

Techné: A Link Between the Global and the Local

SUSAN FROSTÉN
Philadelphia University

Introduction

Historically, vernacular cultures have looked to shared values, nature and the optimized use of its elements to shape the constructed environment. This approach renders the built as an innate evolution from nature and culture. This clear method of shaping an integrated built environment is often been disregarded in the contemporary world. In the twentieth century, universalization, the resulting use of technology, and a modern condition of dualities have greatly affected the condition of the built environment. In many instances, this has led to a sense of placelessness. An interesting juxtaposition that has begun to occur is the effect of increased local influence on global technologies. Rather than being solely based on technological advancements that are disconnected from the environment, global technologies are gathering inspiration from technologies of local culture and the nature of the region.

The modern condition of dualities in Western thought has greatly influenced the process of design and construction. These dualities include humans and nature, body and mind, form and function, art and craft, and aesthetics and utility. The distinction of humankind from nature has led to a sense of superiority and entitlement towards nature, as well as a sense of the earth as a commodity. The split in the individual between the mind and the body, as postulated by Descartes, results in a loss of a sense of physicality and, ultimately, sensory perception as a means to comprehend the environment. However, in the traditional vernacular paradigm, these polarities do not exist. Human beings are seen as part of nature, not detached from it. In this way, the built environment becomes a continuation of humankind living in balance with the world. The senses are vital in the comprehension of the world and the resulting physical interpretation. Form and function, art and craft, and utility and aesthetics are not seen as a series of diametrically opposed distinctions, but rather as concurrent entities. However, Western thought is starting to undergo a changing perspective concerning these dualities. As humankind is beginning to be seen as dependent on the earth, there is the resulting realization that there is an intricate interdependence from the macro to the micro scale, or the global to the local level.

From the Local to the Global

One of the greatest conflicts that currently exists is universalization versus particularity of place. The coexistence of the two is fundamental to further advancement of civilization while still allowing for the expression of individual cultures. Unfortunately, in the twentieth century, global technology has often led to the marginalization of local cultures. While technology has been

essential to global progress, it is also essential to local cultures. One "...can't separate the ideas from the tools; all culture has a technological basis."¹ Whether the technology being used is contemporary technics or traditional tools, it is the means by which human beings create their relationship with the earth.² According to Semper, "to the tool belongs, in the first place, the hand that leads it and a will that guides the hand."³ The tool, as such, is not willful, but rather the individual who uses it imposes a value by the choices made concerning its development and implementation. Ricoeur defines culture as "a complex of values or...evaluations."⁴ Integration of these values with technology not only sustains the culture but strengthens it within the global perspective of progress and modernization.

In looking to the Greek origin of the word "technology," *techné* has often been defined as simultaneously meaning both art and craft. However, according to Heidegger,

techné signifies neither craft nor art, and not at all the technical in our present-day sense; it never means a kind of practical performance...The word *techné* denotes rather a mode of knowing. To know means to have seen, in the widest sense of seeing, which means to apprehend what is present, as such...*Techné*, as knowledge experienced in the Greek manner, is a bringing forth of beings in that it *brings forth* present beings as such beings *out of* concealedness and specifically *into* the unconcealedness of their appearance; *techné* never signifies the action of making.⁵



Fig. 1. View of site for GAP Corporate Campus prior to building. Courtesy of William McDonough and Partners.

As such, the essence of a place is only truly comprehended through this means to knowledge or “*techne*.” In transcribing this to a local *techne*, knowledge of the observed and the discovery that evolves from that revealing is inferred. The use of the senses is essential. This means of comprehending phenomenologically connects the culture to place. In contrast, because of the emphasis on the universal and disconnection from the senses, global technology has tended towards abstraction and placelessness. In implementing global technologies with a local inflection, this “mode of knowing” stretches from the regional to the global, thus informing the global. In this way, *techne* takes on the values of the local culture. It is the method by which “earth” and “world,” or matter and content, are revealed.⁶ Technology can become the means to comprehend the site. In this way, technology can divulge the essence of the place.

The relationship to place is determined by the level of comprehension of its being. An understanding of humanity’s relationship with the earth creates a rational and value oriented filter for the application of technology. If technology is used in a way that relates to the scientific concept of interconnectivity, the local conditions can become the inspiration for the use of technology. In looking to place, the overall technology may be universal, but the application becomes site specific. In fact, the nature of the place can inspire technology systems as well as maximize the efficiency of energy systems. This reflects the approach used by many indigenous and vernacular cultures. Their technology is a comprehension of the land.

