

미국 건축 및 조경디자인에 나타난 일본양식에 관한 고찰

김 신 원

경희대학교 대학원 조경학과 박사과정

An Examination of Japanese Modes Expressed in American Spatial Design

Kim, Shin-Won

Graduate, Department of Landscape Architecture, Graduate School, Kyung Hee University

요 약

본 연구는 미국의 건축 및 조경공간 형성에 미친 일본문화를 파악하기 위한 기초연구로서, 일본문화 및 공간디자인의 특성과 미국건축 및 조경에 나타난 그 면모에 관한 것이다. 1853년 미국과 일본의 문화교류를 시작으로 일본의 예술과 건축이 미국에 소개되었고, 특히 1893년 Chicago에서 열렸던 World's Columbian Exposition에서 선보인 일본의 건축물은 당시 미국의 건축가들에게 영향을 주었다. 그후 일본의 공간디자인은 건축뿐만 아니라 조경분야에도 영향을 미쳐 현재 미국의 공간디자인을 구성하고 있는 특성 가운데 하나로 자리잡고 있다.

필자는 미국의 공간디자인에 영향을 준 일본문화의 실재를 파악하기 위하여 한국과 중국의 문화와 구별되는 일본만의 독특한 문화적 특성을 고찰해보고, 미국 현대건축의 선구자인 Frank Lloyd Wright, Greene and Greene, Philip Johnson, Richard J. Neutra의 작품 및 조경디자이너인 Ethelbert E. Furlong, James C. Rose의 작품속에 나타난 일본식 공간디자인의 면모를 살펴보았다.

장래 이 분야의 연구에서는 미국문화의 특성이 고찰되어 미국과 일본의 두 문화가 비교 파악되기 위한 개념적 근거가 마련되고, 일본식 공간디자인이 미국에서 어떻게 이해되고 해석되어졌으며 미국식 공간 디자인으로 전환되었는지 살펴보며, 어떤 이유에서 일본의 공간디자인 양식이 미국의 건축 및 조경분야에서 문화적으로 일본보다 오랜 역사를 지닌 한국과 중국의 공간디자인 양식보다 커다란 영향을 주고 있는지에 관해 이해를 구하는 방향으로 연구가 수행되어야 함을 제안한다.

This research, based on a study, "Japanese Influences in the Making of the American Space", conducted by the author at Cornell University in 1992, is to be dedicated to the Japanese, who as pioneers in modern Oriental civilizations have influenced the American culture of space-making.

I. Introduction

The United States is a fundamentally pluralistic and highly dynamic society (Conzen, 1990). American social scientists of the 1920s referred to America as a "Great Smelting Furnace" because it grew into a powerful country in a little over one hundred years. Social scientists of the 1960s denied this smelting furnace idea, however, and degraded America's image by calling it a "vegetable salad" (Lee, 1985). Whether America is a great smelting furnace or a vegetable salad (or any other thing) and whether these manifestations are used in the affirmative or in the negative, the important thing is to investigate how these foreign heterogeneities permeate and influence American political, economic, social, cultural, artistic and religious life and how these heterogeneous elements are adapted and expressed in American life. Investigation of ethnicity that influences American political, social and economic life has been conducted but, as Upton (1986) points out, although it has been closely studied since the nineteenth century, its precise nature and meaning remain controversial.

It is hoped that the study of ethnic groups that built and enriched the American scene—specifically in architecture, landscape architecture and allied fields—can provide answers to the questions raised above because historic monuments were made in their cultural, social, economic and political contexts.

For this research of the many ethnic groups that were influential in the making of the American scene, Japanese influences

are studied. The following reason for investigating Japanese influences in America can be identified: The Japanese mode in America has been considerably more than a fad. Japanese influences were a determining factor in the architecture of the house as a whole, and are visible in landscaping and certain branches of the fine arts as well.

For conducting this study of Japanese influences in the American culture of space-making, architecture and landscape architecture, the method of archival research, in which regarding documents, plans and photographs are investigated, was used. This research study covers the characteristics of Japanese culture and design, Japanese influence upon American space-making, and Japanese design expressed in American architecture and landscape architecture. The author makes sure that the designers and their works, presented in this study, are not exhaustively selected from all the American spatial designers' inspired by Japanese design.

II. Japanese Influence Upon American Space-Making

1. Japanese Influence Upon American Architecture

Cultural exchange between America and Japan began with Commodore Matthew Perry's sailing into Yedo Bay in 1853 (Lancaster, 1983). The world of Japanese art was brought to America after Perry's visit to Japan. Japanese architecture was presented in America through *ukiyo*e prints (floating world pictures: prints or paint-

ings of genre subjects), books and a number of authentically designed buildings constructed for American expositions (Lee, 1986). Especially, the Japanese exhibits at the World's Columbian Exposition in Chicago in 1893 inspired some contemporary American architects (Howett, 1993). Since then, the architecture of Japan has directly inspired some of the pioneers of American modern architecture, such as Frank Lloyd Wright, Greene and Greene, Philip Johnson, and Richard J. Neutra. In this chapter, the Japanese influence upon American architecture will be examined.

(1) Frank Lloyd Wright

As has been noted, the World's Columbian Exposition in Chicago in 1893 was an opportunity to present Japanese architecture in America. The Japanese exhibit, located on Wooded Island in the Lagoon at the Chicago fair, consisted of Japanese buildings designed by Masamichi Kuru, modeled after the mid-eleventh-century Hoo-do, or Phoenix Hall, of the Byodo-in at Uji, near Kyoto. Figure 1 shows the Japanese exhibit at the World's Columbian Exposition in Chicago. This Chicago version of Phoenix Hall, called Hoo-den, or Phoenix Villa, composed of three wooden pavilions, was in striking contrast to the neoclassical buildings surrounding it. The Hoo-den showed excellent proportions, superb craftsmanship, sensitive roof curves and structural honesty. The Hoo-den outlasted its surrounding neoclassical competitors until it was destroyed by fire in 1946. This Japanese exhibit must have been studied by architects of the Prairie School and was certainly seen by Frank Lloyd Wright, who was working for Louis H. Sullivan (1856—1924) at the time (Lee, 1986).

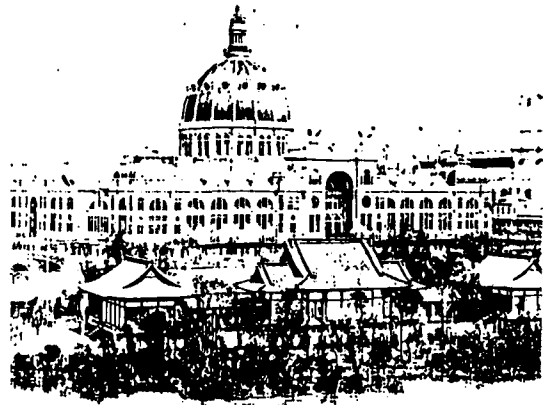


Figure 1. The Japanese exhibit on a wooded island at the World's Columbian Exposition in Chicago in 1893 (Lee, 1986, p.137).

Frank Lloyd Wright (1869—1959) and other architects of his generation acquired a principle from Louis Sullivan, which Wright called “organic architecture”, and defined as “an architecture that develops from within outward in harmony with the conditions of its being as distinguished from one that is applied from without” (Lancaster, 1983, p. 85, citing Wright). The Hoo-den exemplified the principle of organic architecture. “Frank Lloyd Wright's concept of continuous interior spaces that flowed out into the landscape, his respect for the nature of materials and his belief that buildings should be designed with nature—all have parallels in Japanese architecture” (Lee, 1986, p. 137).

When Wright visited Japan in 1905, he saw the native house of Japan as a supreme study in elimination—the elimination of the insignificant. To Wright, there was nothing meaningless in the Japanese home, and the result of elimination of the insignificant was grace and purity. In 1911, Wright designed

his new home and studio at Taliesin, the family home site near Spring Green, Wisconsin. Taliesin, a low rambling building of stone and wood that merges with its setting, possesses an exemplary organic architecture (see Figure 2).



Figure 2. Exterior angle of the living quarters at Taliesin, Spring Green, Wisconsin (Hitchcock, 1942, Illustration 174).

Wright's organic architectural art was fully developed by the mid-1930s. In 1936 he showed a dynamic and even romantic organic architecture in Falling Water, the retreat of Edgar J. Kaufmann at Bear Run, Pennsylvania (see Figure 3). Falling Water is so well suited to the setting that it becomes an integral part of it. The building shows the integration of inside volumes with outer forms and the spatial relation of the house to surrounding landscape (Pfeiffer, 1988).

