/Synagogue/Auditoriums. The Guggenheim. AZ homes, Modern materials.



Allan, Edward and Iana, Joseph. *Fundamentals of Building Construction: Materials and Methods*. Wiley; 7th edition (October 15, 2019).

American Institute of Architects. *AIA Guide to Chicago*. 2014.

Burns, Ken, and Novick, Lynn. *Frank Lloyd Wright: A Film by Ken Burns and Lynn Novick DVD*. PBS Home Video, August 28, 2001.

Bacon, Edmond. *Design of Cities*. Thames & Hudson Ltd, 1978.

Ching, Francis D.K. *Architecture: Form, Space, and Order*. 4 ed., Wiley, 2014.

Curtis, Stanley James. Friedrich Froebel; German educator. *Encyclopedia Britannica*, 2018. <https://www.britannica.com/biography/Friedrich-Froebel>

Fazio, M., Moffett, M., and Wodehouse, L. *Buildings Across Time: An introduction to world architecture*. 4th edition, McGraw-Hill, 2012.

Fici, Filipo. Frank Lloyd Wright in Florence and Fiosole. *Frank Lloyd Wright Quarterly*, Vol. 22 no.4, 2011.

Find a grave; William Carey Wright, 2018. <https://www.findagrave.com/memorial/55462361/william-carey-wright>

Frank Lloyd Wright Trust. *1905: Japan through the Lens of Frank Lloyd Wright*, 2017. <https://www.wrightsjapan1905.org/>

Frank Lloyd Wright Trust. *Unity Temple*, 2018. <https://flwright.org/researchexplore/unitytemple>

Froebel; Brief History of the Kindergarten. Froebel Gifts, 2013. <http://www.froebelgifts.com/history.htm>

Ho-o-Den, An Illustrated Description of the Buildings Erected by the Japanese Government at the World's Columbian Exposition. K. Ogawa publisher, Tokyo, 2018.

Hoffman, Anna. *Gustav Stickley: the American Arts & Crafts Movement*. Sept 16, 2010.

Huxtable, Ada Louise. *Frank Lloyd Wright*. New York Times, Oct. 31, 2004. <https://www.nytimes.com/2004/10/31/books/chapters/frank-lloyd-wright.html>

Kaufman, Clare. *The History of Higher Education in the United States*. WoroldWideLearn. 2018. <https://www.worldwidelearn.com/education-advisor/indepth/history-higher-education.php>

Kitagawa, Joseph Mitsuo. *On Understanding Japanese Religion*. Princeton University Press, 1987.

Lechner, Norbert. *Heating, cooling, lighting*. Wiley, 4th edition, October 13, 2014.

LEED (Leadership in Energy and Environmental Design), The United States Green Building Council, 2018. <https://new.usgbc.org/leed>

Life of Olgivanna Lloyd Wright Reviewed by Architects and Artisans. *ORO Editions*. Sep 12, 2017. <https://www.oroeditions.com/2017/09/12/the-life-of-olgivanna-lloyd-wright-reviewed-by-architects-and-artisans/>

Lynch, Kevin. *The Image of The City*. MIT Press, 1960.

PENN Rare Book and Manuscript: Frank Lloyd Wright's Paternal Family. Penn Library. University of Pennsylvania, Feb. 20, 2014. <http://www.library.upenn.edu/rbm/featured/mscoll822.html>

Pearson, David. *The Breaking Wave: New Organic Architecture*. Stroud: Gaia, 2001.

Siry, Joseph M. *The Architecture of Earthquake Resistance*. *Journal of the Society of Architectural Historians*, Vol 67 (1): pp78–105, 2008.

Storrer, William Allin. *The Architecture of Frank Lloyd Wright, a Complete Catalog, 4th edition*. Chicago, University of Chicago Press, 2017.

Stevens, John L. *Incidence of travel in Yucatán*. Sastrugi Press, 2019.

Stevens, John L. *Incidence of travel in Central America, Chiapas, and Yucatán*. Dover Publications, 1969.

Unity Chapel, Unity Chapel Inc. 2018. <http://www.unitychapel.org/familyhistory/>

Vargas, A.P. and Schierle, G.G., The textile block system: seismic analysis and upgrading, *WIT Transactions on State of the Art in Science and Engineering*, Vol 62 WIT Press 2013.

Kim, Daeshick, and Back, Alan. *The Way to go: philosophy in martial arts practice*. Nanam Publishing House, 2000.

Wright, Frank Lloyd. *The Art and Craft of the Machine*, Vol. 8, No. 2 pp. 77-81, 83-85, 87-90, May, 1901. [tps://www.jstor.org/stable/pdf/25505640.pdf](https://www.jstor.org/stable/pdf/25505640.pdf)

Wright, Frank Lloyd. In the Cause of Architecture. *Architectural Record*, vol. XXIII, March 1908.

Wright, Frank Lloyd. *(1911 Wasmuth Portfolio) in Drawings and Plans of Frank Lloyd Wright: The Early Period (1893-1909)*. Dover Architecture 1983.

Wright, Frank Lloyd. *The Japanese Print, an Interpretation*. The Ralph Fletcher Seymour co., Chicago, 1912.

Wright, Frank Lloyd. In the Cause of Architecture; *Second Paper*. *Architectural Record*, May 1914.

Wright, Frank Lloyd. *The Natural House*. New York, Penguin Books, 1954.

Wright, Frank Lloyd. *Testament*. New York, Bramhall House, 1957.

Zerbey, Nancy. New England Architecture | Guide to House Styles in New England. *New England Today Living*, May 9, 2018. <https://newengland.com/today/living/homes/new-england-architecture/>



ARCHITECTURAL SURROUNDINGS



Civil War (1861-1865) soldiers marching through **Madison Wisconsin** a few years before Frank Lloyd Wright was born



- Born Frank **Lincoln** Wright in Bear Valley Wisconsin June 8, 1867, two years after the **Civil War**, and at the beginning of the **2nd American Industrial Revolution (1870-1914)**
 - Expansion of rail allowed movement of people and ideas
 - Electrical power and telephone lines
- Middle name changed to **Lloyd** to honor mother
- Lived through most productive, and often most destructive (two world wars) times of human civilization
- 70 year career. He died at age of 91 in 1959



FATHER: WILLIAM CAREY WRIGHT

[BURNS 2001, FIND GRAVE 2018, HUXTABLE 2004]

- **Preacher, Lawyer, Superintendent of Schools, Musician & Composer (teacher and author)**
- Colgate University B.A. and M.A.
- First wife was his music student
They had five children, three lived to adulthood
- After her death, he was a preacher when he met his second wife **Anna Lloyd in Wisconsin**
- Frank's father's love of **music influenced Frank's architecture** – Frank would say ***“Architecture is like composing a symphony, you arrange and build, plot and plan, in very much the same way.”***
- Frank often specified a piano in his large spaces, and required students at Taliesin Architecture Fellowship/School/Studio to learn music



Father was a Preacher in

- Iowa in 1869-1871 (Ages 2 to 4)
- Rhode Island 1871-1874 (Ages 4 to 7)
- Massachusetts 1874-1877 (Ages 7 to 10)



FATHER: WILLIAM CAREY WRIGHT

“Father was a preacher who loved and taught music. He taught me to see a great Symphony is a master’s edifice of sound.” [Wright 1957]



“William Carey Wright.... writes ... of a musical form ..as a geometric puzzle--fitting art into space...William taught his son the structural composition between music and buildings” [PENN Rare Book 2014]



MOTHER: ANNA LLOYD-JONES

[BURNS 2001, STORRER 2017]



- **Teacher**
- Convinced from an early age that her son would be a great architect
- Hung pictures of architecture (cathedrals) in Frank's bedroom
- **HOMESCHOOLED** her son until age 11
 - Others in history homeschooled: Leonardo da Vinci, Monet, Mozart, Bach, Newton, Ben Franklin, Edison, Jefferson, Washington, Einstein, both Teddy and Franklin Delano Roosevelt, Churchill, John Muir, and the Wright brothers