Vernacular cultures often look to nature as a type of organic *techne* for inspiration for built constructions. There are certain basic characteristics that are inherent in the process by which nature constructs. In order that there is no lasting waste, nature looks to existing, local materials with a continuous life span for construction. For energy, nature uses the current solar income, rather than extracting from the past or borrowing from the future. The characteristic of nature that sustains and supports life is biodiversity. Adapting the logic of natural processes to construction, the following issues need to be explored: the local context (including the climate, the topography, the local ecosystem, building precedents and the culture), the effect on the local ecosystem (including human, animal and plant neighbors, the earth, water sources, and air quality), determination of land use, energy, transportation, energy efficiency (including use of local sources and current solar, wind and water income), life-cycle implications of materials, minimal waste discharge, and the integration of systems with the form. In this way, the built environments of local cultures can be a source of research for examples of optimizing the benefits of nature. Each culture looks specifically to their own environment in terms of availability of materials, energy, water, as well as their own needs, cultural values, and continued survival beyond their own generation. However, their approach goes beyond attaching low technology elements onto a structure, but rather the techniques become the form. Their

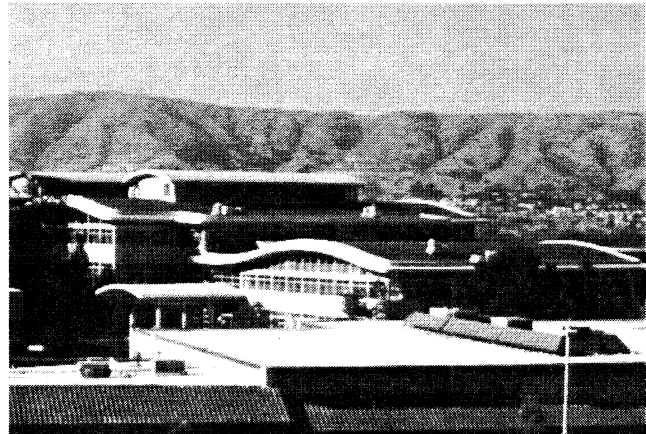


Fig. 3. View of GAP Corporate Campus with mountains in the background. Courtesy of William McDonough and Partners.

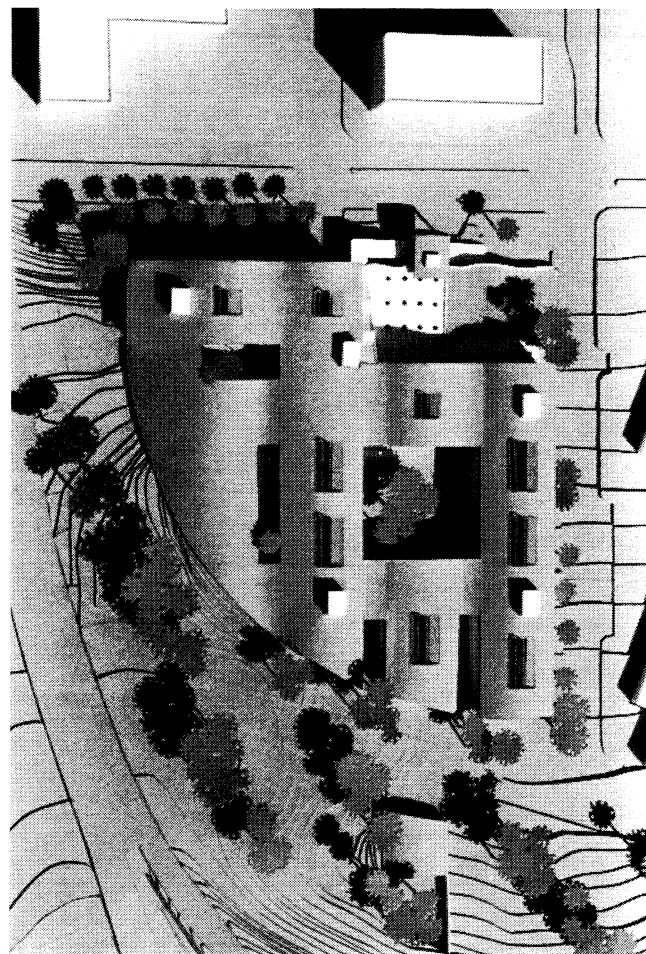


Fig. 2. Competition model of GAP Corporate Campus, 1994. Courtesy of William McDonough and Partners.

technology and understanding of place are intertwined and revealed through the form. Thus, their architecture has a sense of animism.

An interesting relationship in the evolving development of global technologies is that the inspiration of regional practices on advanced technologies has become evident. Although these local technologies may be passive and/or “low-tech,” they are becoming globally influential. This use of global technologies inflected with local culture allows for an infusion of diversity into both arenas.

The Reciprocal Influences Between the Local and the Global

The use of earth as an insulating device has been employed in a variety of ways in different local cultures. The underground dwellings of the Northern Chinese are an example. The soil provides natural insulation in all seasons. Although sunken, sunlight is brought into the space. Space above can be optimized for agricultural use.⁷ This configuration has a tremendous impact on their ecological, social and economic being. The use of an earth or sod roof can also be seen in traditional Finnish buildings. Alvar Aalto explores modernity in Villa Mairea, but he also looks to the vernacular, particularly in the design of the sauna.

