

ANNE TYNG: INHABITING GEOMETRY

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GRAHAM FOUNDATION

Anne Tyng, A Life Chronology

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All quotes: Anne Tyng.

1920

July 14: born in Jiangxi, China, to Ethel and Walworth Tyng, American Episcopal Missionaries. The fourth of five children, Tyng lives in China until 1934 with periodic furloughs in the United States.

1937

Graduates St. Mary's School, Peekskill, New York. Returns to China for a family visit; continues to travel with her sister around the world via South Asia and Europe.

1938

Enrolls in Radcliffe College, majoring in fine arts.

1941

Takes classes at the Smith Graduate School of Architecture and Landscape Architecture (a.k.a The Cambridge School), the first women's school to offer architectural studies in the United States.

1942

Graduates Radcliffe College, AB. Enrolls in the first class to admit women at the Harvard Graduate School of Design. Studies with Walter Gropius, Marcel Breuer, and Catherine

Bauer; classmates include Lawrence Halprin, Philip Johnson, Eileen Pei, I.M. Pei, and William Wurster.

1944

Graduates Harvard University, MA Architecture. In New York, works briefly in the offices of: Konrad Wachsmann; Van Doren, Nowland, and Schladermundt; Knoll Associates.

1945

Moves to Philadelphia to live with parents (having left as refugees of the Japanese invasion in 1939, they return to China in 1946). Employed by Stonorov and Kahn. The only woman in an office of six, Tyng is involved in residential and city planning projects.

1947

Joins Louis I. Kahn in his independent practice; initial projects include the *Weiss House* (1947-50) and *Genel House* (1948-51), as well as the *Radbill Building* and *Pincus Pavilion* for the Philadelphia Psychiatric Hospital (1948-54). Develops a children's toy and furniture construction set.

1948

Tyng Toy prototype exhibited in the "Everyday Art Gallery" at the Walker Art Center, Minneapolis. *Tyng Toy* is subsequently marketed, published and exhibited widely

over the next several years, including a show of educational toys organized by the American Federation of Arts that traveled to venues in Germany and Austria.

Teaches classes on architectural and furniture design at Beaver College (now Arcadia University), Glenside.

1949

Receives her architecture license, the only woman in Pennsylvania to do so that year. Joins the American Institute of Architects (AIA).

Meets Buckminster Fuller.

1950

Associate consulting architect in Kahn's office on planning projects for the city of Philadelphia, which is undergoing a period of intense redevelopment, including: *Southwest Temple Public Housing* project (1950-52), the *University of Pennsylvania Study* (1951), *Row House Studies* (1951-53), and the *Mill Creek Redevelopment Plan* (1951-54).

1951

Works with Kahn on Civic Center Plan for Philadelphia. Based on extensive studies of urban flow and movement, this plan would radically change street configurations, land use, and the location of civic infrastructure, while preserving the familiar identity and scale of the city.

Begins her investigation of three-dimensional, geometric, forming principles with the design of an *Elementary School* for Bucks County. This speculative project explores the potential of octet-truss construction and had an immediate impact on the design of the reinforced concrete ceiling structure of Kahn's *Yale University Art Gallery*.

Designs installation of AIA Philadelphia annual exhibition, featuring a removable, freestanding, support system made of standard manufactured parts.

1952

Elementary School exhibited, AIA Philadelphia.

Designs *Walworth Tyng House*, an addition to an existing farmhouse, for her parents on Maryland's Eastern Shore. Completed in the fall of 1953, it is considered the first habitable space-frame construction.

Applies unsuccessfully for Fulbright Scholarship to study with engineers Pier Luigi Nervi and G. Robert LeRicolais.

1953

As part of Kahn's *Civic Center* project, independently develops the preliminary plans for *City Tower*. This plan expands the potential of an inhabitable space-frame into high-rise construction. Published in Kahn's "Toward a Plan for Midtown Philadelphia" in *Perspecta* 2, 1953.

Walworth Tyng House awarded, for its "ingenious structural system," Honorable Mention, AIA Philadelphia; published in *The Charette* (Pennsylvania Society of Architects), September.

