

Design with Meanings: *Feng-shui* and Cosmology in Architecture

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INTRODUCTION

The twentieth century has brought us into a highly technical and material world. More and more people are becoming aware that advanced techniques do not necessarily bring with them higher quality of the life. Worldwide there is a growing desire to understand the relationship to the cosmos and what ancient and traditional cultures can teach us about it (Swan, 1990, Pearson, 1995, and Barrie, 1996). The new movement toward sustainable design pursues a balance between protection of ecosystems and fulfillment of human needs over the long run. Beyond the struggles between development and protection in the physical world, we have become aware that there is something else missing. Our polluted environment has left us lonely in soul; green lawns may not fill our spiritual emptiness, either. Spoiled by electrical equipment and air-conditioning, we are separated from nature; and this physical separation has eroded our instincts and our sensitivity to the earth. Also, we are separated from the original cultural background of human existence and history, which was within the horizon of archaic spirituality (Eliade, 1954). As Wilber (1981) wrote, "The widening gap between our inner and outer self, the process of erecting boundaries, is partly a result of our rational, scientific, technological age." What we need is the respect for communication between people and nature. As Stan Wilk (1991) stated, "Technology attempts to shape the material world to human desires and calls this reason; scientific humanism attempts to shape the human spirit to natural truth and calls this love."

The cultural symbolism derived from the ancient perceptions of cosmological phenomena has attracted special attention from many of the twentieth century's artists ever since the beginning of this century. As we know, Picasso's work was sparked by ancient African art; the stars of the Bauhaus in the 1920s—Wassily Kandinsky, Paul Klee, and Lyonel Feininger—revealed their passion for ancient myth and cosmological symbolism in their work. The developing wave of interest in ancient cosmological cultures has been broadened by a recent focus on Native American culture and

feng-shui, an ancient Chinese practice used to harmonize people with their environment. By presenting the case studies of *feng-shui* and Native American ruins, using the comparative study and field observations, this paper explores the integration of cosmological symbolism with architectural design to create a built space having cultural meanings. The context for this integration has been my experience in teaching a fourth-year undergraduate architectural design studio.

FENG-SHUI

For thousands of years our ancestors in many different cultures embodied their cosmological beliefs into their built environment: architecture and its surrounding landscape. Relying on their knowledge of natural conditions for survival, they developed a close relationship to and spiritual awareness of nature, an awareness that developed their emotional sensitivity to sacredness, wonder, and fear (Otto, 1932; Swan, 1990). They attempted to live in connection with nature, and also sought a balance in their inner world, by worshipping spiritual forces they perceived in nature. Such worship offered security to the ancient peoples whose life in the real world was insecure. Cosmological symbolism was also reflected in their built environment, especially in architecture, such as the Stonehenge in England, the Egyptian pyramids and Mayan site of Uaxactun, Mexico (Hawkins, 1965, Haddingham, 1984, and Pennick, 1987)

Like other ancient peoples traditional Chinese also created built environments—architecture and gardens—that were designed to enhance communication between people and the cosmos. *Feng-shui*, a highly structured system for built environmental design, pervaded every part of traditional Chinese life. For example, a basic model for traditional Chinese cities, houses, and gardens is the courtyard, a central opening enclosed by buildings, which represents a miniature universe. The symbolic system of *feng-shui* was intended to ensure prosperity by harmonizing human dwellers and nature within this universe. The author's recent research shows how *feng-shui* links Chinese cosmological

beliefs with one built environment: the traditional Beijing courtyard dwelling.

According to *feng-shui*, a favorable natural site for a human dwelling is enfolded by surrounding hills, called “tiger and dragon hills.” Cosmologically, these hills correspond to two stars, the Azure Dragon in the east and the White Tiger in the west of the sky. Symbolically, they stand for the protection of Mother Earth. A favorable site faces south toward a mountain peak, called “the facing mountain,” that symbolizes ancestors. In front of the site there should be an open space containing either a lake or a meandering river, as water symbolizes the accumulation of living *Qi* or vital energy. The ancient Chinese brought this model of their ideal habitat to their designs when they needed to create a manmade space, such as a house (Xu, 1990). As Figure 1 shows, the spatial design of traditional Chinese dwellings, particularly the Beijing courtyard house, can be traced to the ideal *feng-shui* model of land forms.