Wright showed an ability to combine engineering and his poetic proficiency in the Johnson Wax Administration Building in Racine, Wisconsin, begun in 1936 and completed in 1939 (see Figure 4). The Johnson Tower bears comparison with Japanese pagodas. An example for comparison is the eighth-century East Pagoda of the Yakushiji at Nara, which has roofs and floor levels of interchanging projection depths. Inspection of

sectional diagrams of the East Pagoda of Yakushiji and the Johnson Wax Tower shows the analogy between the floors cantilevered from the central shaft of the Johnson Tower and the mast construction employed in the pagoda (see Figure 5). In pagodas, however, the central posts do not support the structure.

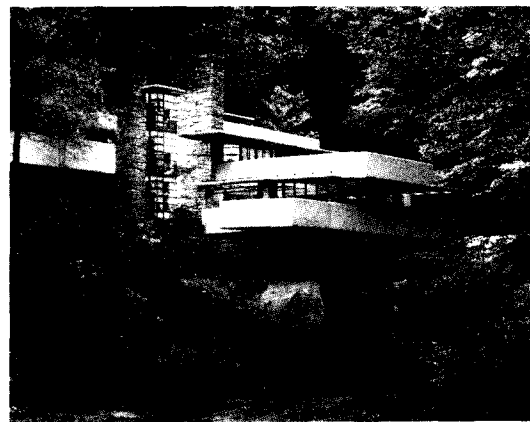


Figure 3. Falling Water, Edgar J. Kaufmann house, Bear Run, Pennsylvania (Pfeiffer, 1988, p. 42).

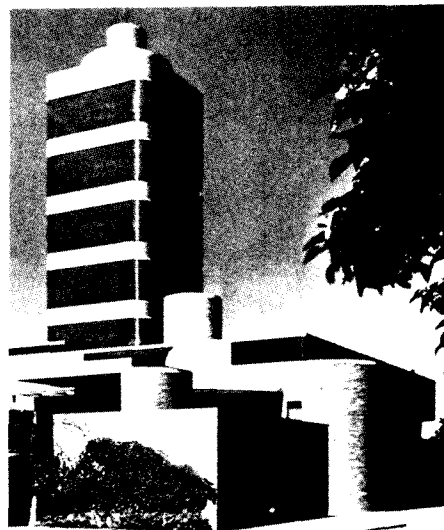


Figure 4. Johnson Wax Research Laboratory Tower, Racine, Wisconsin (Jencks, 1985, p. 135).

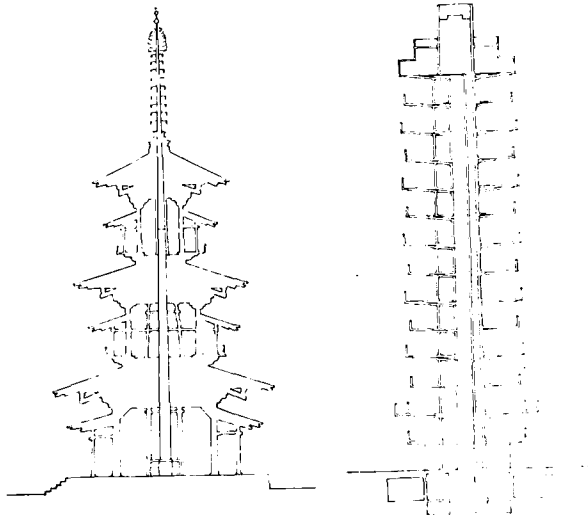


Figure 5. Sectional diagrams of the East Pagoda of Yakushiji, Nara, and the Johnson Wax Tower(not to scale) (Lancaster, 1983, p. 162).

(2) Greene and Greene

Around the turn of the century, the bungalow style of architecture was developed in California as an answer to the desires for housing of people from all walks of life flocking to that state. With the new surroundings, they also wanted something new in houses, something different from that they were used to back East. Lancaster(1983) cites a bungalow as having "simple horizontal lines, wide projecting roofs, numerous windows, one or two large porches, and the woodwork of the plainest kind"—a perfect blend of originality and artistry that, to boot, could be constructed rather inexpensively.

The Japanese influence on the California bungalow is found above all in those designed by Charles Sumner Greene(1868—1957) and Henry Mather Greene(1870—1954), two brothers who worked as a team. They had visited the World's Columbian Exposition at Chicago in 1893 and the California Midwinter

Exposition at San Francisco in 1894, and were impressed and delighted by the Japanese exhibits, the influence of which began appearing in their work in 1906 in Mrs. A. Tichenor's house at Long Beach and the Theodore Irwin house at Pasadena. In 1908, the Greene brothers designed another house at Pasadena which shows the Japanese style, the David B. Gamble residence. The Gamble residence is well endowed with upstairs sleeping porches, the supports and railings of which are outgrowths of the main structural system. The irregular spacing of the exposed timbers and their subtle curves and rounded corners

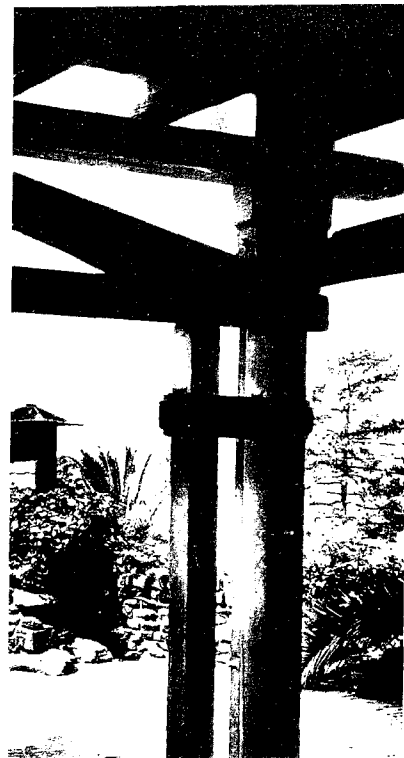


Figure 6. The double post construction in the David B. Gamble house in Pasadena (Wichmann, 1981, p. 360).

add to the beauty of the house (Yost, 1950). An important characteristic of the Gamble house is its double post construction (see Figure 6), as also used in the Japanese house. The posts in a Japanese house carry the whole edifice and support the ambulatories and the roof. These supports also occur as double posts in some great 'houses of many mats' (Wichmann, 1981). Figure 7 shows the double post construction in a Japanese tea house.

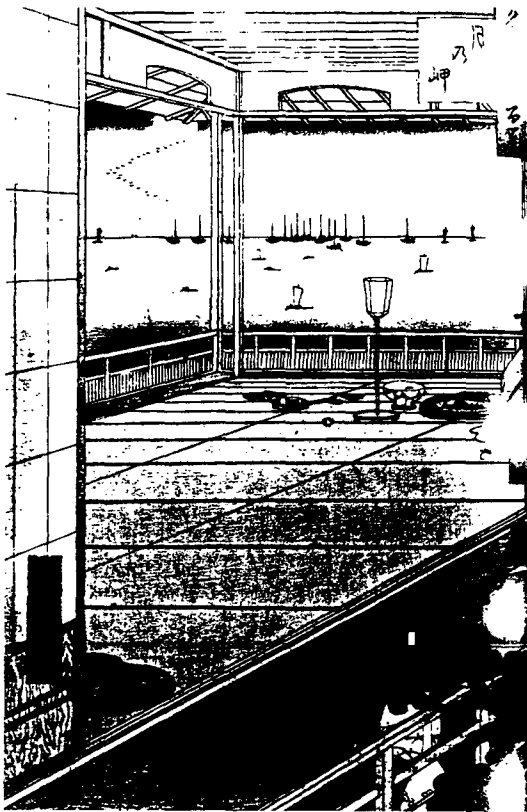


Figure 7. Ando Hiroshige's Japanese woodcut *Interior of a tea house with view over the sea from One Hundred Views of Famous Places in Edo (Meisho Edo Hyakkei)* shows a light, but outward-reaching construction (Wichmann, 1981, p. 360).

The Greene brothers' design mode was especially well expressed in the true, the low and rambling, bungalow rather than in larger structures. In 1909—1911, the Greenes built one of the finest bungalows produced in America, the Charles Pratt bungalow on Foothill Road near Ojai, California.

(3) Philip Johnson

Philip Johnson, born in Cleveland, Ohio, in 1906, came to know the Japanese architecture while he was Director of the Department of Architecture at the Museum of Modern Art in New York. Johnson integrated several Japanese characteristics into his home at 9 Ash Street, Cambridge, Massachusetts, built in 1942 (see Figure 8).