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 1”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 2”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 3”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 4”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 5”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 6”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 7”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 8”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 9”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL GIFT 10”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL CURVILINEAR GIFT ”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



“FROEBEL DIVIDED CYLINDER GIFT ”



MOTHER: ANNA LLOYD-JONES

[WRIGHT 1957]

HOMESCHOOLED FRANK LLOYD WRIGHT



Frank Lloyd Wright said of his mother:

- *“Mother’s intense interest in the Froebel System. ...a basis for **elementary geometry behind all natural birth of Form.**”*
- *“Mother learned ...**Geometric elements were what should first be made visible to the child mind**”*
- *“**The smooth cardboard triangles and maple wood blocks were most important. All are in my fingers today.**”*
- *“**In outline, the square was significant of integrity, the circle – infinity, the triangle – aspiration; all with which to design significant new forms.**”*

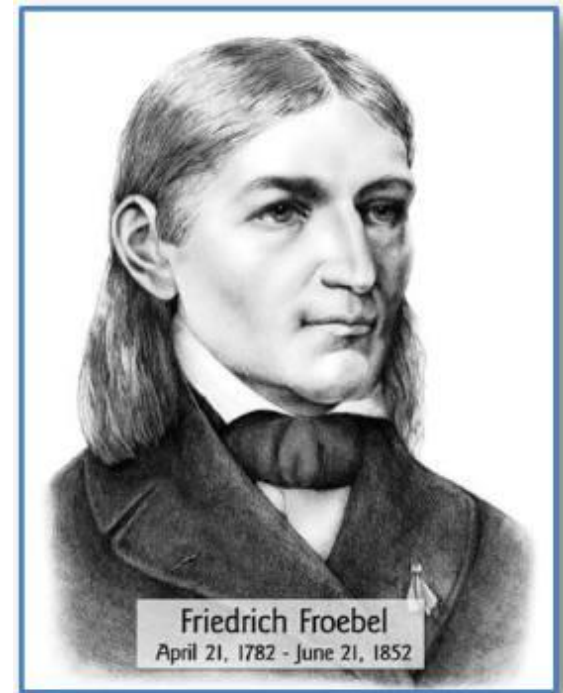


“THE FROEBEL SYSTEM”

[CURTIS, 2018]

- **Friedrich Froebel**, 1782-1852
- 1831 Swiss government invited him to train elementary school teachers
- 1837 opened Child Nurture and Activity Institute in Prussia
- Believed in **UNDERLYING UNITY OF ALL THINGS, AND TO LEARN FROM NATURE**
- Teacher’s role not to drill or indoctrinate but **encourage self-expression through play**
- Belief in “self-activity” and play. **Learn from doing**

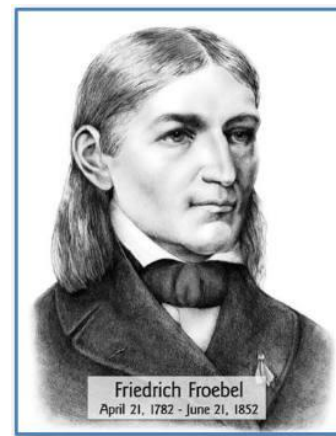
- Devised circles, spheres, and other **toys** —“**gifts**” to stimulate **LEARNING THROUGH PLAY ACCOMPANIED BY SONGS AND MUSIC**. Published *Mother-Play and Nursery Songs*



“THE FROEBEL SYSTEM”

[FROEBEL 2013]

- “His work *inspired* Maria Montessori, creator of **Montessori Schools**”
 - *beginning in Italy*



Maria Montessori
in 1913



Image from:
<https://montessorirocks.org/what-to-look-for-in-a-montessori-school/>



Froebel System in 1800's inspired Montessori Schools in 1900's

○ *Montessori Schools Today*

- ~4000 in U.S. , ~7000 worldwide
 - Plus many homeschoolers
- Learn through hands-on creativity using all senses
- Students choose what they want to do with available materials
 - Often after a group activity
- Education for grade-school and middle -school, and some high schools
- Mix students up to three years apart
- Three-hour time-blocks to learn and create
- No formal grading system, or any punishment or reward, just Portfolios
- *“Freedom with limits, independence, and a respect for individual psychological, physical, and social development”* **(MIND, BODY, SPIRIT)**

- *MORE:* <http://www.montessori.edu>



Froebel System in 1800's inspired Montessori Schools in 1900's

CALIFORNIA TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's



ARIZONA TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's

ILLINOIS TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's

WISCONSIN TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's

NEW YORK TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's



CONNECTICUT TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's

PITTSBURG TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's

PUERTO RICO TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's



CANADA TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's

INDIA TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's

ENGLAND TODAY



Froebel System in 1800's inspired Montessori Schools in 1900's

ENGLAND TODAY



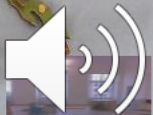
Froebel System in 1800's inspired Montessori Schools in 1900's

ENGLAND TODAY
HOMESCHOOL



Froebel System in 1800's inspired Montessori Schools in 1900's

ITALY TODAY



Froebel System of blocks is similar to today's Lego's



Froebel System of blocks is similar to today's Minecraft



Froebel System of blocks
is similar to today's
Minecraft
3D Modeling Software

http://users.etsu.edu/w/wu/nderjt/TSOJIN_ranks.pdf

Elizabethtown College Architectural Servers

TSOJIN SERVER IP:174.54.14.202



Including FYSworld for Etown College Freshmen

EARNED TSOJIN RANKS: Guest, Member, **Builder**, **Architect**, **Master**, Admin, Grandmaster



Robie House by Joseph (USA)
VIDEO



Four GREEN Towns in FYSworld
VIDEO VIDEO VIDEO VIDEO

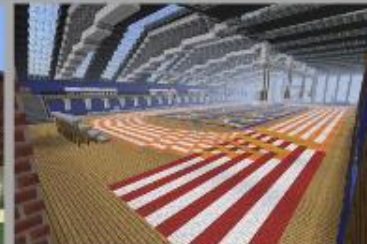


DigitalDesignWorld EGR332 Digital Circuit

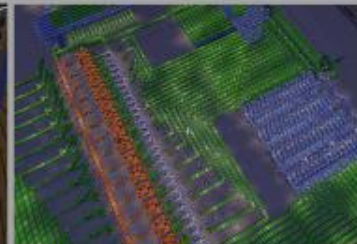
RICKY STURZ SERVER IP:199.188.100.104:25575



FYS Team-Build of Etown Housing
VIDEO



*Ricky's new Etown Field House design,
and FYS Team-Build of Masters Center*
VIDEO



RedstoneWorld EGR332 Digital Circuit



NEWS (2012): United Nations uses Minecraft for Sustainable Design (300 sites)

Read more here:

<http://www.unhabitat.org/categories.asp?catid=9>
<http://infomedinfrastructure.com/1775/un-habitat-taps-minecraft-for-urban-development/>
<http://www.learninggamesnetwork.org/mojang-un-block-by-block/>

Froebel System of blocks is similar to today's **Minecraft** (and later **Revit**) 3D Modeling Software

Osoka Japan Talk:

http://users.etown.edu/w/wunderjt/Green_Social_Designs_Japan_TALK_19_PLUS.pdf

Osoka Japan Publication:

http://users.etown.edu/w/wunderjt/Green_Social_Designs_Japan_paper_19.pdf

Follow-up Revit Work:

http://users.etown.edu/w/wunderjt/home_student_ARCHITECTURE_EGR343_2_2014.html

http://users.etown.edu/w/wunderjt/12th_Grade_Samples/House%20Model.pdf

Wunderlich, J.T. and Wunderlich, J.J. (2013). **Green architecture and environmental design using rapid-prototyping social-networking sandbox tools, followed by professional architectural software.** *Asian Conference on Sustainability, Energy & the Environment* (ACSEE 2013), June 6-9, Osaka, Japan. [1 of 3 chosen from 250 for extended 45-minute key-note talk]