The ancient Chinese believed that the earth was square and the sky a dome covering the earth. Their square courtyard dwellings symbolized the earth; the central courtyard was left open to the sky to represent heaven. Ancient Chinese cosmology was preserved in the diagrams of the I Ching, dating from about 3000 years ago, such as the Luo Book, and its two derivatives, the Nine Chamber Diagram and the Later Heaven Sequence (Skinner, 1982). Representing the ancient Chinese perception of heaven, earth, people, time, and space, these diagrams were believed to be ideal models indicating harmonic relationships within the world. Since prosperity, or the accumulation of *Qi*, was conceived in terms of harmony with the cosmos, these diagrams were also used for divination; they showed what was “harmonious” and therefore “lucky.”

In the Luo Book diagram there are nine positions, each associated with a number. In the Nine Chamber Diagram, an interpretation of the Luo Book, the *Yin* (even) numbers are arranged in the four corners (intercardinal points), and the *Yang* (odd) numbers on the four sides (cardinal points). The sum of the three numbers in each direction crossing this diagram is always fifteen. The sum of the two opposing numbers is always ten (Figure 2). This numerical “perfect-

tion” is sacred for ancient Chinese. Symbolizing harmony, cooperation, and unity, the Nine Chamber Diagram greatly influenced the design of Chinese built environments.

The Later Heaven Sequence, also derived from the Luo Book, consists of eight trigrams, called “Ba Gua,” making up a binary system of divination which is derived from the basic units *Yin*, broken line (—), and *Yang*, unbroken line (-). Traditional Chinese used the eight trigram system to judge or divine the quality of their life. The Later Heaven Sequence, was also applied in the *feng-shui* practice of arranging *Qi*, which emphasized the relationship of *Qi* with orientations and positions. Comparing the favorable positions in the Later Heaven Sequence with the plan of a typical Beijing courtyard dwelling, we can find substantial correspondence between them. In a typical Beijing courtyard house master bedrooms were placed in the favorable north chamber and faced south; the major entrance was placed in the southeast chamber and faced south to attract the living *Qi* and good luck. To suppress “evil” factors, the kitchen could be in the northeast or southwest chamber; and the dry toilet often sat in the front yard’s southwest corner. To “send water to the dragon,” the drainage exit was often placed at the bottom of the east wall in the front yard.

Figure 2 shows that the ideal *feng-shui* model for arranging *Qi* formed the plan of the Beijing courtyard dwelling: a central yard enclosed by chambers rich in *feng-shui* symbolism. This dwelling was a physical embodiment of the Chinese ideal of home, reflecting the Chinese belief that heaven, earth, and human beings formed a united whole (Xu, 1997).

ANASAZI

Like other ancestors, ancient Native Americans linked their settlements on earth to the spirit of the sky. For over 2500 years, the Anasazi or ancient ones, occupied the Northern San Juan, Chaco, and Kayenta regions of what is now the southwestern United States. By the 1300s, they abandoned this area and left their precious cultural heritage in their ruins. Without written records, much ancient knowledge has been lost. Fortunately, surviving contemporary Native American cosmological beliefs provide a clue to research the