Philip Johnson built his new home in New Canaan, Connecticut, in 1949 (see Figure 9). In this house, Johnson used glass for all exterior walls in order to create an open effect comparable to a Japanese house. He produced a feeling for volume in this house, "a quietly delineated volume which always forms a unity with the surrounding nature. Struts and posts do not represent divisions or caesuras; they are complementary to the surrounding space, they 'reflect' the trunks of trees. The

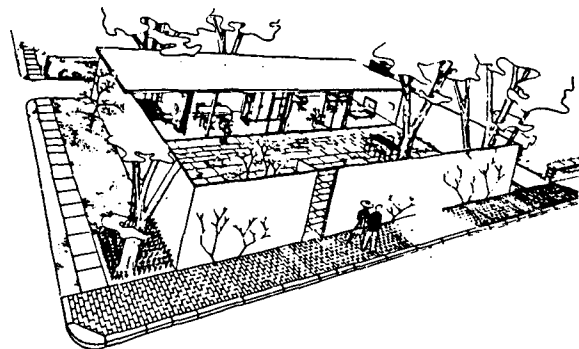


Figure 8. A perspective sketch of the Philip Johnson house, Cambridge, Massachusetts (Lancaster, 1983, p. 165).

The landscape is part of the house and vice versa" (Wichmann, 1981, p. 366).



Figure 9. Philip Johnson house, New Canaan, Connecticut. All exterior walls are glass, creating an open effect comparable to a Japanese house. The simplified ground plan resembles the Japanese modular system (Frampton, 1985, p. 241).

(4) Richard J. Neutra

Richard J. Neutra, who was born in Vienna in 1892 and came to America in 1923, implanted the International Style in California during the 1920s. Neutra is credited with being the first Western architect to incorporate *aroma* into the design of a house. He achieved this, as did his Japanese inspirers, by leaving building materials in their natural, unpainted state. Leaving beams and other woodwork unfinished also serves to somewhat muffle sounds rather than reflect them at full loudness (Neutra, 1984).

In 1946, Richard Neutra built the Edgar Kaufmann residence in the Colorado desert at Palm Springs, California (Figure 10). This flat-topped house is spread out close to the ground amidst huge jagged rocks and scanty desert vegetation, the landscape resembling a Japanese *hira-niwa*, or flat garden of raked white gravel, rocks, and perhaps a few plants and ornaments (Frampton, 1985).



Figure 10. Edgar Kaufmann residence, Colorado Desert, Palm Springs, California. The interior areas all face outwards to the garden (Frampton, 1985, p. 250).

The Tremaine house, built by Neutra at Santa Barbara, California, in 1948, also shows Japanese architectural styles. It embraces two sides of a polished outdoor terrace that recalls the white plaster floor in the *Seiryoden*, the Emperor's private apartments adjoining the *Shishinden* at Kyoto. Planting enframes the outer two sides of the terrace. "Neutra uses the close view of tree trunks as illusionistic posts, as if incorporated from the very first in his construction designs—he does his planning in collaboration with nature" (Wichmann, 1981, p. 367). Figure 11 shows Neutra's original way of using vertical elements in order to produce vertical articulation in the open view.

In the Moore residence, built at Ojai Valley, California, in 1950–1960, Neutra subdivides the walls in a manner closely related to the Japanese use of posts (Figure 12).

The synthesis of Eastern and Western accomplishments in building is well carried out in his later work in America. Neutra showed a successful unification of architecture and environment in the Troxell house, built at



Figure 11. Tremaine house, Monte Cito, Santa Barbara, California. The vertical posts in the open walls combine with the trees to articulate the view determined by the architect (Wichmann, 1981, p. 362).



Figure 12. Moore residence, Ojai Valley, California. View to the north, showing how the landscape becomes part of the room (Wichmann, 1981, p. 361).

Pacific Palisades, California, in 1957. Neutra achieved the integration of two seemingly dichotomous elements—Nature and geometric structural forms.

2. Japanese Influence Upon American Landscape Architecture

Early in the twentieth century, some art collectors began urging Americans to scrutinize the delicate work of Oriental artists and the philosophies behind it. Eastern art was gradually collected in museums, and Oriental experts were hired as curators. Among the curators was Okakura Kakuzo, curator of the Chinese and Japanese collections at the Boston Museum of Fine Arts. He published a number of books in English explaining Oriental aesthetics and world view. In his *The Book of Tea* (1906), Okakura discusses the design and decoration of the tea-house, tea-garden and flower arrangements. The book helped initiate sophisticated analysis of Oriental art and ornamental landscape that blossomed in America decades later. Slowly, the voices of Okakura and other writers had an effect (Stilgoe, 1986). Some landscape designers have chosen to learn from Japan. In this chapter, the Japanese design expressed in the works of Ethelbert E. Furlong and James C. Rose will be examined.

(1) Ethelbert E. Furlong

The Garden of One Hundred Stones, designed by Ethelbert E. Furlong, a landscape architect, shows Japanese traditions in the garden design. The garden, constructed and planted in connection with *House Beautiful's Pace—Setter House* for 1949, received Honorable Mention at the

Gold Medal Exhibition of the Architectural League of New York in 1950. This garden was featured in *Landscape Architecture* in October 1952 (see Figure 13).

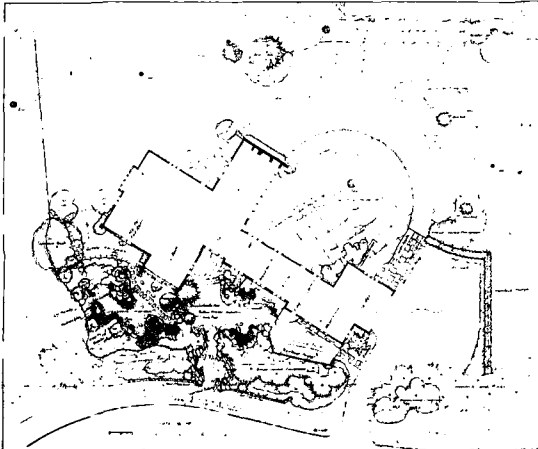


Figure 13. The Garden of One Hundred Stones (Furlong, 1952, p. 6).

The Garden of One Hundred Stones is a form of Japanese garden under which no water for use in a garden was available. The garden may be styled as a *Karesansui* garden, a simple, plain and quiet dry-landscape garden; or a Stone-Composition *Karesansui* garden, composed of two grades of golden yellow beach gravel typifying sea and river, the larger gravel presumably washed in groups by the force of the river, and stone compositions representing waterfalls and streams. Various rock compositions, such as "Flatland Composition", "Island Composition" and "Artificial Hill Composition" have been introduced in this garden (see Figure 14).

The Garden of One Hundred Stones shows a sensitive composition and unity with perfect balance and proportion. The garden is not merely a garden for display of stones and plants, rather a series of tiny landscapes wedded together into a picturesque whole. The garden was designed for year-round enjoyment, and intended

to be viewed and admired from within the house. Above all, it is intended as a place for secluded leisure and meditation.

Being symbolic in general character, this garden produces a feeling of spiritual or mystical quality. The feeling of harmony between the house and Japanese garden is enhanced by the small porch added by the landscape architect. The mixing of plants was intended to be as artful as a symphony. This has been achieved by a careful study of plant composition. The garden, characterized by the strong and contrasting use of materials, requires little or no maintenance.



Figure 14. "Island Stone", jutting above the dry-river gravels (Furlong, 1952, p. 11).

(2) James C. Rose

James C. Rose, educated at the Harvard Graduate School of Design after previous education at Cornell, was an instigator of the "Harvard Revolution" in landscape design of the late 1930s. Rose, together with Garrett Eckbo, Dan Kiley and other avant-garde landscape architectural students, rejected the Beaux Arts tradition in land-

scape architecture and advocated design philosophies which remain influential to this day (Morrow, 1987).

Rose was stationed in Japan during World War II. While in Japan, he became enamored with Zen Buddhism and the concept of a garden as a setting for personal knowledge. His garden design philosophy assumed a new dimension. He thought that the garden should be a vehicle for personal discovery.