2013 Asian Conference on Sustainability, Energy and the Environment, Osaka, Japan

“Green Architecture and Environmental Design using Rapid-Prototyping Social-Networking Sandbox Tools, followed by Professional Architectural Software”

Joseph Thomas Wunderlich PhD and Joseph John Wunderlich
Elizabethtown College, Elizabethtown, PA, USA

Cell 1: 001-717-368-9715

Cell 2: 001-717-361-2174

E-mail: wunderjt@etown.edu

Web: <http://users.etown.edu/w/wunderjt/>

Abstract - In 2012 the United Nations UN-Habitat's Sustainable Urban Development Network partnered with sandbox-game developers of the social-networking block-by-block building software Minecraft to upgrade 300 public spaces worldwide by 2016 by joining professional designers with local inhabitants in virtual-world simulations. This work is similar to the authors' research since early 2011 where a Minecraft server and concurrent database server were configured for peaceful architectural development by players worldwide, and in five college engineering and architectural courses. Students build green homes, plant gardens, and raise livestock in green villages, or on a virtual college campus within environments containing simulated weather, terrains, biomes, and AI-enhanced animals. Student avatars interact to design. Social-media scrolls across the screen so everybody can be heard. Student homes have active & passive solar, thermal mass, natural daylighting, mitigation of cold northern winds, and an overall architectural esthetic. Students create gardens, livestock areas, piazza's, markets, parks, and a wellness center with indoor pool and activity rooms. Credit is given for using the software's electrical, mechanical, and logic design features. Selected students are invited to develop professional architectural drawings. LEED (Leadership in Energy and Environmental Design) concepts are incorporated throughout. Future goals included implementing these methods in new architectural studio courses and at universities abroad; helping extend the UN/Minecraft concept to developed countries; and merging this research with the author's research in robotics & machine intelligence including interactive environmental maps communicating with real-time robots. Long-term goals include on-line virtual-reality classrooms and laboratories with real-time language translation and lifelike avatars.



Froebel System of blocks is similar to today's **Minecraft** (and later **Revit**) 3D Modeling Software

London Talk:

http://users.etown.edu/w/wunderjt/CrowdSourced%20Architecture%20and%20Environment%20Design_PAPER_15_TALK_SUBMITTED_EDITED_Wunderlich.pdf

London Publication:

http://users.etown.edu/w/wunderjt/CrowdSourced%20Architecture%20and%20Environment%20Design_PAPER_15_FINAL_SUBMITTED_EDITED_Wunderlich.pdf

Follow-up Revit Work:

http://users.etown.edu/w/wunderjt/home_student_ARCHITECTURE_EGR343_2_2014.htm
http://users.etown.edu/w/wunderjt/12th_Grade_Samples/House%20Model.pdf

Wunderlich, J.T. and Wunderlich, J.J. (2014).
Crowdsourced Architecture and Environmental Design.
*2nd International Conference on Emerging Trends in
Engineering and Technology (ICETET'2014)* May 30-31,
London (United Kingdom).

CrowdSourced Architecture and Environmental Design

Joseph Thomas Wunderlich PhD¹ and Joseph John Wunderlich²

Abstract— CrowdSourcing has become an emerging methodology (and technology) in many disciplines including the natural sciences, biotechnology, and manufacturing. In 2012 the United Nations UN-Habitat's Sustainable Urban Development Network partnered with game developers to upgrade 300 public spaces worldwide by 2016 by joining professional designers with local inhabitants in virtual-world simulations. This work is similar to the lead author's pedagogical research since early 2011 where he has combined 35 years of architectural and high-tech experience, and College & University teaching & research, into a new teaching methodology where architectural game servers and concurrent database servers are configured for peaceful architectural development by players worldwide, and in five college engineering and architectural courses. In one course, students build Japanese villages and gardens, and collectively learn group harmony ("Wa" in Japanese) while reflecting on the physical and spiritual beauty of Japanese culture. In another course, students learn about sustainability as they build green homes, plant gardens, and raise livestock in green villages, or on a virtual college campus, within environments containing simulated weather, terrains, biomes, and AI-enhanced animals. In another course students use the virtual environment to rapidly prototype architectural designs in a collective way, followed by using professional architectural software to complete the design process. Student avatars interact to design, and although the faces and body postures are primitive renderings, they significantly enhance the interpersonal dynamics of students and teachers. Social-media text scrolls down the screen so everybody can be heard. U.S. LEED (Leadership in Energy and Environmental Design) concepts are incorporated, and soon ISO green standards. Future goals included implementing these methods at universities abroad; helping extend the UN concept to developed countries; and merging this research with the author's research in robotics & machine intelligence including interactive environmental maps communicating with real-time robots. Long-term goals include on-line virtual-reality classrooms and laboratories with real-time language translation and lifelike avatars.

Keywords— Architecture, CrowdSourcing, Environmental Design, Virtual Worlds,

I. INTRODUCTION

OVER 20 million copies of Minecraft have been sold across all platforms [1]; this creative environment includes various biomes with changing weather, changing daylight, agriculture, livestock, AI-enhanced wildlife, social-media, player-avatars, and a large inventory of materials and tools for building. In this paper we present twenty-one case studies (all but Case 1); twenty of these represent our work including some presented in Japan in 2013 [2]:

Joseph Thomas Wunderlich¹ is with the Engineering Department at Elizabethtown College, Elizabethtown, PA 17022 USA
(phone: 001-717-368-9715; e-mail: wunderjt@etown.edu)
Joseph John Wunderlich² is an aspiring architectural student

- Case 1: United Nations Projects by Others
- Case 2: Initial Designs
- Case 3: Building on Public Servers in Creative Mode
- Case 4: Building on Public Servers in Survival Mode
- Case 5: Building on Public Faction Servers
- Case 6: Creating a Protected Creative Server
- Case 7: Creating a Protected Survival Server
- Case 8: Creating Sustainable Towns
- Case 9: Wellness Center Competition #1
- Case 10: Creating a Digital-Circuit Design World
- Case 11: Creating a Multi-World Server
- Case 12: Rapid Prototyping Real-World Architectures
- Case 13: Building College Campus
- Case 14: Group-build of two Dormitories in Two Hours
- Case 15: Group-build of Engineering Center in Two Hours
- Case 16: Visit to Australian Architectural Server
- Case 17: Creating a Japanese Group-Harmony Server
- Case 18: Creating Four Japanese Towns
- Case 19: Wellness Center Competition #2
- Case 20: Creating a European Architecture World
- Case 21: Creating a LEED and ISO Green World

II. UNITED NATIONS PROJECTS BY OTHERS

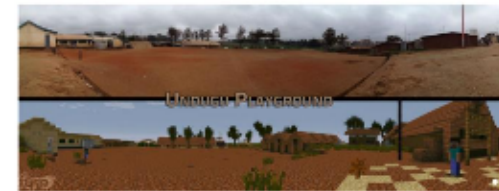


Fig.1 United Nation Modeling of 300 sites.

The United Nations began using Minecraft in 2012 for sustainable design of 300 sites worldwide; The U.N., architects and planners use this multi-user, social-networking tool to allow the inhabitants of each site to become part of the design process [3]. Although this work began well after our initial work, this international UN initiative provides validation of the use of this game as an educational tool.