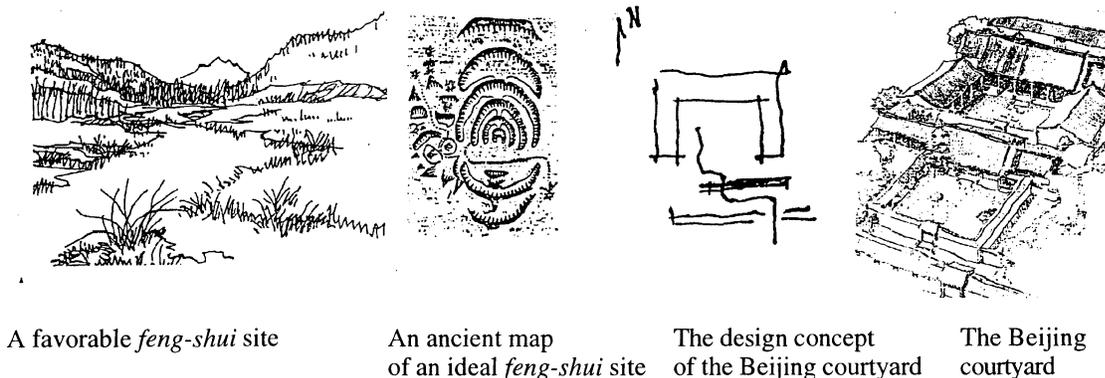


Fig. 1. The spatial form of the Beijing courtyard dwelling is a physical embodiment of the ideal *feng-shui* model of land forms.

lost ancient culture.

Sun worship survives in modern Native American legends (Erdoes and Ortiz, 1984). The art of the contemporary Zuni tribe in New Mexico, for example, demonstrates their cosmological belief and cultural symbolism based on the six directions of sunrise and sunset in the winter and summer solstices, plus the zenith and nadir; and the concept of the center (the intersection of the six directions), a symbol that embodies both time and space (Young, 1988). It is possible that the Anasazi may have developed their agricultural calendar by watching the positions of sunrise on the profile of the mountains, a tradition still practiced among modern Native Americans such as the Hopi (Williamson, 1984).

The author's field investigations indicate that Anasazi ruins often have a view to a mountain range on the east horizon, as at the Hovenweep villages in Utah (Figure 3). Moreover, many ruins are located in canyons open to the east or southeast (Xu, 1994). In all probability, the Anasazi selected these sites not just for warm and sunny conditions, but also because they offered an open view to the position of the sun rising over the eastern horizon. Moreover, as a

common phenomenon, huge erect rocks stand to the east of Anasazi ruin sites, such as the Fajada Butte in Chaco Canyon, New Mexico, and the Chimney Rock in Colorado. Hence, it is reasonable to believe that these rocks may have served as a reference point to help Anasazi identify the positions of the sunrise during the year, and recognize the seasons for hunting and planting crops. Beyond providing a landmark for their homes, these rocks probably were sacred to the Anasazi, as in the cases of many ancient peoples who worshipped stones (Jung, 1968). It is possible that the Anasazi not only linked their site selection with the concerns of sunrises, but also created their architectural space to embody the sun worship. The author's observation of sunrise during the Autumn equinox of 1995 at the Far View Ruin of The Mesa Verde National Park revealed that the north wall of the ruin points directly at the rising sun on the mountain profile at the east horizon (Figure 4).

The Casa Rinconada, a great kiva (20 meters in diameter) built by the Anasazi in A.D. 1100, at the Chaco Culture National Historical Park, is another excellent example to demonstrate the integration of sun worship with architec-