Rose's highly imaginative work, inspired by Japanese design, is his own ideal house built in 1953 in Ridgewood, New Jersey. The house and its original garden, published in *Progressive Architecture* in December 1954, show certain Japanese influence. This residence consists of three parts: a house for his mother; a studio for himself; and a "one-room apartment" unit for his sister (see Figure 15). The complex as a series of pavilions with flat roofs represents an unusual blend of Japanese and 1930s Modern architectural styles. Space is so disciplined that each has complete independence and privacy, and each indoor area has its outdoor spatial extension. The living space and east lawn, for example, form one continuous indoor-outdoor space in the central unit, Mrs. Rose's dwelling. Rose's goal was "to design an environment". To meet the goal, he consciously

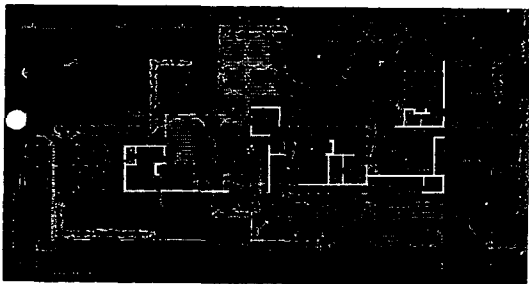


Figure 15. Rose Residence, Ridgewood, New Jersey (Rose, 1954, p. 115).

avoided the house-plus-garden approach, in favor of integrated indoor-outdoor space. Figure 16 shows that the house and the garden are joined by windows. Rose studied Japanese gardens and he appropriated elements, which were transformed in his garden. Rose's garden is inventive in several respects. Refined woven wooden fences, inspired but not copied from Japanese coun-

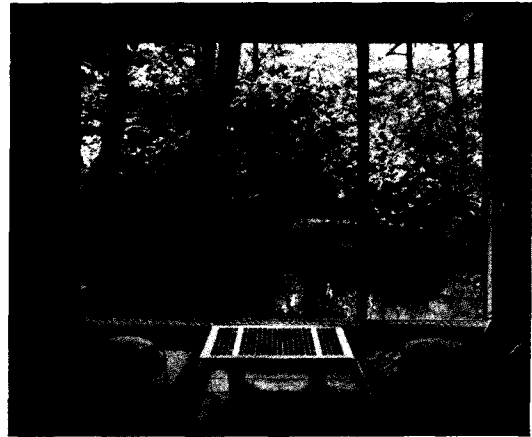


Figure 16. The house and the garden are joined by windows (In *Built Landscapes*, 1986, p. 36).

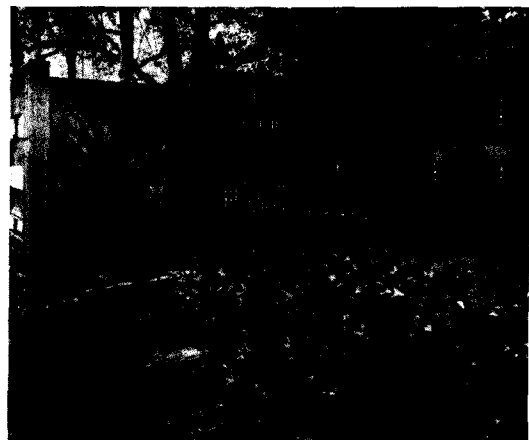


Figure 17. Refined woven wooden fences, inspired by Japanese counterparts (In *Built Landscapes*, 1986, p. 41).

terparts, create a subtle transparency and allow elusive glimpses into adjoining spaces(see Figure 17).

III. Cultural Characteristics of Japan

For understanding Japanese influences in American architecture and landscape architecture, it is necessary to determine what are uniquely Japanese characteristics. Hence, the general characteristics of Japanese culture will be investigated in this chapter.

1. Characteristics of Japanese Culture

After investigating the common and different cultural characteristics of the East Asian countries of China, Japan and Korea, in his *Smaller Is Better*, Lee(1984) identifies the characteristics of Japanese culture in various fields. The following of these characteristics are relevant to this study : (1) a culture which has been built primarily on the visual sense rather than the auditory sense ; (2) a view of nature which is different from that of the Chinese, the Korean, or the Westerner ; (3) a peculiar attitude toward the nature ; (4) a culture which has no ideology ; and (5) a different attitude toward space as compared to that of heirs of the Greek tradition, which can be respectively represented by the culture of tea rooms and the culture of agorae.

(1) A Culture Built Primarily on the Visual Sense

Human culture can be thought to be built on things seen and things heard. Between these two senses, sight and hearing, which are both most important to human cultural activity, the visual sense played a more important part in Japanese culture than

the auditory one. For instance, painting is most highly valued among all the arts of Japan, while music was not so highly developed in Japan. Under this visually oriented cultural climate, it is natural that only Japan among East Asian countries has a highly developed culture of family crests. Although Koreans valued their family genealogies more than the Japanese did, they did not develop a culture of family crests. The Japanese have also used such signs and emblems for their shops and clothes. These crests respectively represent the honor and group consciousness of particular houses, the logo of shops, and the worker's and artisan's skills and pride in their occupations. That is, these crests can be considered as congealed symbolic images in concrete visual forms.

(2) The View of Nature

The Japanese apparently had a deep respect for nature, especially from a Westerner's point of view. It will be interesting to give careful consideration to this viewpoint from a different angle. The Chinese and the Koreans, who bore the philosophy of Lao Tzu and Chuang Tzu, grasped nature as it was. The Japanese, however, tamed it in order to make artificial nature after bringing nature into the gardens of their houses. The Japanese regarded untamed nature as wild, disordered and dreary. Unlike the Japanese, Westerners did not treat nature as their own property, but tried to control nature by human power. In this respect, Japanese and Westerners can be thought of as people who intended to rule over nature, each fulfilling their own purposes. A matter of importance is how differently these two peoples treated nature. The Japanese, for example, removed the water from the waterfall, reduced its size, and fi-

nally came up with the miniature style of a symbolic waterfall. The Westerners, on the other hand, made fountains which are reversed forms of waterfalls, and finally created man-made water trees formed by water jets (Lee, 1984).

From the Westerner's point of view, the Japanese traditionally have been regarded as respecting nature and always trying to harmonize with nature when building houses and gardens. By Koreans, however, Japanese architecture and gardening is often perceived as unnatural. Japanese design gives a feeling of artificiality. For example, the stepping stones, which can be found in Japanese tea gardens, are regarded as a representation of the Japanese appreciation of the beauty of nature. The paths of stepping stones, an important element in traditional Japanese gardens, have practical and ornamental functions. "From at least as early as the beginning of the seventeenth century, paths of stepping stones have served as guides from the entrance to the tea garden, to the small inner gate, the waiting booth, the toilet, the ritual wash basin, the gate dividing the inner and outer tea gardens, and finally to the entrance to the tea-ceremony pavilion itself" (Itoh, 1984, p. 180). This meandering path of stepping stones, regarded as a Japanese love of nature by Westerners, seems artificial and even mechanical to Koreans. The stepping stones might be natural for the Westerner, whose cultural ancestors designed, with geometric lines, Villa Lante, Vaux-le-Vicomte and Versailles.

Clipping and pruning of plants in Japanese gardening is another example of differences in the view of nature, distinguished from the traditional Korean view, as expressed in Korean gardening. In the traditional Korean

view, it is unnatural to arrest the growth of a living thing or to change its inherent shape by deliberate design. Topiary work seen in formal gardens such as Villa Gamberaia or Isola Bella are never found in traditional Korean gardens. On the other hand, the Japanese have pruned shrubs and trees into unnatural geometric shapes in order to produce a highly ornamental effect.

A different manipulation of garden elements is also found in Japanese landscape architecture. Both in traditional Japanese and Korean architecture and landscape architecture, human-made structures and garden elements corresponded to the surrounding landscapes by repeating similar forms, angles, patterns and materials. To harmonize human-made structures with nature, Koreans tried to adapt the structures to nature since they respected nature and accepted it as it was. The Japanese, however, sometimes adapted natural garden elements to human-made structures for the sense of unity.

As previously examined, the Japanese have tended to bring nature's vastness into their homes. Since ancient times, Japanese garden designers have tried to reproduce the beautiful views of natural settings by grouping stones in their garden spaces or to bring the surrounding natural landscape into the garden space by "borrowing scenery". The Japanese have also incorporated the surrounding scenery or the house garden into the decoration of the simple interior of the house. "The real ornament of the interior is the garden" (Wichmann, 1981, p. 367). The garden view from the inside can be perceived as a landscape painting hung on the framed wall. The stone-grouping technique for symbolizing places of scenic beauty and the "borrowing-scenery" technique for taking

advantage of surrounding scenery were traditionally used in all of East Asia. And yet a key point is the Japanese attitude toward nature whereby they developed their brilliant culture of gardening. The Japanese have tended to treat nature with human-centered thinking. They pulled nature nearer to themselves, and finally, brought it into their rooms so that they could be even closer to it.

In ancient times, humans believed that almost all things in nature had a mind as humans do. People in East Asia also held that view of materials in nature. They projected human nature onto the animal, the plant and even the non-living thing. For example, Koreans distinguished the gender of plants, and sometimes married female plants to male plants. In an ancient document, there is an account of a high-ranking official sharing a drink with eight potted chrysanthemums under the moonlight (Lee, 1991, *The Korean's Way of Thinking 3*). The Japanese showed a similar attitude toward things in nature. Japanese garden designers considered the disposition, influence, and even the gender of stones when they planned garden arrangements. Even today, garden makers talk to stones, trying to soothe or coax the spirit inside so that it will cooperate with and participate in the garden. This concern for the well-being of stones also can be found in works of common people throughout the countryside of Japan (Bring and Wayembergh, 1981).