III. INITIAL DESIGNS

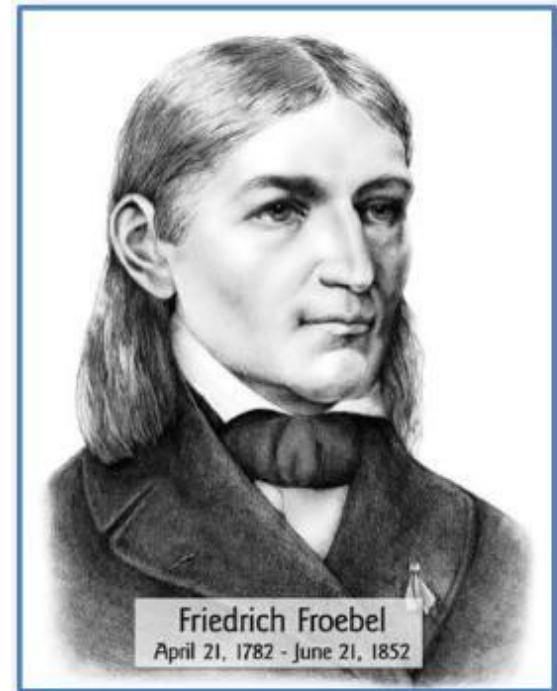
The relationship between buildings, plaza's, landmarks, and pathways in a common design style is easily possible within the rapid prototyping of Minecraft. Over thirty buildings and gathering spaces were built off-line by Joseph John Wunderlich in 2011; later collective building experiences with others from around the world would yield



“THE FROEBEL SYSTEM”

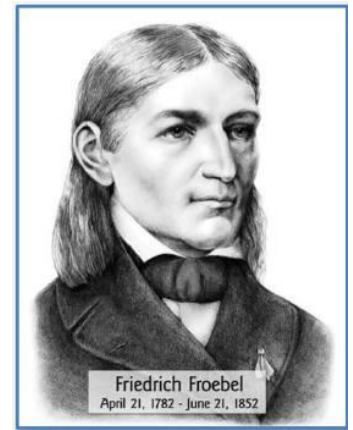
[FROEBEL 2013]

- *“Influenced by **GERMAN ROMANTIC PHILOSOPHERS, GREEK THINKERS,** and **TAOIST and BUDDHIST TEACHINGS**”*
- *“Although devout Christian, he frequently had resistance from the church and other authorities for his radical thinking”*
- *“He approached the universe scientifically and developed his materials to demonstrate the geometry and patterns of the physical world”*



“THE FROEBEL SYSTEM”

[FROEBEL 2013]



- Proponent of **paper folding (Origami)**

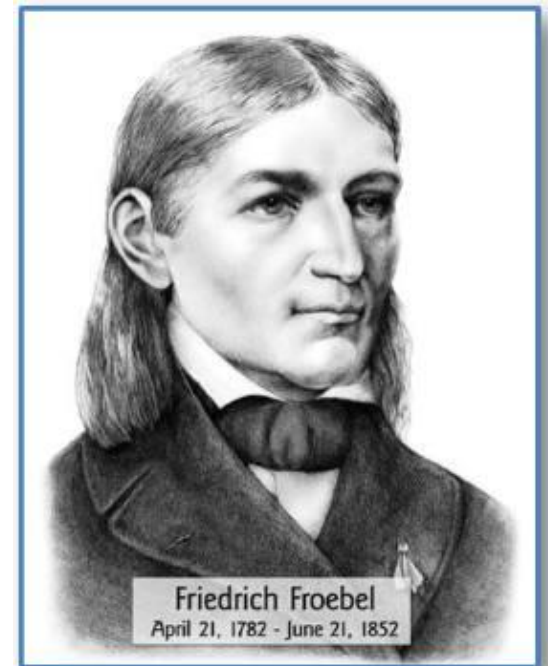
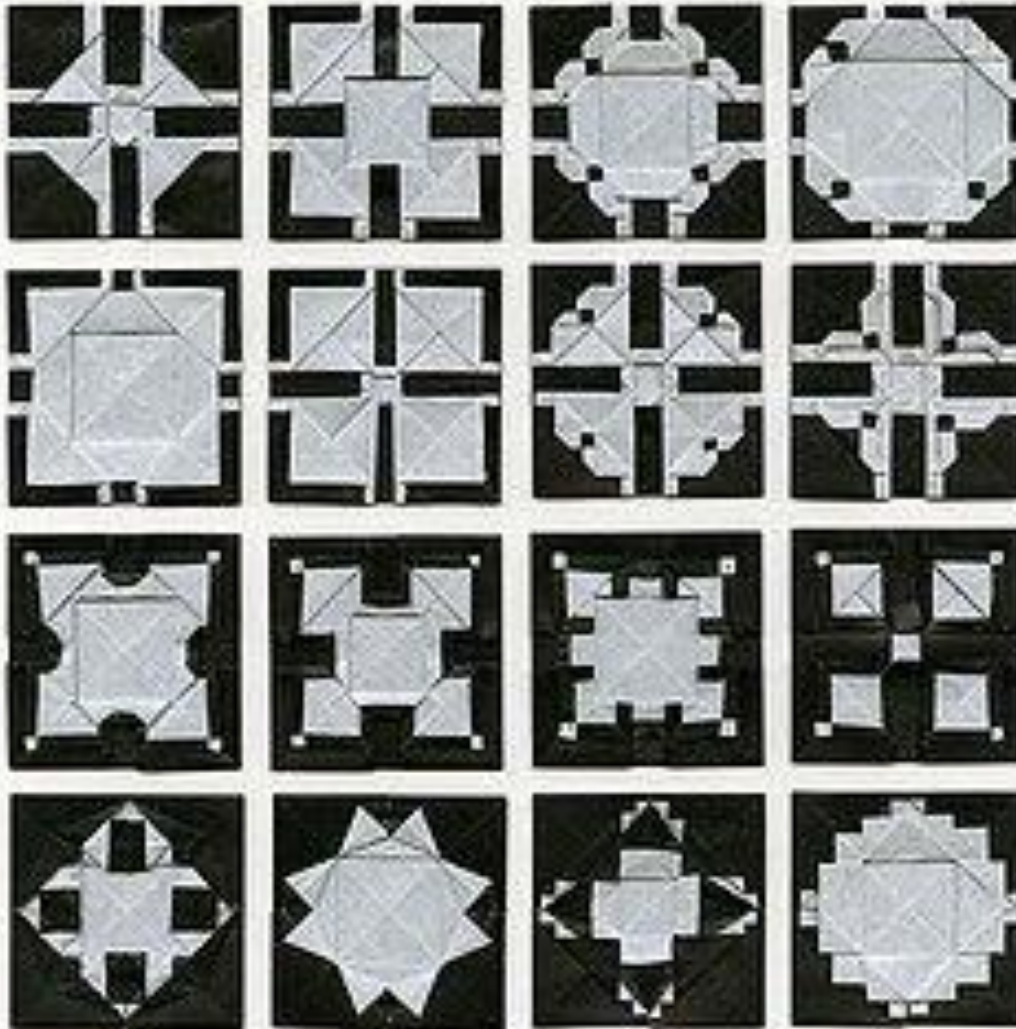
- Created his own paper folding system as part of what he called “Occupations” which included:
 - **“Solids”**
 - Plastics, clay, card-board work, wood-carving
 - **“Surfaces”**
 - **Paper-folding**, paper-cutting, parquetry, painting
 - **“Lines”**
 - Interlacing, intertwining, weaving, thread games, embroidery, drawing
 - **“Points”**
 - Stringing beads, buttons, etc.; perforating



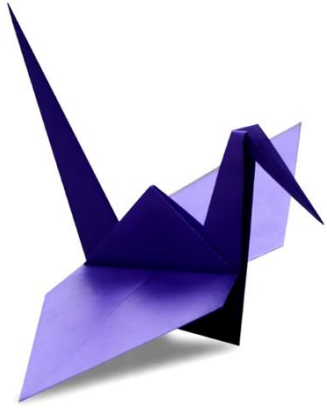
“THE FROEBEL SYSTEM”