"Though strictly within the discipline of the geometry of the structural system, the form of the wood shingled roof projecting over the gable ends is a familiar one on the eastern shore where many roof barn roofs extend over their hayloft openings."

Travels to Italy to give birth to her child with Kahn, who is married; they maintain an active correspondence centered on their mutual interest in Kahn's architecture and his suddenly fast-breaking career.

1954

March 22: gives birth to Alexandra Tyng, while living with her brother and his wife in Rome.

1955

Returns to Philadelphia with her daughter; purchases house on Waverly Street; resumes work in Kahn's office. Projects include: *Trenton Bath House* (1955), *Mill Creek Housing Project* (thru 1962), *Wharton Esherick Studio* (1955-56), *Martin Marietta Baltimore Research Center* (1956-57).

Elementary School published on cover of AIA Philadelphia Yearbook.

1956

With Kahn, re-envisions *City Tower* by tripling the height of the original 216-foot plan and developing "servant spaces" for utilities in the structure's capitols. Commissioned for an advertising campaign by Universal Atlas Cement Company, it is widely published and exhibited over the following years.

1957

Founding member of the C.G. Jung Study Center of Philadelphia. Undergoes a period of Jungian analysis. Jung's archetypes (which he compares to Platonic ideas) and psychology of individuation are extremely formative to Tyng's own theories of creative cycles, extroverted/male and introverted/female principles of expression, and Tyng's own personal narrative: "muse to heroine," in which a woman's power to inspire male creativity proves as much challenge as agent to her own expression.

1958

Takes a leading role in the design of *Shapiro House* (1958-62) and *Clever House* (1957-62) in Kahn's office, where her schemes for large scale civic projects, such as Erdman Dormitories at Bryn Mawr College, are not developed.

1960

City Tower exhibited in *Visionary Architecture*, Museum of Modern Art, New York. Kahn's reluctance to credit Tyng signals their separation: after 1962, she occasionally consults on his practice (until Kahn's death in 1974). The focus of her work shifts increasingly towards research.

1963

Awarded AIA Brunner Grant to develop research for the study of three-dimensional form.

1964

Presents *The Divine Proportion in the Platonic Solids Exhibition*, an installation of Tyng's research and a full scale space-frame ceiling structure, at the Graduate School of Fine Arts (then located in Hayden Hall), University of Pennsylvania.

Designs addition to *Waverly Street House*: a third-story studio and clearstory loft bed inside a space-frame. Completed in 1967.

1965

Awarded Graham Foundation grant to develop Penn exhibition research into a finished manuscript *Anatomy of Form*.

Travels to Europe to attend the International Seminar on Ekistics in Athens.

1968

Starts as a lecturer in Architecture at Penn, developing a pedagogy of "Morphology," based on geometric forming principles and "geometric conscious," at Penn until 1995. Throughout the 1960s and 70s, she is invited as a lecturer and studio critic at Carnegie Mellon, Pratt, Parsons, Cooper Union, Rensselaer Polytechnic Institute, Drexel,

University of Minnesota, University of Texas at Austin, among other schools.

Publishes 3-part essay "Urban Space Systems as Living Form," in *Architecture Canada* 45 (nos. 11-12, and vol. 46, no. 1).

The organic principles of asymmetry, of growth and proportion, the gradual intensification of form within the building up of hierarchies within hierarchies, the inclusion of existing or 'old' forms in new forms, the interlacing of complexity within overall simplicity, the space system of a higher order which can correlate other space systems—all can provide new ways of binding the whole into a unity of moving growing form—a balanced creative image as tension between known and unknown for the spatial synthesis of collective life.

1969

Publishes "Geometric Extensions of Consciousness" in the "Geometry" issue of *Zodiac 19* (Milan). The magazine also includes a feature on Tyng's architecture. Tyng's essay is her most comprehensive statement of geometry as a universal forming system; it provides extensive illustrations and examples that link psyche and matter, natural and built forms, male and female archetypes of creativity, probability and perception, historic cycles of consciousness and rebirth.