And yet, further study shows a subtle difference in the view of materials between Japan and Korea. Japanese and Koreans alike adhered to animism, a religion according to which all natural objects, all animals and all plants have souls. In the strict sense of the word, however, Koreans believed that all things in

nature had souls, while the Japanese recognized the existence of souls only in specific things in nature. Koreans perceived all nature—mountains, rivers, rocks, trees—to be the home of gods. In comparison, the Japanese broadly divided materials into two categories : materials having minds and materials not having minds. For instance, the Japanese, even today, treasure books as the product of mental work. The Japanese fetishism is more emphasized on the product of mental work. It can be interpreted that while Korean fetishism is the fetishism of broad sense, Japanese fetishism is the one in a narrow sense (Lee, 1991, *The Oriental's Way of Thinking*).

The Japanese aesthetic idea has evolved on the basis of their own view of nature, different from that of Koreans. While Koreans sought after the fundamental principle of truth of universe and reason of human activity from Mother Nature, Japanese seem to have recognized the imperfection and contradiction which both nature and humans have. This Japanese aesthetic idea based on their view of nature must have influenced traditional Japanese design with nature. As Jusuck Koh(1984) points out, the tradition of Japanese design with nature is characterized by the acceptance of the limitations of nature and human nature.

(3) *The Attitude Toward Nature*

The Japanese have dreamed of bringing the vastness of nature into their own homes since ancient times. They first realized this dream through borrowing scenery into their gardens, and then contracted it, made it smaller for their tiny gardens. The Japanese were able to look at the universe through contracted nature. Over the centuries, Japanese garden de-

signers have further condensed nature. The contracted natural scenery led to the uniquely Japanese garden style, the dry landscape, from which the traditional garden elements, trees and water, were eliminated and which is composed solely of rocks and sand. This is not all the Japanese have done in order to depict natural scenery. They eventually further contracted the symbolic nature to bring it into their rooms and place it onto the *tokonoma*, alcove for display of art objects, in the form of *bonsai*, potted plant, usually a dwarfed tree, or *bonseki*, tray landscape achieving a painted effect with white sand and stones on a black lacquered background. The sequence of this contraction of natural scenery culminated in the pattern of *ikebana*, flower arrangement, symbolizing Mother Nature.

(4) A Culture Not Having Ideology

The Japanese culture of pulling nature closer to their mundane lives resulted in the culture of tea rooms. A recluse's dream of mountain hermitage was realized in the small four-and-a-half-mat tea room. A tea-house and its garden made it possible for a hermit to enjoy a sequestered life in the middle of people's daily lives in the city. The tea-house is a symbol of Japanese sense of expediency and pragmatism.

As in the case of China and Korea, Japanese culture and other aspects of social life, such as political, economic, moral and artistic life, have been greatly influenced by Buddhism. The advent of Buddhism, introduced in Japan from Korea during the Pakche Kingdom (18 B.C. — 660 A.D.), has significantly affected Japanese spiritual life and art activities (Hibi and Nakayashiro, 1978). The Japanese

have not produced much abstract theory such as Buddhist scriptures or doctrine. Rather, they have developed a formative Buddhism by constructing abundant temples and Buddhist images (Lee, 1984). Traditionally, a religion governed by dogma was not predominant in Japanese society (Hibi and Nakayashiro, 1978). Originally, Japanese have tended to perceive the abstract idea or ideology in terms of transforming this into the concrete, visible and tangible form. The Buddhist image made especially for the purpose of touching is a case of point.

Japanese Buddhist art, represented by sculptures of Buddhist images and temples, fell into a decline with the advance of the Zen sect, which developed after the Kamakura Period (1192—1333). With the advent of the culture of Zen, the Buddhist image as an idol of worship and belief became dispensable (Hibi and Nakayashiro, 1978). Instead, Zen Buddhism has significantly contributed to the advance of Japanese garden-making culture.

When the practice of Japanese Zen monks is examined in relation to the Japanese view of nature, a different aspect, as compared to the case of China or Korea, can be found in Zen practice. Chinese or Korean Zen monks led their religious lives away from the tainting influence of the world. For example, Choui, a Korean Zen master during the Choson Dynasty (1392—1910 A.D.), wandered through the mountains, sometimes stayed in a small hut before moving on, and finally realized a truth. Korean Zen monks, as Choui did, met nature face-to-face and sought after truth. Had Japanese Zen monks practiced religion in the same way as Chinese and Korean

monks, the famous dry Zen gardens at Ryoanji Temple and Daisen-in Temple might not have been created.

(5) *The Attitude Toward Space*

The Japanese attitude toward living space is characterized by *tatami*, the woven straw floor mat (standard size approximately 3'×6'), *cha-seki*, tea ceremony house, and *cha-niwa*, teahouse garden. One *tatami* mat indicates the minimum size unit of Japanese living space. In the early cultural history of Japan, *tatami* mats did not cover the whole floor. "It was in the Muromachi period(1336—1568) that *tatami* mats came to cover the whole of the floor" (Lee, 1984, p. 113). After the *tatami* mat covered the whole of the floor, uniquely Japanese cultural expressions were beginning to appear : the *Noh* drama, *cha-no-yu*, tea ceremony, *ikebana*, flower arrangement, and the dry-landscape gardening. The *tatami* can be considered a symbol of Japanese life and culture. The Japanese four-and-a-half-mat tea room also suggests one characteristic of Japanese concept of space. The small tea room, which has a shrunk doorway, the so-called "crawling-in entrance", is the perfect stage for the intimate appreciation of Japanese art ; the reductive aesthetics of *bonsai* and *ikebana*, the contracted nature of garden outside that room. Japanese Buddhism, and the tea ritual and its related arts, are appreciated in the four-and-a-half-mat tea room, Japan's sacred enclosure. The tea ceremony garden is another example of showing Japanese attitude toward space. This style of garden is intended to create an atmosphere of *wabi* and *sabi* (a secluded, rural atmosphere), and is supposed to lead to the tea house. "Everything except necessities was eliminated from tea gardens, and a rural, pastoral character of un-

adorned nature was cultivated. And in that environment, the beauty of *wabi* was sought" (Hibi and Nakayashiro, 1978, p. 133). In general, stone pavements and stepping stones are placed for convenience in walking through the tea garden, and plants are densely packed for the appearance and scenery of *wabi*. The tea ceremony garden is an example showing the reductive impulse and introvert inclination of the Japanese people.

The Greek culture of agora, which is in contrast to the Japanese culture of teahouse, has its origin in daily life. The agora was the center place of Greek life and a symbol of their culture : art, rhetoric, philosophy, and politics all took place on the agora. The agora was the appropriate setting for the active, extrovert, and ambitious Greek life. The large-scale sculpture was the most fitting art form for the agora, that wide-open space. It is certain that the Japanese art forms of *bonsai*, *ikebana*, or *kakemono*, vertical or hanging scroll painting, could not survive for long among the soaring columns of the temple of agora. A *Karesansui* garden, a dry-landscape garden, would be out of place there, too. These Japanese art forms demonstrate their peculiar beauty only in the four-and-a-half-mat room. While the Greek, who cultivated the culture of agora, and their cultural heirs find stability in wide-open space, the Japanese, who have lived on the four-and-a-half mats of the tea room, are more comfortable in smaller spaces.

2. *Japanese Culture—Reductionism*

Lee(1984), in his *Smaller Is Better*, persuasively describes the Japanese cultural characteristics with the word, "reductionism", and it is under the premise that reductionism

is a characteristic common to the Japanese culture, that the following instances showing the Japanese reductive impulses are discussed.

(1) *Reductionism as Found in the Painting*

Katsushika Hokusai's color woodcut *The Great Wave Off Kanagawa*, part of a series of woodblock prints called *Thirty-six Views of Mount Fuji*, is a remarkably stylized view of nature (see Figure 18). Wichmann (1981), in his *Japonisme: The Japanese Influences on Western Art in the 19th and 20th Centuries*, comments on this superb representation of nature. Hokusai's painting of the tremendous wave makes the viewer breathless with wonder. It represents the raging and frantic movement of the wave in a momentary form.