[FROEBEL 2013]

- Paper folding – see [Tutorial](#)



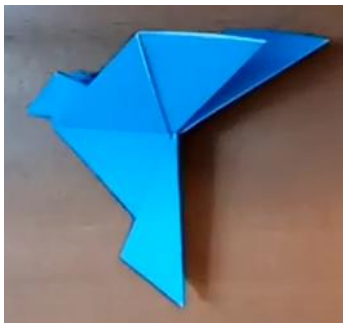
RECOMMENDED ORIGAMI



- **Crane:** <https://www.youtube.com/watch?v=RsnEFQv3uCI>



- **Giraffe:** <https://www.youtube.com/watch?v=ydGWBwoaAAo>



- **Bird:** <https://www.youtube.com/watch?v=ApvOOXBivTs>



KARIGAMI (FOLDING AND CUTTING)

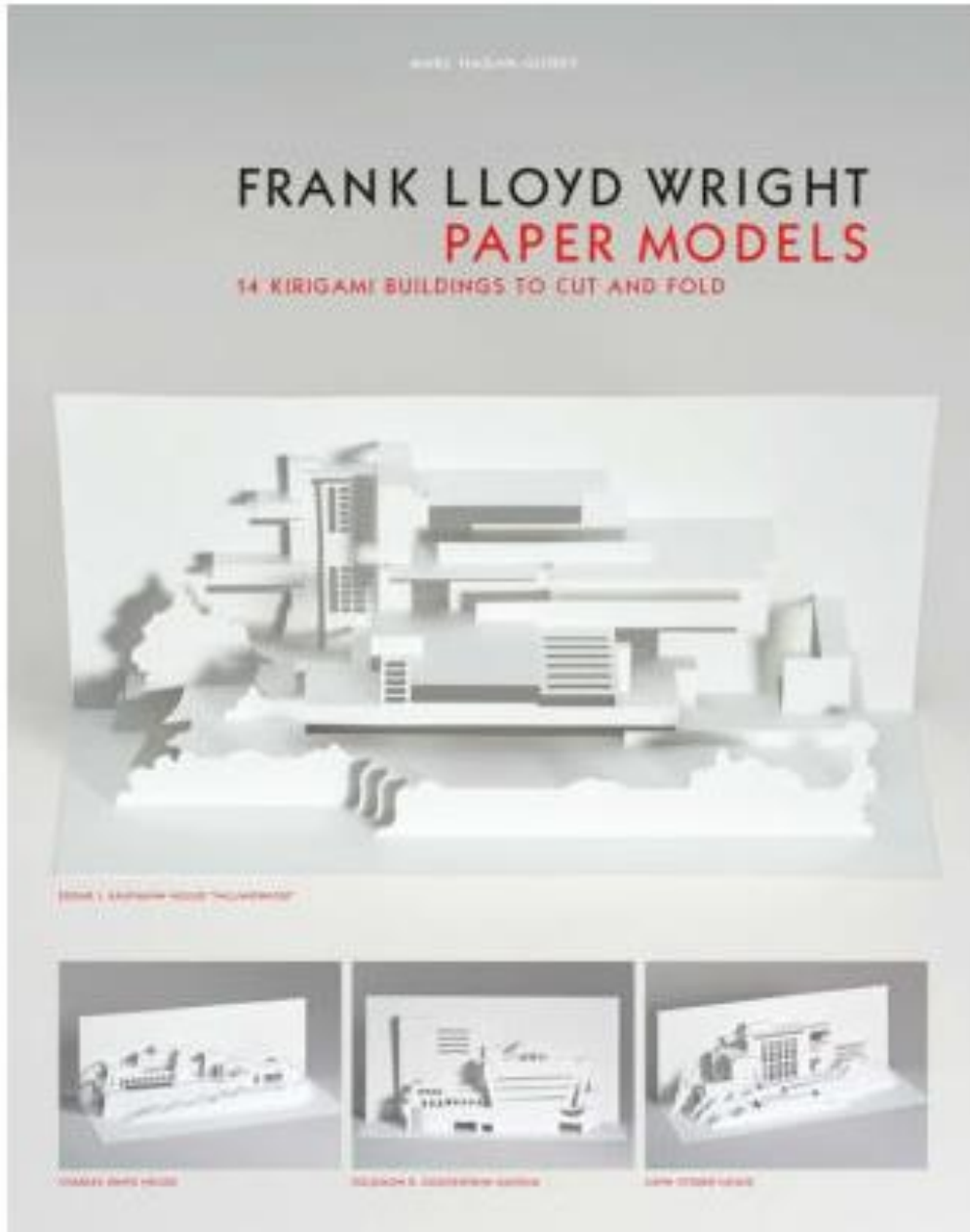
- Video of How to create Karigami Pop-Up card:
<https://www.youtube.com/watch?v=dRZIR1urJZk>



MORE: <http://www.popupology.co.uk/galleries>



KARIGAMI (FOLDING AND CUTTING)



Recommend Purchase:

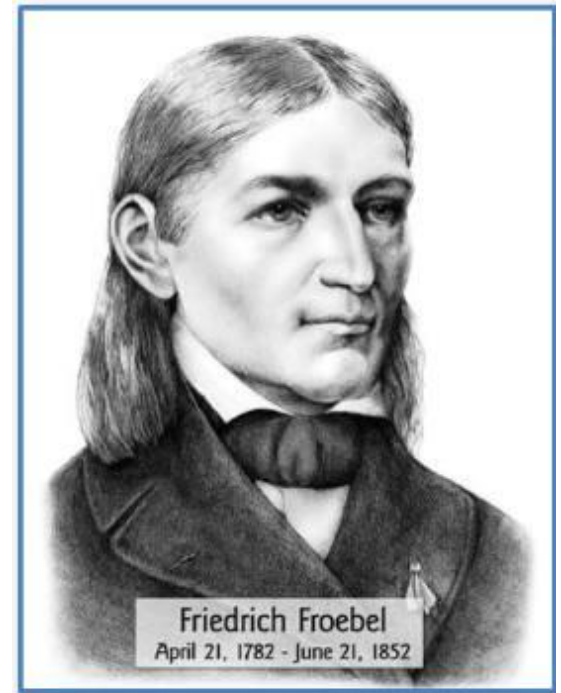
- “Frank Lloyd Wright Paper Models: 14 Kirigami Buildings to Cut and Fold”



“THE FROEBEL SYSTEM”

[FROEBEL 2013]

- Influenced by:
 - **GERMAN ROMANTIC PHILOSOPHERS**
 - **GREEK THINKERS**
 - **TAOIST and BUDDHIST TEACHINGS**
 - The roots of the Japanese **SHINTO** religion are from Chinese Taoism mixed with Japanese Tribal religions in the 9th century AD
 - **SEE GOD(s) IN EVERYTHING**



- Watch video:

<https://www.youtube.com/watch?v=nccRTm6hnug>

Shinto and Buddhist influences on Japanese temples and shrines Which later influenced Frank Lloyd Wright's Architecture and philosophy of "Organic Design"

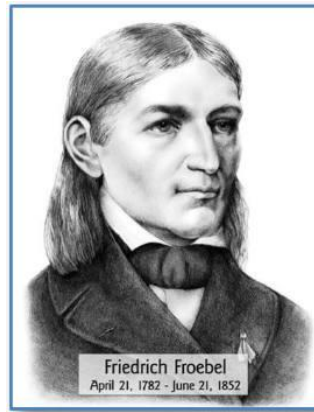


“THE FROEBEL SYSTEM”

[FROEBEL 2013]

○ Froebel influenced by:

- Taoism and Buddhism
 - Roots of **SHINTO** are from Taoism
 - SEE GOD(S) IN EVERYTHING



Wunderlich in Japan:

http://users.etown.edu/w/wunderjt/Architecture%20Lectures/2013_Japan_Urban_Design_and_Arcitecture.pdf

ARCHITECTURAL SURROUNDINGS -- AGES 4 TO 10

[Zerby 2018, Wright 1954]

○ COLONIAL Style

- New England
- Strong geometric **Gables** in some of his designs before his Prairie Style in the late 1800's; especially in his first home



House of the Seven Gables (1668) in Salem, Massachusetts.