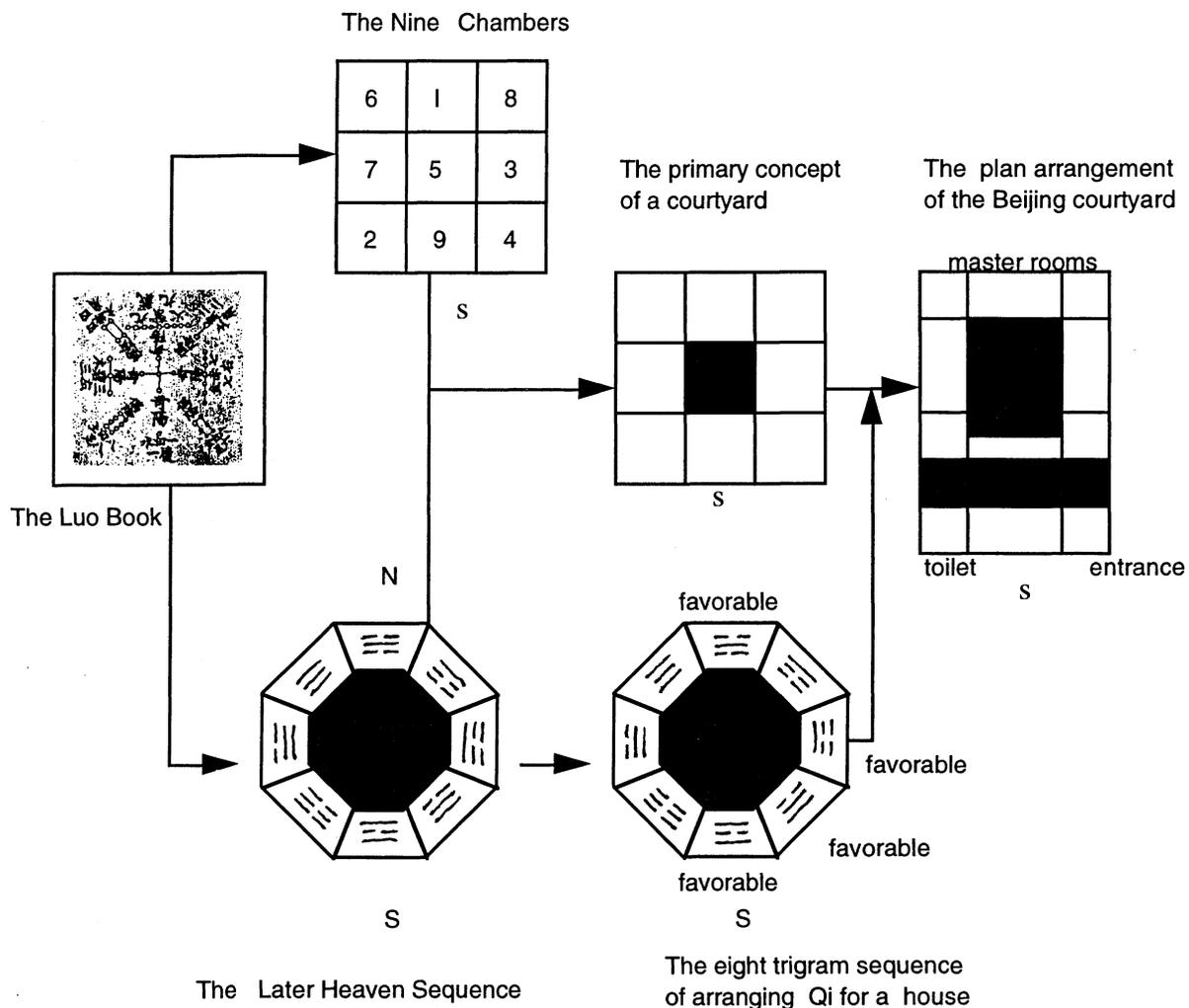


Fig. 2. Emphasizing orientations and positions, the plan arrangement of the Beijing courtyard dwelling is a manifestation of the ideal *feng-shui* model of arranging *Qi*.