1971

Exhibits *Urban Hierarchy* in "Metamorphology: new sources of form making," at AIA Philadelphia.

Begins designing *Four Poster House* for Mt. Desert Island, Maine. A four-poster bed is the structural and symbolic core of this speculative plan for a space-frame vacation cottage, in which four posts rise up three levels to form a sleeping loft.

1974

Profiled in "Architect Firms are Opening Doors to Women" by DD Eisenberg, *The Philadelphia Evening Bulletin* (May 6).

Many women have been scared away from the profession because of the strong emphasis on mathematics...All you really need to know are basic geometric principles, like the cube and the Pythagorean theorem.

Participates in "Focus: Philadelphia Focuses on Women in the Visual Arts," a symposium at Beaver College, as a respondent to feminist writer Elizabeth Janeway's paper "Socialization of Women: Survival as Women and Artists."

There appears to be a kind of progression in the different roles that women play—from mother to muse to Ms. ...an individual in her own right, creating under her own name, bringing her own creative efforts into consciousness, being born or reborn herself.

1975

Graduates University of Pennsylvania, PhD in Architecture. An exploration of symmetry and probability, her dissertation is titled *Simultaneous Randomness and Order: The Fibonacci-Divine Proportion as a Universal Forming Principle*.

Elevated to Fellow of the American Institute of Architects Elected Associate Member, National Academy of Design.

Commissioned by a developer in New Jersey to design a sprayed-urethane-construction, solar-powered home. Published: Thomas Hine, "It's Inflated, It's Plastic, It's a House," *Philadelphia Inquirer* (January 12, 1976).

1976

Presents "Identity Thresholds of Individuals and Communities in The Forming of Cities" at the International Congress of Women Architects in Ramsar, Iran.

Urban Hierarchy published in Alison Sky and Michael Stone's book *Unbuilt America: Forgotten Architecture in the United States from Thomas Jefferson to the Space Age*.

1977

Represented in the exhibition *Women in American Architecture: A Historic and Contemporary Perspective*, organized by the Architectural League of New York, the show opened at the Brooklyn Museum and traveled extensively. In the accompanying book, Tyng is featured in the chapter "New Professional Identities" (by Jane McGroarty and Susana Torre), as an exponent of "Domes, Communes and Collective Forms." The show was widely reviewed with special notice to Tyng's work in publications including *Ms.*, *The New York Times*, *Newsweek*, *Progressive Architecture*.

1978

Publishes "Seeing Order: Systems and Symbols" in *Hypergraphics: Visualizing Complex Relationships in Art, Science and Technology* (David W. Brisson, ed.), Boulder, Colorado: Westview Press.

Presents "Structure of Time and Place: A Theory for Recombination of Technology and Tradition," a proposal for high-tech "hill-village platforms" to support low-tech housing in developing countries, at the XIII International Congress of Architects, Mexico City.

1979

Urban Hierarchy exhibited in *Visionary Drawings of Architecture and Planning: 20th Century Through the 1960s* at The Drawing Center, New York. Organized by curator

George R. Collins, the show traveled under the auspices of the Smithsonian Institution Traveling Exhibition Services (SITES) through 1982. Catalogue includes Tyng's essay "An Exploration of a 20th-Century Matrix."

Bilateral symmetry is the basis of a court block of forty dwellings...Rotational symmetry, or symmetry around a point, expresses the pattern of vehicular movement in the form of pentagonal ramps...Spiral symmetry connects the elementary school neighborhoods to the larger community around two junior high schools, and senior high, with additional shopping, offices, motels, amusement or recreational facilities...Bilateral symmetry at a larger scale includes four spiral forms which act as collectors and diffusers of the expressway system...

In the inner space of human thought patterns and their physical connectivity, and in space outside the brain, a universal 20th-Century Matrix can function as a 'mandala' of symbolic psychic source and as a specific objective tool for the making of collective form in architecture.

Receives a second fellowship from the Graham Foundation for Advanced Studies in the Fine Arts to study the history and urban use of London's city squares.

1983

Receives AIA Brunner Grant for London Squares project.