ARCHITECTURAL SURROUNDINGS -- AGES 4 TO 10

[Zerby 2018, Wright 1954]

○ VICTORIAN Style (including “Queen Anne”)

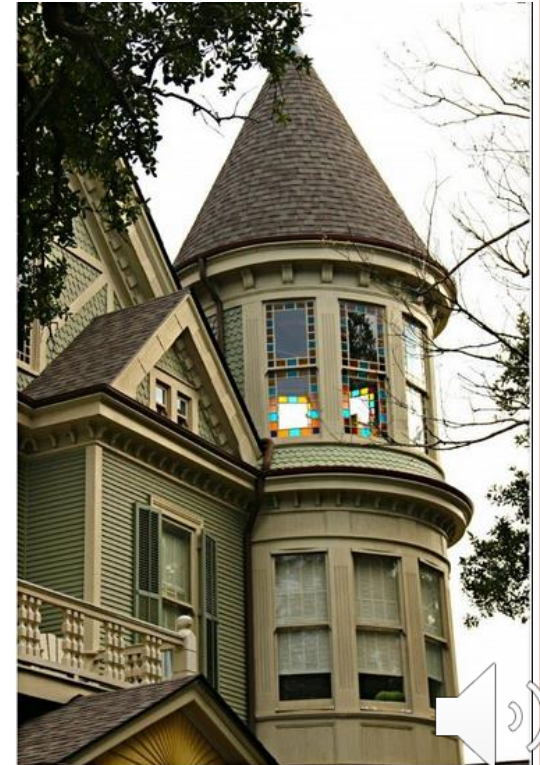
- New England
- Although designs before his Prairie Style incorporated Victorian elements (**Turrets**, etc.), he never liked Victorian gingerbread ornamentation (“Trim”), but would later create an “**Organic Ornamentation**” as part of his “**Organic Architecture**”



1875 Victorian, Gardner, Massachusetts



Queen Anne “gingerbread” trim



Victorian Turret

ARCHITECTURAL SURROUNDINGS -- AGES 4 TO 10

[Zerby 2018, Wright 1954]

○ Tudor

- New England



Tudor style house, Date unknown



ARCHITECTURAL SURROUNDINGS -- AGES 4 TO 10

[Zerbey 2018]

○ FEDERAL Style

- New England
- Likely minimal influence on design choices later in life; perhaps the **eyebrow window** in some early designs



The Federal Hamilton Hall in Salem, Massachusetts.



ARCHITECTURAL SURROUNDINGS -- AGES 4 TO 10

[ZERBEY 2018]

○ GEORGIAN Style

- New England
- No apparent influence



The Georgian Ropes Mansion (late 1720s in Salem, Massachusetts).



ARCHITECTURAL SURROUNDINGS -- AGES 4 TO 10

[Zerby 2018, Wright 1954]

- **Neoclassical GREEK (and Roman) REVIVAL Styles**
 - New England
 - Seemingly his least favorite later in life

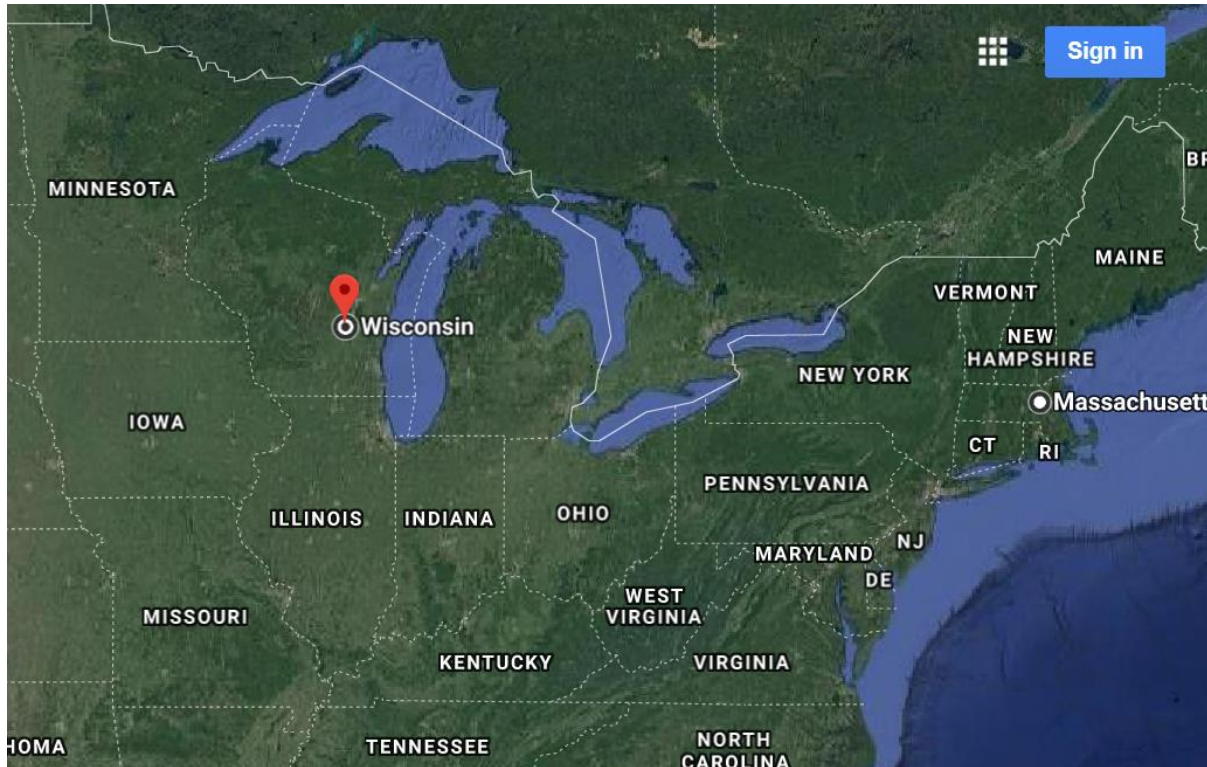


Parker House in New Bedford, Mass. 1834.



1877 FAMILY MOVED BACK TO MADISON WISCONSIN WHEN 10 YEARS OLD

[BURNS 2001, FIND GRAVE 2018]



- Two more children plus three from father's previous marriage
 - in 1877 his step-siblings were 15, 19, and 21 years old



1877 FAMILY MOVED BACK TO MADISON WISCONSIN WHEN 10 YEARS OLD

[BURNS 2001, STORRER 2017]



Mother's Lloyd-Jones Family



- Father took job as Secretary of Wisconsin **UNITARIAN** Society
 - Mother's family influential UNITARIAN land-owners
 - Unitarians believe in **intellectual freedom, INSPIRATION FROM ALL RELIGIONS**
 - Unitarian ethos is "**Truth Against the World**"
 - **LOVE NATURE, SEE GOD IN EVERYTHING** – like later in his "**Organic Architecture**"



WISCONSIN, 10 YEARS OLD

- **UNITARIANS**

- INSPIRATION from ALL RELIGIONS
- LOVE NATURE, see GOD IN EVERYTHING



WISCONSIN, 10 YEARS OLD

- **UNITARIANS**

- INSPIRATION from ALL RELIGIONS
- LOVE NATURE, see GOD IN EVERYTHING



WISCONSIN, 10 YEARS OLD

- **UNITARIANS**

- INSPIRATION from ALL RELIGIONS
- LOVE NATURE, see GOD IN EVERYTHING



UNITARIAN UNIVERSALIST
MINISTRY FOR EARTH

Respect Life. Restore Earth. Renew Spirit.