Fig. 3. Anasazi ruins often have a view to a mountain range on the east horizon, as at the Hovenweep villages in Utah. (photo by Ping Xu)

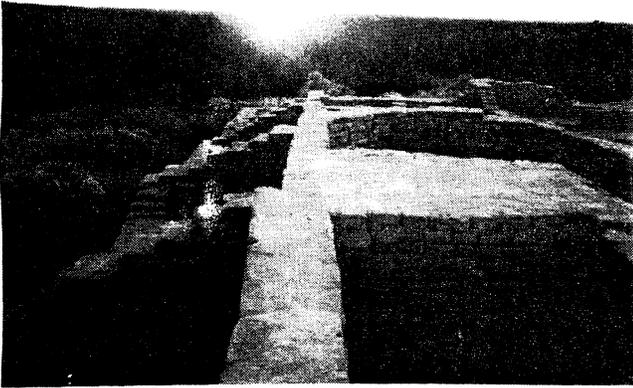


Fig. 4. The north wall of the Far View Ruin pointed straight at the sun appearing on the mountain profile of the horizon. (photo by Ping Xu)



Fig. 5. At the summer solstice, the first rays of the sunrise shone through the window in the northeast wall, appearing as a rectangle of light on the opposite wall of the kiva of Casa Rinconada, Chaco Canyon, New Mexico. (photo by Ping Xu)

tural space. Recently, the park has provided a program to observe the sunrise in the great kiva during the summer

solstice - when the sun rises, its first rays shine through the window in the northeast wall, appearing as a rectangle of light on the opposite wall of the kiva. As the sun rises higher, the rectangle moves slowly down the wall, eventually illuminating a niche on its lower level (Figure 5). The author has participated in the sunrise watching twice. In this ancient sacred place, everyone in the audience was watching the powerful sunrise with great patience and wondering in silence. At that moment questions rose in the author's mind: Why do so few of our contemporary designs give us such experiences? What might contemporary architects learn from the ancient people?

COSMOLOGICAL CONCEPTS APPLIED IN ARCHITECTURAL STUDIO

What I learned from the Anasazi ruins inspired the design project assignment for my fourth-year undergraduate studio course: a Native American cultural center called "Mother Earth and Father Sky." This exploration of integrating cosmological symbolism within architecture took place at four levels, ranging from large scale to detailed scale; from landscape planning to architectural design. First, the design theme was to arise from the student's own enthusiasm and love, the source of creativity among ourselves as well as our ancestors. Only with love can a designer create lovely work.

Second, the site selected by each individual student was required to correspond to her/his design theme, besides meeting the usual criteria of landscape analysis for suitable building sites. The whole class visited each selected site, and learned site selection in the field. An introduction to *feng-shui* practice was also included, because of its similarities to Native American ways. Field investigations created great opportunities for students to experience nature directly and to help build up their sensitivities, perceptions, and love of the outdoors, all of which gave them enthusiasm and motivation to create a work from the heart.

Third, the conceptual master plan was required to reflect the design theme, by composing architectural and landscape elements into a whole that fits the natural surroundings and corresponds to the cultural theme. Thematic unity is a significant aspect of creating a large-scale place having cultural meaning—a fact critical to the architectural success of many ancient peoples, but less well understood by some contemporary designers.

Fourth, the theme was to be interpreted symbolically within the composition of the form, including both void space and solid elements, and within the experience of spatial sequence. To emphasize the spatial composition with cosmological symbolism, Native American art and the work of Kandinsky and Klee were recommended to stimulate students' *partis*. Landscape design was also used to enforce their design themes. Students working in this way started to understand that to create a space with cultural meanings, the architect must work cooperatively with the landscape architect from beginning to end, not just design a building and then

let the landscape architect put some trees around it, as is unfortunately often the case in contemporary practices.

Students' imaginations were fired by field experiences and by learning from Native American ways. This inspiration in turn released their creativity and stimulated them to design a space with cultural meanings. Students' designs were created with a variety of cosmological themes, coordinating the application of natural energy sources such as solar or wind power. This paper offers some student work as examples to demonstrate the exploration of creating a built place with cultural meanings.

Alice Rotunno chose as her theme "the circle of life," a Native American belief that everything returns, like the sun. To express this theme, she created a long axis running east to west, corresponding to the direction of the sunrise at equinoxes. This long axis crosses through the major architectural space, a semi-underground building in the shape of two interlocked spirals symbolizing the circle of life. At the end of the spatial sequence is a sun-dance plaza reached by many stairs, as if rising to heaven. The site she selected is enclosed by surrounding hills and has a stream meandering through it. It is south facing and suitable for building, like many Anasazi sites.