Publishes "Resonance Between Eye and Archetype" in *Via 6: Architecture and Perception* (Penn Graduate Students in Architecture/The MIT Press.)

My definition of the art of architecture is to give form to number and to give number to form.

Four poster house and manhattan landing project exhibited at the Philadelphia Art Alliance (and alternative to scales apt blocks).

1984

Completes *London Squares: The Art of Human Scale*, an unpublished book in five chapters.

London squares build up tangible elements of human scale into larger images of archetypal houses, archetypal church and archetypal garden to define and combine psyche, spirit and nature.

Publishes "Architecture is My Touchstone" in *Radcliffe Quarterly* 70.

[For me, architecture] has become a passionate search for essences of form and space—number, shape, proportion, scale—a search for ways to define space by thresholds of structure, natural laws, human identity and meaning.

1987

Exhibits and lectures as featured architect, *Exhibit 87: Work and Play*, Austin Women in Architecture.

1988

Four Poster House exhibited in *Advanced Structures Around the World*, Syracuse University.

Included in *The Exceptional One: Women in American Architecture, 1888-1988*, organized by the AIA Women in Architecture Committee, the exhibition debuted for 3 days in New York before traveling nationally.

1989

Publishes "From Muse to Heroine: Toward a Visible Creative Identity" in *Architecture: A Place for Women* (Ellen Perry Berkeley and Matilda McQuaid, eds.), Washington D.C.: Smithsonian Institution Press.

The greatest hurdle for a woman in architecture today is the psychological development necessary to free her creative potential. To own one's own ideas without guilt, apology, or misplaced modesty involves understanding the

creative process and the so-called 'masculine' and 'feminine' principles as they function in creativity and male-female relationships.

1990

Publishes "Individuation and Entropy as Creative Cycle in Architecture," in *C.G. Jung and the Humanities: Toward a Hermeneutics of Culture* (Karin Barnaby and Pelligrino D'Acerno, editors), Princeton University Press.

Profiled in Clare Lorenz, *Women in Architecture: A Contemporary Perspective* (New York: Rizzoli).

1991

Receives the John Harbeson Distinguished Service award from AIA Philadelphia.

Publishes "Synthesis of a Traditional House with a Space-Frame" in *International Journal of Space Structures* 6.

Referenced in the first major survey of Kahn's work *Louis I. Kahn: In the Realm of Architecture* (Museum of Contemporary Art, Los Angeles, and Rizzoli, New York) by David Brownlee and David G. De Long, who discuss Tyng's contribution and acknowledge her interest in geometry as formative to Kahn's mature architecture. This is among the first of much subsequent scholarship to explore Tyng's role in Kahn's work.

1995

Philadelphia Regional Visiting Artist at the American Academy in Rome.

Stops teaching at Penn.

1997

Publishes book *Louis Kahn to Anne Tyng: The Rome Letters, 1953-1954* (New York: Rizzoli).

I believe our creative work together deepened our relationship and the relationship enlarged our creativity. In our years of working together toward a goal outside ourselves, believing profoundly in each other's abilities helped us to believe in ourselves.

1998

Contributes "Foreword" to Klaus-Peter Gast geometric analysis *Louis I. Kahn: The Idea of Order* (Basel: Birkhäuser).

Kahn saw that four quite different projects grew from the same geometric order: my 1949-51 octet truss elementary school that few additional layers toward three tapering supports from the same geometry, Kahn's 1951-53 Art Gallery with its visibly hollowed concrete octet ceiling, my 1951-53 house of wood...and our 1952-57 City Tower project that grew vertically in dynamic undulations.

2001

Discussed extensively in Sarah Williams Goldhagen's, *Louis Kahn's Situated Modernism* (New Haven: Yale University Press).

2005

Donates papers to the Architectural Archives, University of Pennsylvania.

Moves to Greenbrae, Marin County, California.

2011

Creates a new project based on the Platonic Solids for *Anne Tyng: Inhabiting Geometry*, an installation and exhibition at the Institute of Contemporary Art, University of Pennsylvania (January 13—March 20); travels to the Graham Foundation (April 15—June 18).