Simultaneously, the painting bears the notions of the sea's vastness and of the wave's constant movement. Hokusai captured the wave's wild movement in a single instant, as if the wave were frozen. And yet the painting suggests the vastness and violent motion of the sea. "Reality is codified in a single, frozen pictorial image which is yet eloquent

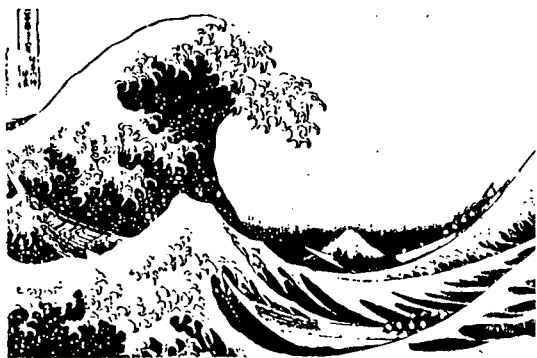


Figure 18. Katsushika Hokusai's *The Great Wave Off Kanagawa* (Wichmann, 1981, p. 128).

of the boundless sea" (Wichmann, 1981, p. 128). Hokusai's wave demonstrates the so-called "aesthetic of reducing motion" achieved by a temporal reduction of movement (Lee, 1984). Hokusai's painting is a wonderful example of the Japanese tendency to reduce space, and time as well.

Painting has a close relation to landscape gardening as remarked by Simonds (1932). If there is a close relationship between painting and landscape gardening, it would be interesting to investigate what is the relation of Japanese painting to landscape gardening. "It is as if the painters of old turned to garden designing and fitted their scenes into the confines of a garden as they would fit them into a frame. Just as the *Tale of Genji* became a famous picture scroll, so the strolling garden at the Katsura Detached Palace in Kyoto is a 'tale of scenery' depicted with trees and rocks" (Lee, 1984, p. 80). When one walks through a Japanese strolling garden, the scenery that unfolds is a great seascape, a hidden valley deep in the mountains, or a plain of rice fields. A garden such as this depicts in reduced space the different aspects of nature. Each garden element—trees, rocks, or water—is symbolic of all of nature. When one sets about making nature smaller, rocks, rather than trees or water, play a vital role as the most important garden elements. Because rocks dictate shape, movement and space of trees and water, the reduction of nature in a garden space can be achieved by grouping rocks. The essence of the Japanese style of contracted garden scenery lies in the way rocks are arranged. The rock arrangement is a way of reducing the vastness of nature—seas, mountains, and plains. In this manner, trees and

water are only secondary garden elements. A Japanese garden of this style is a picture painted, a poem composed, with the color and language of rock.

As previously stated, this style of Japanese garden, over time, became more Japanized in terms of reduction. The abstract use of rocks eventually led to the peculiar Japanese garden, *Karesansui* garden, a dry-landscape garden, abstractly represented by only rocks, stones, sand and some trees. This unique garden design was distinctly influenced by the spiritualistic Zen philosophy. In the dry landscape, reducing nature does not only mean copying natural phenomena on a reduced scale. It is also a process of paring, eliminating, cutting, peeling, throwing away and discarding the useless and decorative, so that a natural form results in a protoplasmic form of nature. The infinite world of nature is condensed and congealed so that there is neither growth nor disappearance in this spatially expressed moment of concentrated environment, just as Hokusai's wave is crystallized in grains of frozen pieces by the stop-action. Zen monks of Ryoanji Temple were presumed to have stared at the *Karesansui* garden's stones set in moss and surrounded by swirls of raked sand in an attempt to master the essence of the vastness of the universe and to perceive the perpetuity of truth expressed as condensed nature in the concentrated environment of time. Reductionism is found in Hokusai's painting as well as in the *Karesansui* garden, and thereby the Japanese observed and perceived the things and phenomena of the world.

(2) *Reductionism as Represented in the Shadow and the Silhouette*

Shadows and silhouettes expressed in

Japanese fine arts can also be thought to represent the Japanese reductive tendency. In traditional Japanese houses, the *shoji*, sliding window-doors used as outer partitions, consist of translucent white paper stuck onto a wooden lattice. In the evening, when the people inside the house moving around by lamplight cast their shadows onto the *shoji*, passers-by are provided with all kinds of shadow-play(see Figure 19). Such shadow pictures were used by the painters, and an effective use of the silhouette was often made in the applied arts too(Wichmann, 1981).



Figure 19. Utagawa Kuniyoshi, Evening gathering (theater scene) (Wichmann, 1981, p. 259).

Shadows and silhouettes give strong impressions in brief and highly suggestive image without drawing the subject in detail. The effect of shadows and silhouettes is achieved by eliminating detail. Their dark, broad strokes often convey some particular mood or inner quality of the subject(see

Figure 20). From the viewpoint of eliminating elaboration of details but maximizing the experience of instant and spontaneous seeing-feeling, shadows and silhouettes in Japanese fine arts and *haiku*, seventeen-syllable poem, can be considered to have pursued similar aims in similar ways. The frequent use of shadow pictures and the silhouette in Japanese art is an example of reductionism.



Figure 20. Silhouette of an actor, Kyoto, from *Actors behind the Scenes* (Wichmann, 1981, p. 258).

IV. Characteristics of Japanese Design

For conducting an examination of Japanese modes expressed in American spatial design, the characteristics of Japanese design in architecture and landscape architecture must be investigated first. The following are characteristics of Japanese architecture and landscape design.

1. Characteristics of Japanese Architecture

It has been noted that the earliest Japanese buildings are religious and date from after the introduction of Buddhism. The usual material of the Japanese building was wood and the main structural element was the column. The principle of the truss was never exploited, and thus the width of buildings was controlled by the lengths of timber available. Walls were merely protective screens, sometimes of material as paper or cardboard. The Japanese paid greater attention to the relation of buildings to the surrounding landscape, not only by designing exquisite artfully naturalistic gardens but also by taking advantage of sloping hillside sites for picturesque stairways linking one temple building to another.

Houses are generally of simple design and of one story. They are built on a rectangular plan rigidly controlled by a scale of proportion of which the basic unit is the *tatami*, the woven straw floor mat measuring 3' × 6'. They are designed so that interior walls, usually of paper, may be moved to increase the size of rooms. Tea houses, where the tea ceremony is performed, are like miniature private houses, set in beautifully planned gardens. Proportion, simplicity, and the eloquent use of natural materials are here all-important.

Katsura Rhykyu, an imperial villa of Kyoto, has been considered to be one of the outstanding examples of Japanese architecture. Katsura, as an example of Japanese creativity in architecture, can be considered comparable to the stone garden of Ryoanji Temple. Many who visit Katsura are struck by the simplicity of architecture juxtaposed with the garden's subtle complexity. One experiences a sense of modernity as well as a sense of an-

tiquity.

The residence is highly elegant and the garden is considered one of the earliest stroll gardens and remains one of the most sophisticated. There is a wonderful sense of indivisibility, balance and complementarity between the architecture and garden, which makes Katsura superior to other rival imperial villas in Japan.

Katsura, as a representative example of Japanese creativity and aesthetics, shows the ultimate sophistication and integration of Japanese architecture and garden arts. It is a gem of Japanese holistic aesthetics and manneristic design. Katsura shows us that a building and garden of inclusive aesthetics can be ecological as well as aesthetic, physical as well as spiritual, and complete as well as incomplete. There is in Katsura the reverence for the natural process and product, and the preference of naturalness to artificiality. Katsura reveals interplay between order and disorder, geometric and organic, artificial and natural, and architecture and garden.

The aesthetic characteristics that one can experience at Katsura and that are particularly pertinent to spatial design in architecture can be conveniently used for investigating the Japanese modes expressed in American architecture. Those characteristics, as has been identified by Koh(1984), are: (1) total harmony and inclusive unity; (2) asymmetry, imperfection and contradiction; (3) sensitivity to change, movement and sequential experience; (4) reverence for nature and naturalness; (5) simplicity, restraint and understatement; (6) emphasis on void, suggestiveness, incompleteness and openendedness; (7) fusion of the ecological, the functional, the beautiful and the meaningful; (8) sense of tranquility, antiqity and seclusion; (9) attention

to the details and pervasiveness of design principles; and (10) multimodal perceptual experience. These characteristics are interrelated aspects of one and the same experience of what might be called Japanese manneristic design and the Japanese environmental aesthetic.

2. Characteristics of Japanese Landscape Design

Through the Japanese garden history, gardens, as has been stated by Moir and Merritt(1977), have been viewed as the following:

- (1) Garden as natural landscape—According to a simple folk religion called Shinto, spirits live in natural things. Thus a special place has been established for natural objects. And Chinese gardens and parks appealed to this Japanese reverence for nature. Thus nature was copied through the use of ponds, islands, streams and miniature mountains.
- (2) Garden as paradise—The two religions of Taoism and Pure Land Buddhism, by their influence, turned the garden into a paradise with islands and lakes.
- (3) Garden as expression of enlightenment—The Zen sect, a later sect of Buddhism, added the deepest philosophical dimension to the garden. The Zen gardens, represented by dry landscape gardens, are characterized by using mostly rocks, moss, and sand and borrowing or incorporating some distant landscape as part of design. Unlike the earlier strolling gardens, the Zen gardens were intended to be contemplated from one viewing position only.
- (4) Garden as rustic path—Zen actually influenced the tea ceremony. The development of the tea house and the tea

garden resulted from this art. The tea garden is characterized by the use of rich and dark vegetation and moss, stepping stones, water basins, and stone lanterns.