As a student from Peru, Jacinto Hernandez focused his design of the cultural center "the sons of the sun" on the Incas and their culture which spread throughout much of South America. His design composition was inspired by the Ancient Nazca Line, a mysterious formation in Peru. His cultural center is composed with various ritual plazas on a sunny slope (Figure 6).

"Seeking the center place" is an important cosmological theme in many ancient cultures (Eliade, 1954). This theme still remains in the Native American culture, for example, in the Zuni ceremony (Young, 1988). Student Anchen Wang incorporated this theme in his design of the Native American cultural center. A sunken ceremony place, representing a great kiva, is enfolded by the main building, whose angled axes are set to point to the directions of sunrises at the solstices. This design also attempts to imply the tortuous and tragic journey of Native American history, and best wishes

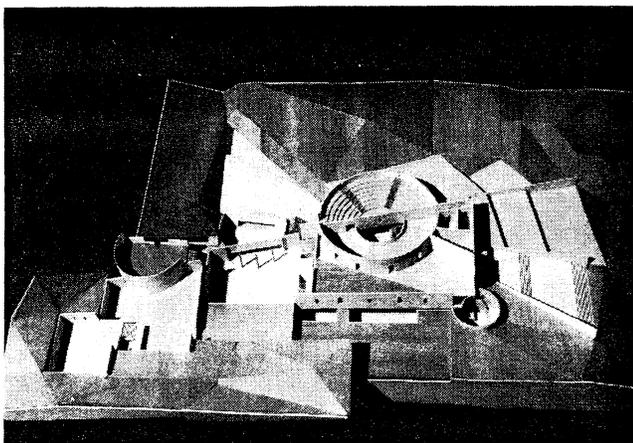


Fig. 6. "The sons of the sun," by Jacinto Hernandez.

in their future (Figure 7).

Students also integrated their themes at more detailed levels. Emphasizing his design theme of "earth and sky in harmony," Peter Carey designed a sunken amphitheater with a huge sundial hanging over the space, symbolizing the interlocking nature of father sky and mother earth. Robin Ault, whose theme was "tracking the sun," designed a plaza with a totem pole that would cast a shadow along a narrow channel at noontime (Figure 8).

Integration of architecture with landscape design was practiced in student work. Kelly Brooks's design chose the theme: "water is the source of life," one of the most significant issues for the Anasazi, who lived in the desert in times of drought. Inspired by the Anasazi way of collecting rainfall, he designed a "shelf" of running water extending the length of his building guiding the visitor from one space to the next. Tseng-Chih Huang designed a waterfall showering the plants in an interior garden in the center of the building, symbolizing the Anasazi love of water as the heart of their tribe. Plant materials also supported the design theme. Emphasizing native plants as a symbol of Indian culture, Krista Dillion used corn and other southwestern plants in gardens, and designed a cornfield for recreation as well as education.

The context of design with meanings was well understood

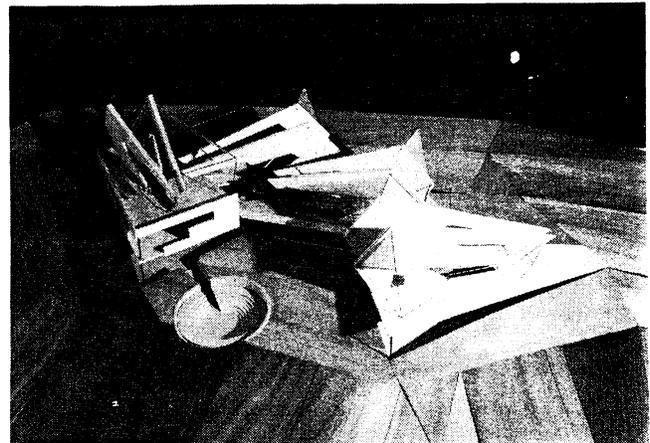


Fig. 7. "Seeking the center place," by Anchen Wang.