[GET INVOLVED](#) [ACT](#) [RESOURCES](#) [NEWS & STORIES](#) [ABOUT](#)

Unitarian Universalist Ministry for Earth



**EMPOWERING BOLD, ACCOUNTABLE, FAITH-GROUNDED
ACTION FOR ENVIRONMENTAL JUSTICE**



WISCONSIN, 10 YEARS OLD

- **UNITARIANS**

- INSPIRATION from ALL RELIGIONS
- LOVE NATURE, see GOD IN EVERYTHING



WISCONSIN -- AGES 10 TO 20

- FARM HOUSES and BARNs (*late 1800'S*)



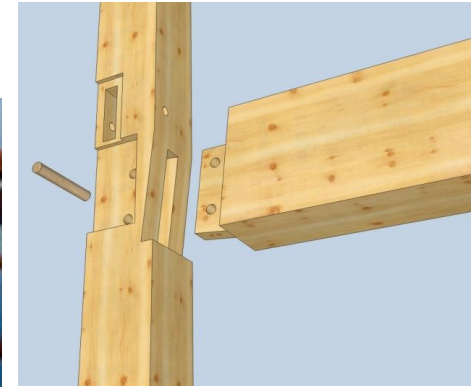
Late 1800's farmhouse in Wisconsin

<https://www.landsofamerica.com/property/Braasch-Road-Watertown-Wisconsin-53098/3808031>



WISCONSIN -- AGES 10 TO 20

- FARM HOUSES and BARNs (*late 1800'S*)



Post & Beam, Mortise & Tenon Barn <http://www.wisconsincentral.net/Culture/Culture/BarnRaising.html>



ARCHITECTURAL SURROUNDINGS -- AGES 10 TO 20

“The form of the structure is united with the space defined within”



WISCONSIN -- AGES 10 TO 20

- FARM (late 1800'S)



Lloyd-Jones family Land in Wisconsin



WISCONSIN -- AGES 10 TO 20

- FARMS



- **Similar to Lancaster, PA**



Wunderlich Land in Lancaster County PA



WISCONSIN -- AGES 10 TO 20

- FARMS



- **Similar to Lancaster, PA**



Wunderlich Land in Lancaster County PA



WISCONSIN -- AGES 10 TO 20

- FARMS
- **Similar to Lancaster, PA**



Wunderlich Land in Lancaster County PA



WISCONSIN -- AGES 10 TO 20

- FARM (*late 1800'S*)
- **Similar to Lancaster, PA**



Wunderlich Land in Lancaster County Pennsylvania

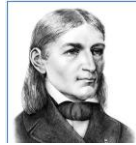
BARN and FARMHOUSE SKELETON: <http://users.etaown.edu/w/wunderjt/Architecture%20Lectures/Skeleton%20Beneath%20the%20Skin.pdf>



FRANK LLOYD WRIGHT'S EARLIEST INFLUENCES

[FROEBEL 2013, PENN RARE BOOK 2014, HUXTABLE 2004, STORRER 2017, WRIGHT 1957, BURNS 2001]

- **FROEBEL** influenced by Taoism and Buddhism
 - Japanese Shinto rooted in Chinese Taoism
 - Shinto Gods in everything, especially **nature**
 - FLW would later love Japanese Art, Design, and Culture
- Mother's family were all **UNITARIANS**
 - Inspiration from all religions, love **nature**, God in everything



Friedrich Froebel
1782-1852 Germany



Maria **Montessori**
1913 in Italy



MOTHER

Homeschool Teacher
using Froebel System

Others in history homeschooled:
Leonardo da Vinci, Monet, Mozart, Bach,
Newton, Ben Franklin, Edison, Jefferson,
Washington, Einstein, Teddy and
Franklin-Delano Roosevelt, Churchill,
John Muir, and the Wright brothers



FATHER

Preacher, Lawyer, School Superintendent, Teacher, Musician
B.A., M.A. Colgate University

"Artist, photographer, and designer of furniture, graphics, books, and buildings, his patronage of Chinese and Japanese art, his obsession with every aspect of his surroundings, his dedicated collecting of beautiful things, owed much to his father" [Huxtable 2004]



Most of childhood in rural **WISCONSIN**

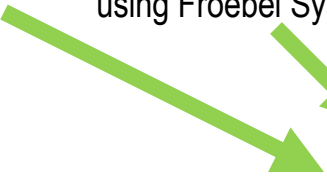
- Like Pennsylvania farmland



Frank Lloyd Wright 1867-1959



Future
Designers



PARENTS DIVORCED WHEN HE WAS 17 (1884)

[BURNS 2001, HUXTABLE 2004, PENN RARE BOOK 2014, KAUFFMAN]



Frank Lloyd Wright

Father during the first Economic “Great Depression” 1873-1896

- People didn’t donate to churches where he preached
- Talents in music, law, and government did not provide enough \$

Lost all contact with father.

Father continued composing, teaching, and publishing music.

“Artist, photographer, and designer of furniture, graphics, books, and buildings, his patronage of Chinese and Japanese art, his obsession with every aspect of his surroundings, his dedicated collecting of beautiful things, owed much to his father”

[Huxtable 2004]



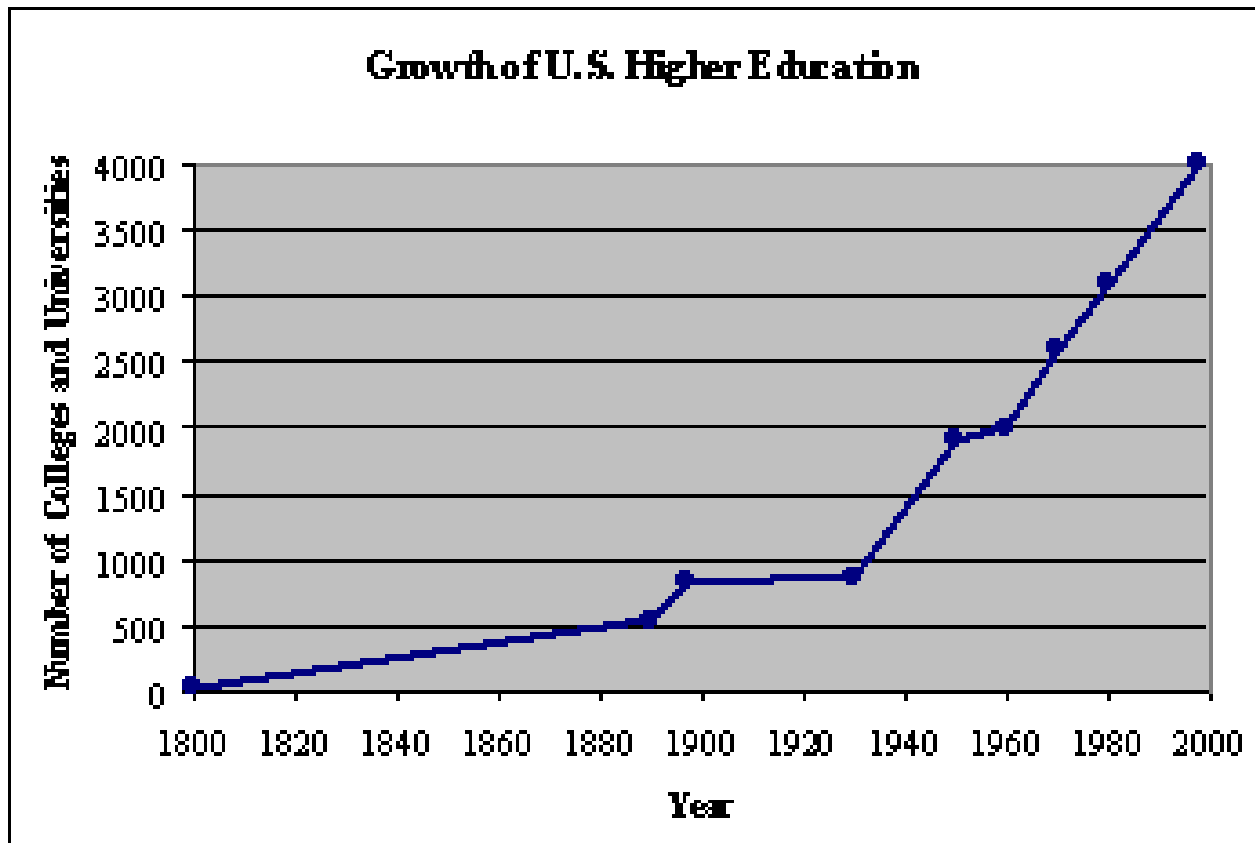
Father
William Carey Wright



CAREER BEGAN AT 18 (1885)