Shunsaku Miyagi(1994) suggests that the Japanese gardens show three characteristic principles in organizing space and view. The principles of traditional landscape design in Japan are as follows:

- (1) Miniaturized analogy of landscape—In the garden of Katsura Imperial Villa, the miniaturized analogy of landscape is expressed by arranging a series of metaphors of landscape. Also, in the garden of Kyoto Imperial Palace, the shore line created with pebble stones is a miniaturized expression of ocean and a sand beach that is a typical design motif found in Japanese natural landscape.
- (2) Abstract symbolism of nature and universe—Nature and universe is expressed in the manner of a highly abstract version of the miniaturized landscape, as in the well-known sand-and-rock garden of Ryoanji Temple, in Kyoto.
- (3) Integration of background scenery into designed space—The garden of Shodenji Temple, in Kyoto, shows a technique of *Shakkei*, borrowed scenery. Visual linkage between background landscape and designed space is established through *Shakkei*, which is ultimate integration of the background. *Shakkei* has been understood as a means to compromise a contradiction that enclosure of garden space has in the social and public context.

The Japanese gardens can be classified into several typical modes. According to Philip Thiel's classification by the mobility of the observer(1962), Japanese gardens

are categorized into three general types: (1) those for passive contemplation by a stationary observer, as in the noted dry-landscape garden of Ryoanji Temple; (2) those for active experience by an observer in motion; and (3) examples which combine both aspects, where a number of pavilions, teahouses and viewing platforms are located along a circuitous footpath.

For analyzing the Japanese modes expressed in American landscape design, it is necessary to find out Japanese characteristics in designing space. It has been noted that there are several characteristics of the Japanese gardens. As has been identified by Elwood(1930), those of the outstanding characteristics that make them world-famous and distinctive are: (1) the absolute unity and interdependence of house and gardens; (2) the perfect scale and balance maintained in the planting and open spaces; (3) the picturesque and skillful training of evergreens, including *bonsai* and *bonkei*, miniature tray gardens; (4) the planning for seasonal effects, such as in the spring the Plum and Cherry blossoms, the Iris, the Wisteria, then the Azaleas and Laurels, and later still the Hibiscus and the Chrysanthemums, and the final autumnal glory of the Maple; (5) the well-nigh total absence of all other floral effects: no flower beds, no struggle for the phantom of continuous bloom; (6) the love of the Japanese for plants as a whole and throughout the year as clearly shown in the garden; (7) the very skillful use of water and rocks, lanterns and *torii*; (8) the absence of paint and the beauty of natural weathered wood surfaces; (9) the picturesque beauty and finish of the garden settings and the country as a whole; (10) the apparent age of recently constructed gar-

Table 1. Attributes Regarding Japanese Landscape Design

The View of the Japanese Garden	The Design Principles of the Japanese Garden	The Types of the Japanese Garden	The Characteristics of the Japanese Garden
1. Garden as natural landscape	1. The miniaturized analogy of landscape	1. Garden for passive contemplation by a stationary observer	1. The absolute unity and interdependence of house and gardens 2. The perfect scale and balance maintained in the planting and open spaces 3. The picturesque and skillful training of evergreens
2. Garden as paradise	2. The abstract symbolism of nature and universe	2. Garden for active experience by an observer in motion	4. The planning for seasonal effects 5. The well-nigh total absence of all other floral effects 6. The love of the Japanese for plants 7. The very skillful use of water and rocks, lanterns, and <i>torii</i>
3. Garden as expression of enlightenment	3. The integration of background scenery into designed space	3. Garden combining both aspects	8. The absence of paint and the beauty of natural weathered wood surfaces 9. The picturesque beauty and finish of the garden settings and the country
4. Garden as rustic path			10. The apparent age of recently constructed gardens 11. The tea house serving as a center for enjoyment

dens, due to unusual skill in dwarfing and moving mature trees and shrubs; and (11) the tea house found in the garden which serves as a center for enjoyment of its various parts since the introduction of *cha-no-yu*, tea ceremony.

As stated above, important attributes regarding Japanese landscape design have been examined. For investigating the Japanese styles expressed in American landscape architecture, it is necessary to grasp these attributes. Table 1 shows the attributes useful for the purpose.

V. Future Directions of Research

For conducting a profound study, the au-

thor recommends the following.

(1) Further study of Japanese aesthetic concepts based upon their view of nature might be useful for understanding how Japanese design has been grasped, interpreted and accepted in the Western world. For Japanese tradition of design with nature, based on Japanese aesthetics, might have been more convincing than Chinese or Korean design ideas with nature for Westerners who have viewed nature analytically, through scientific and logical thinking, since the Renaissance.

(2) The investigation of American culture, characterized by (A) expansionism, (B) practicalism, and (C) invention-oriented idea, distinguished from Japanese culture, would be helpful as a conceptual basis for under-

standing and comparing these two cultures. And the examination would provide useful information about the interrelation of the two cultures for conducting an objective and profound research study.

(3) Further research on how Japanese influences have been adopted, adapted and expressed, and how the Japanese style has been understood, interpreted and transformed in American space-making is needed. Investigating Japanese influences on America in the fields of architecture, landscape architecture and fine arts from the viewpoint of similar or different cultural aspects of the two countries provides useful insights into how the Japanese style has been understood, interpreted and transformed in America within these areas.

(4) It is necessary to find answers to the questions : What has been the result of the Japanese influence in the United States? Has it been only a fad, or has it made real and lasting contributions to American life? Has it supplemented to changed the course of American culture? Has it aided or side-tracked the normal trend of American evolution?

(5) Future researchers need to seek an understanding of why the Japanese style has had more influence on American architecture, landscape architecture and allied fields than China's or Korea's, both of which have cultural histories longer than Japan's

For future research, the following designers, who were inspired by the Japanese style and whose works show Japanese influences on American culture of space-making are presented.

- Ludwig Mies van der Rohe
 - Illinois Institute of Technology
 - Farnsworth House, Fox River, Plano, Illinois

- Crown Hall, Chicago
- Takeo Shiota
 - Miniature Japanese garden, Newark Museum
 - *Cha-seki* in the Scofield garden, Tuxedo Park, New York
 - Tea garden at Georgian Court, Lakewood, New Jersey
 - P.D.Saklatvala garden, Plainfield, New Jersey
 - Japanese landscape in the Brooklyn Botanic Garden
- Helen Hyde
 - The Bamboo Fence, color woodblock print

The above list comprises merely a part of the works by representative designers ; other designers and their works should be also investigated. For further research study, Garrett Eckbo's and Isamu Noguchi's works, and other contemporary designers' recent works should be collected and examined as well.

Ⅵ. Summary and Conclusions

The Americans have capitalized upon the best ideas of other countries, taken those which have utility and adapted them to their own environment. In the practice of good design, this is almost a necessity. As previously examined, the world of Japanese art was brought to America after Perry's visit to Japan. Since then, Japanese architecture and landscape architecture have been presented in America through various ways. Several American architects and landscape architects were inspired by Japanese design, and played an important role in the making of the American scene. Among the spatial designers are Wright,

Greene and Greene, Johnson, Neutra, Furlong, and Rose. They studied Japanese spatial design and appropriated elements which were transformed in their works. They enriched spatial qualities with Japanese design modes in American space-making. The following are summarized tables (Table

2 and 3) which show Japanese designs adopted by those spatial designs and expressed in American architecture and landscape architecture, which is the topic of investigation in this research.