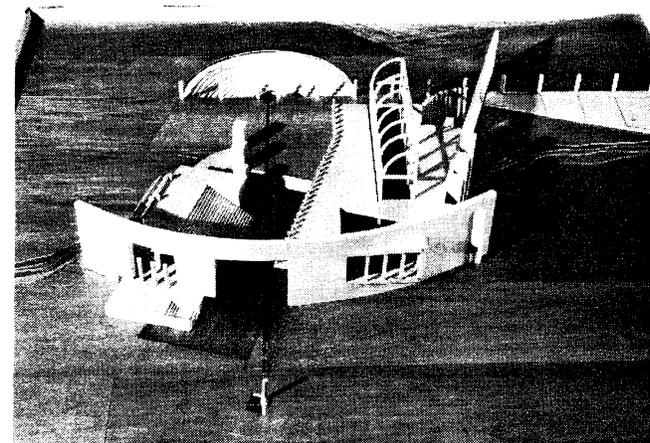


Fig. 8. "Tracking the sun," by Robin Ault

by students. They practiced it within their architecture on a large scale. Student Daniel S. Siff created his design theme, "Stars are shining in the Indian Peaks." He selected his site at the Indian Peaks, a mountainous area west of Boulder, Colorado, which had been inhabited by many generations of Native Americans because of its abundant deer and elk. Corresponding to the stars in the sky, the master plan for his cultural center is derived from the constellation Orion. The main architecture complex is designed with a three point tent roof supported by three columns, symbolizing the three stars in the belt of Orion, while campgrounds to the northwest and southeast represent the two stars in the shoulders and the two stars in the feet of the constellation. This composition of "Orion" represents the native hunters who once roamed the land. The underlying meaning of this design is that Native American culture is still alive as the "hunter" in the night sky.

CONCLUSION

Human history has swung between rational and emotional stages. Technical progress has been conceptualized as a straight line up; artistic progress weaves up and down. In the historical swings of the twentieth century, "traditional culture" has been both cast aside and favored. At the beginning of this century, "tradition" was dumped as garbage; at the end, it is being plucked back as a treatise. History's clock seems to turn back to an old position, though the date is different. "Go on" does not necessarily mean "straight toward," while "turn around" is not equal to "go back."

If we want to rethink ancient cultures, it is not in order to turn back, but to continue to develop our tradition toward contemporary contents, learning how traditional masterpieces were created, but not copying their forms (Xu, 1982). A fake antique has no attraction, because it has lost the marks of time. The imitation of traditional forms can borrow only their surfaces, not their soul. What we can learn from our ancestors is the systematic thought to deal with the world which is not absolute, but relative; not separated, but united (Brown, 1978), integrating spirit and matter as a whole, and creating built spaces to nurture our spirit.

Cosmological symbolism holds great power in the design of ancient architecture, reflecting cultural beliefs, fitting architecture into its natural background, and providing symbolism shared by its dwellers. Thus, the ancient ways provide models which could be the references for contemporary architects to explore the integration of cultural values within a built space, and the integration of architecture with landscape design.

Moreover, integrating cosmological precepts into design, using gifts from mother nature, such as the sun, moon, wind, water, topography, views toward mountain peaks, or a bird's song, will enhance sustainability and limit our own impact on the earth we rely on. This approach will encourage people to return to nature to renew their sensitivity and spirit, a basic human right but one not easy to hold onto in a high-tech era.

Integrating cosmological symbolism within design presents a way to explore design with meanings. Respecting

cultural differences and finding similarities, just as our ancestors did, will enhance the richness of our world as a whole. All in all, design with cultural diversity and values should be an significant aspect in architectural design.

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NOTES

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