[BURNS 2001, STORRER 2017, KAUFFMAN 2004]

- Enrolled at **U. of Wisconsin School of engineering**
- Only finished one year, however in the late 1800s most architects learned entirely by apprenticing



Frank Lloyd Wright



CAREER BEGAN AT AGE 18 (1885)

- Madison **Wisconsin**



1885 University of Wisconsin campus



CAREER BEGAN AT AGE 18 (1885)

[STORRER 2017]

- Worked part time for Engineering/Architecture Professor Allan Conover



Mentor
Engineer/Architect Allan Conover
U. of Wisconsin Professor



Frank Lloyd Wright



CAREER BEGAN AT AGE 18 (1885)

[STORRER 2017]

Influenced by **SCIENCE HALL** at U. of Wisconsin where his **professor/mentor Allan Conover** assisted the Architect



Mentor
Engineer/Architect Allan Conover
U. of Wisconsin Professor



Frank Lloyd Wright



CAREER BEGAN AT AGE 18 (1885)

[STORRER 2017]

SCIENCE HALL

Built into hill; FLW would later say *“building on top of a hill destroys hill”*



Mentor

**Engineer/Architect Allan Conover
U. of Wisconsin Professor**



Frank Lloyd Wright
(FLW)



CAREER BEGAN AT AGE 18 (1885)

[STORRER 2017]

SCIENCE HALL

Entry had dramatic turns and compressed space leading to a suddenly-open interior. FLW would later often **cramp visitors** during entry **so destination more dramatic** -- with narrow hallways and dimly lit low ceilings.

Named “**Embrace & Release**” or “**Compression & Release**”



Mentor

Engineer/Architect Allan Conover
U. of Wisconsin Professor



Frank Lloyd Wright
(FLW)



CAREER BEGAN AT AGE 18 (1885)

[STORRER 2017]

SCIENCE HALL

Stripped away much of the interior and exterior **ornamentation** typical of Victorians, as all Modern Architects would soon do



Mentor

Engineer/Architect Allan Conover
U. of Wisconsin Professor



Frank Lloyd Wright
(FLW)



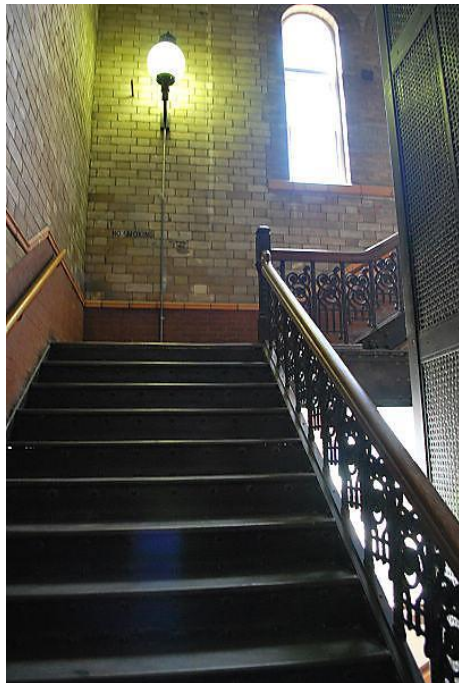
CAREER BEGAN AT AGE 18 (1885)

[STORRER 2017]

SCIENCE HALL

Brick, stone, wood in **natural state**.

Later, a principle of his **“Organic Architecture”** -- with often the same materials on the interior and exterior



Frank Lloyd Wright
(FLW)

Mentor

Engineer/Architect Allan Conover
U. of Wisconsin Professor



CAREER BEGAN AT AGE 18 (1885)

[STORRER 2017]

SCIENCE HALL

Interior very open; Later, this principle would become part of his “Organic Architecture”



Mentor

Engineer/Architect Allan Conover
U. of Wisconsin Professor



Frank Lloyd Wright
(FLW)



CAREER BEGAN AT AGE 18 (1885)

[STORRER 2017]

SCIENCE HALL

Innovative materials – steel skeleton allowed building skin to be more architectural than structural. Later, he frequently used, or created, new materials for his architecture



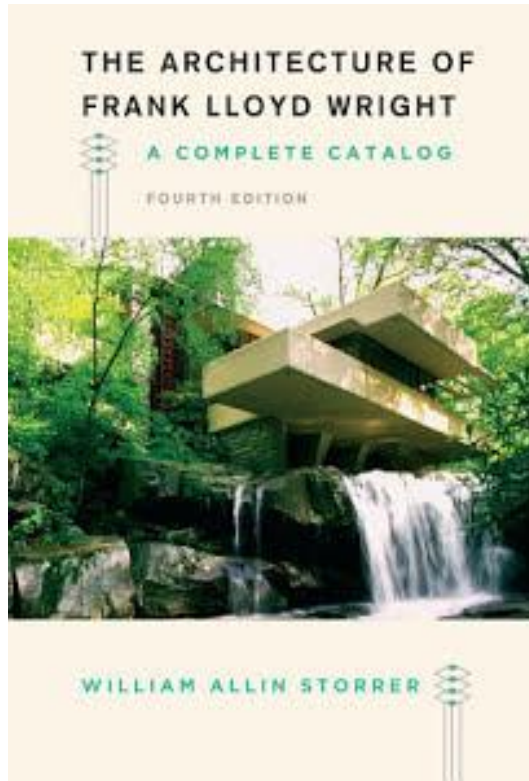
Mentor

Engineer/Architect Allan Conover
U. of Wisconsin Professor



Frank Lloyd Wright
(FLW)





STORRER, WILLIAM ALLIN. *THE ARCHITECTURE OF FRANK LLOYD WRIGHT, A COMPLETE CATALOG, 4TH EDITION.* CHICAGO, UNIVERSITY OF CHICAGO PRESS, 2017.

- Catalog of built designs, some finished after his death
- **Numbered 000-433**, beginning with **"S"** for author **Storrer**
- Color photo's indicate building still exists primarily as originally built
- Black-and-white photo represents a building demolished or renovated in a major way



19 YEARS OLD

[STORRER 2017, UNITY CHAPEL 2018]

S.001 UNITY CHAPEL (1886)

Wyoming Valley, Wisconsin



- His first work as an Architect
- Forty-two years earlier,

“Richard and Mallie Lloyd-Jones and their seven children (including FLW’s Mother Anna) left Wales seeking religious freedom and opportunity... Decades later a family chapel was built next to the area where they celebrated services... Unity Chapel combined the talents of famed Chicago architect, Joseph Lyman Silsbee, and a young boy architect of the family who looked after its interior .. Frank Lloyd Wright. “ [Unity Chapel 2018]



**Architect / Mentor
Joseph Silsbee**



Frank Lloyd Wright