To generalize the phenomena of a culture on the basis of a few selected examples

Table 2. Design Characteristics of Japanese Styles Expressed in American Architecture

Architects	Design Works	The Design Characteristics Influenced by Japanese Architecture
1. Frank Lloyd Wright	1. Living quarters at Taliesin, Spring Green, Wisconsin	<ul style="list-style-type: none"> · Respect for the nature of materials · Buildings merging with their setting
	2. Falling Water, Bear Run, Pennsylvania	<ul style="list-style-type: none"> · Continuous interior spaces flowing out into the landscape · Buildings designed with nature · Integration of inside volumes with outer forms · Spatial relation of the house to surrounding landscape
2. Greene and Greene	1. David B. Gamble house, Pasadena	<ul style="list-style-type: none"> · Double post construction
	2. Charles Pratt bungalow, Ojai, California	<ul style="list-style-type: none"> · Outside braces describing rigid triangles · Projecting girts encased in copper sheaths
3. Philip Johnson	1. Philip Johnson house, Cambridge, Massachusetts	<ul style="list-style-type: none"> · Interior space and walled court, forming a microcosm shielded from the outside world · Use of a standard unit of measure
	2. Johnson House, New Canaan, Connecticut	<ul style="list-style-type: none"> · Unity with the surrounding nature · Exterior walls creating an open effect · Simplified ground plan resembling the modular system
4. Richard J. Neutra	1. Edgar Kaufmann Residence, Colorado Desert, Palm Springs, California	<ul style="list-style-type: none"> · Interior areas facing outwards to the garden
	2. Moore Residence, Ojai Valley, California	<ul style="list-style-type: none"> · Subdivided walls with posts · Vertical caesuras developing viewing openings into the landscape
	3. Troxell house at Pacific Palisades, California	<ul style="list-style-type: none"> · Unification of architecture and environment · Integration of nature and geometric structural forms
	4. Tremaine house, Monte Cito, Santa Barbara, California	<ul style="list-style-type: none"> · Planning in collaboration with nature · Openness to the exterior · Vertical posts in the open walls, combined with trees, in order to produce vertical articulation in the open view

Table 3. Design Characteristics of Japanese Styles Expressed in American Landscape Architecture

Landscape Architects	Design Works	The Design Characteristics Influenced by Japanese Landscape Architecture
1. Ethelbert E. Furlong	The Garden of One Hundred Stones	<ul style="list-style-type: none"> · A manner of <i>Karesansui</i> garden (Stone-composition <i>Karesansui</i> garden) · Sensitive composition and unity /perfect balance and proportion · A place for secluded leisure and meditation · Designed for year-round enjoyment · To be viewed and admired from within the house · A series of tiny landscapes wedded together into a picturesque whole · Harmony between house and garden · Symbolic character · Plant compositions · Strong and contrasting use of materials
2. James C. Rose	Rose Residence, Ridgewood, New Jersey	<ul style="list-style-type: none"> · Inspired by Zen Buddhism · A setting for personal knowledge and discovery · Integration of indoor with outdoor space · Spatial extension of indoor into outdoor space · Woven wooden fences

easily produces a dogmatic conclusion. In some respect, however, this process is not quite meaningless, because a country's national character, its people's way of thinking and living, and the trend of the times are the motive of producing the phenomena of its culture. These factors are expressed in visible and concrete forms of the culture. Accordingly, it is useful for understanding the essence of a culture to trace the causal factors of cultural phenomena with revealed cultural results.

As part of a study of Japanese influences in the American culture of space-making, the author examined Japanese modes expressed in American spatial design in this research. This research covers Japanese culture and design, and American architects and land-

scape architects inspired by Japanese design and their works. Findings from this study could be used for a better understanding of Japanese design modes influential in the making of the American scene. They would also provide useful insights into how physical and metaphysical realms are integrated, and human and nature are harmonized in spatial design.

Reference

1. Bring, M. and J. Wayembergh(1981) *Japanese gardens: Design and meaning*, New York: McGraw Hill
2. Conzen, M. P. (Ed.) (1990) *The making of the*

- American landscape*, London:Harper Collins.
3. Elwood, P.H., Jr. (1930) "Impressions of garden art in China and Japan", *Landscape Architecture*, 20(April) : 192—200.
 4. Fleming, J., H. Honour and N. Pevsner(1980) *The penguin dictionary of architecture*, New York: Viking Penguin Inc.
 5. Frampton, K. (1985) *Modern architecture: A critical history*, New York: Thames and Hudson.
 6. Furlong, E. E. (1952) "Garden of one hundred stones: Contemporary American conception in the Japanese style", *Landscape Architecture*, 43 (October): 4—11.
 7. Gerhard, D. (1959) "A note on the Chicago Fair of 1893 and Frank Lloyd Wright", *Journal of the Society of Architectural Historians*, 18 (May) : 63—65.
 8. Hearn, M.F. (1991) "A Japanese inspiration for Frank Lloyd Wright's rigid-core high-rise structures", *Journal of the Society of Architectural Historians*, 50(March): 68—71.
 9. Hibi, S. and N. Nakayashiro(1978) *Images, Japanese mind*, Text by I. Oka, Trans. M. Nitta and L. Viswat, Osaka: Washinsha Publications.
 10. Hitchcock, H. R. (1942) *In the nature of materials: The buildings of Frank Lloyd Wright, 1887—1941*, New York: Da Capo Press.
 11. Howell, B. M. (1964) "Facing East & West", *Landscape Architecture*, 54(July): 271—272.
 12. Howett, C. (1993) "Modernism and American landscape architecture", In M. Treib(Ed.), *Modern landscape architecture: A critical review*, Cambridge, MA:MIT Press.
 13. Itoh, T. (1984) *The gardens of Japan*, 1st ed., Tokyo and New York : Kodansha International.
 14. Jencks, C. (1985) *Modern movements in architecture*, New York : Viking Penguin Inc.
 15. Kiley, D. (1963) "Nature : The source of all design", *Landscape Architecture*, 53(January): 127.
 16. Koh, J. (1984) "KATSURA, why is it so beautiful?", *Landscape Architecture*, 74(Sept./Oct.): 115—125.
 17. Lancaster, C. (1983) *The Japanese influence in America*, New York: Abbeville Press.
 18. Lee, K. (1985) *The Occidental's way of thinking*, Seoul: Shin-Won Cultural Company.
 19. _____ (1991) *The Korean's way of thinking* 3, Seoul: Shin-Won Cultural Company.
 20. _____ (1991) *The Oriental's way of thinking*, Seoul: Shin-Won Cultural Company.
 21. Lee, O. (1984) *Smaller is better: Japan's mastery of the miniature*, Translated by R. N. Huey, Tokyo and New York: Kodansha International.
 22. Lee, R. K. K. (1986) "Japanese", In D. Upton (Ed.), *America's architectural roots : Ethnic groups that built America*, Washington, DC: Preservation Press.
 23. Meech-Pekarik, J. (1982) "Early collectors of Japanese prints and the Metropolitan Museum of Art", *Metropolitan Museum Journal*, 17: 93—118.
 24. Mills, S. (1981) *Japanese influences in American art, 1853-1900*, Williamstown, MA: Sterling and Francine Clark Art Institute.
 25. Miyagi, S. (1994) "Development of modern and contemporary landscape design in Japan under the influence of Japanese tradition", In '94 *The 2th Korea · Japan symposium in landscape architecture: The tradition and development in Korean and Japanese landscape architecture*, Department of Landscape Architecture, Kyung Hee University:32—38.
 26. Moir, J. and R. Merritt(1977) "Kinsaku Nakane : Interviewing a teacher and garden designer/builder", *Landscape Architecture*, 67(March): 140—149.
 27. Morrow, B. H. (1987) *A dictionary of landscape architecture*, Albuquerque, N. M. : University of New Mexico Press.
 28. Neutra, R. J. (1949) "The sound and smell of architecture", *Progressive Architecture*, (November) : 65—66.

29. _____(1984) *Survival through design*, New York : Oxford University Press.
30. Pfeiffer, B.B. and G. Nordland (Eds.) (1988) *Frank Lloyd Wright in the realm of ideas*, Carbondale:Southern Illinois University Press.
31. Preddy, J.(1990) "The influence of the Japanese print on the architecture of Frank Lloyd Wright", *Journal of Popular Culture*, 23(Spring) : 1—20.
32. Rose, J. C. (1954) "The spatial discipline : A contemporary American house", *Progressive Architecture*, (December) : 114—119.
33. Simonds, O. C. (1932) "Nature as the great teacher in landscape gardening", *Landscape Architecture*, 22(January) : 100—108.
34. Stilgoe, J. R. (1986) "Gardens in context", In *Built landscapes:Gardens in the Northeast*, Brattleboro, VT: Brattleboro Museum & Art Center.
35. Thiel, P. (1962) "An old garden, a new tool, and our future cities", *Landscape Architecture*, 52(July) : 226—232.
36. Thompson, E. K. (1951) "The early domestic architecture of the San Francisco Bay region", *Journal of the Society of Architectural Historians*, 10(October) : 15—21.
37. Wichmann, S. (1981) *Japonisme : The Japanese influence on western art in the 19th and 20th centuries*, New York : Harmony Books.
38. Yoshimura, J. (1954) "The esthetic discipline: A traditional Japanese house", *Progressive Architecture*, (December): 108—113.
39. Yost, L. M. (1950) "Greene & Greene of Pasadena", *Journal of the Society of Architectural Historians*, 9(March & May): 11—19.