To make the use of vernacular grass roofs even more viable, several European companies have devised a barrier system that lessens the depth of soil needed and reduces the possibility of puncture of the roof membrane by the roots. This advancement in global technology of a vernacular tradition allows the use of this product in a widespread manner over large scale buildings. The use of some of these products is now bondable by contractors in the United States, thus enabling its application. William McDonough and Partners have taken advantage of this for the GAP Corporate Campus in San Bruno, California. The site was the last remaining parcel of the oak savanna ecosystem that had once been prevalent in the developed area. Seeing this last swatch of vegetation was so compelling to the firm that the initial, driving impulse for design was to maintain it (Figure 1). In order to preserve this ecosystem, the green layer is raised in the air by use of a grass roof system. Inspired by vernacular traditions and nature, the positive attributes of the roofing system include purification of the air by the vegetation, reduction of excess water runoff, thermal insulation for both heating and cooling, acoustical insulation from the surrounding roadways, protection from the northern wind and camouflaging of the building with the landscape. Plantings act as a solar control by blocking the sun in the summer and allowing solar gain in the winter. The skylights also provide shelter from strong winds. The building responds to its region not by looking to the built environment, but by reflecting on the local ecology and taking advantage of advanced technology. However, the choice and implementation of the technology relate to an understanding of the being of the place. The form derives from the functional necessities of air,

light and water (Figure 2). The form of the building derives metaphorically from the grasslands of the California coastal foothills and from the functioning of the product that looks to nature.⁸ The roof becomes a rolling terrain planted with local sedum in six inches of soil. The gentle curves of the roof reflect the logic of nature in dealing with the natural elements (Figure 3).

The initiating force behind design for William McDonough and Partners is not form or aesthetics, but, according to McDonough, is a balance between “ecology, equity and economy.” The primary intent is to create a humane place for people to work. In achieving this, the first task is to provide a constant connection between the individual and the exterior environment, thus making the individual’s relationship to the earth and the senses predominant. In order to provide an atmosphere of light and views to the exterior, operable windows, atriums and skylights are utilized. The workplace contains amenities for the employees such as an art gallery, a cafeteria, a fitness center, a day care facility, and parking below the building. The structural system is based on an efficient layout of cars and a typical GAP office arrangement. A raised floor system is used that allows for fresh air to circulate through the plenum and be brought directly to each individual (Figure 4). Cool evening air is cycled through the plenum of concrete slabs, thus reducing the temperature of the building. Since air returns are high, while fresh air is delivered low, there is less contamination and less need for air conditioning. Although this is typically considered a more expensive system, it was paid for by a reduction in energy equipment and energy consumption.⁹ In general, the building is more efficient than required by state law.¹⁰ In describing the system of cooling, McDonough likens this design to that of “old haciendas,” by virtue of the cooling system’s circulation of air.¹¹ The design choices are all based on the needs of the region, the people and nature.

Enhancing a natural utility of wind, the use of the natural system of air flow has been employed by many local cultures for evaporative cooling. An example of this is the use of malqafs in indigenous atrium houses in Saudi Arabia.¹² These malqafs

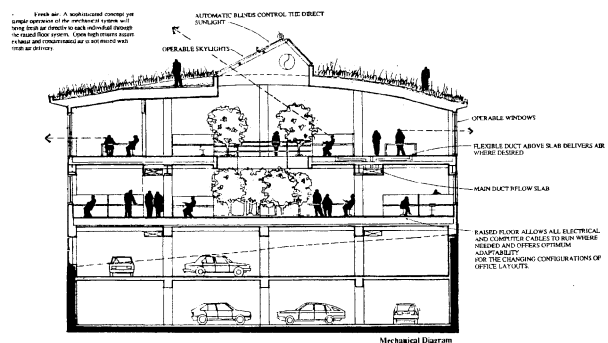


Fig. 4. Schematic section of GAP Corporate Campus, by William McDonough and Partners, 1994. Courtesy of William McDonough and Partners.

are essentially wind traps. Openings in the building allow breezes to enter. They are then directed through built channels downwards towards the ground, where they are cooled by water and often perfumed by plants. As the air heats, it rises through specifically placed openings in the roof. This cycle is continuous because of the properties of convection. Glenn Murcutt utilizes this vernacular example as inspiration for his proposal for the Mining and Minerals Museum in Broken Hill within the desert of Australia.

Murcutt has cited economics as a primary influence in the design.¹³ With a low budget and materials limited by long distances, the form of the roof, the utilization of malqafs and the use of local red earth for the rammed walls, as well as other choices, were all thoughtful design decisions based on optimizing costs.¹⁴ However, because of the logic used, these choices have cultural meaning and resonance. He reinterprets the Middle Eastern wind trap as a series of air scoops, water and crushed plants, thereby naturally ventilating the building. Not coincidentally but unintentionally, this is similar to the system used by Australian miners in the nineteenth century.¹⁵ This reflects both Murcutt's and the miners' responsiveness to the site. According to Murcutt, the logic for the air scoops exists in the desert.¹⁶ On the hillsides there are large overhanging rocks that act as thermal mass and collect heat during the day. In the cooler evening air, water condenses and provides a small, consistent supply of water for the trees. However, Murcutt also takes advantage of modern, global technology by using a computerized system that automatically adjusts the air flow.¹⁷ Murcutt sees "a legibility and transparency in nature" that he aspires to in his own architecture.¹⁸ The design achieves this through enhancing the understanding and communication of the characteristics of culture and site.

In the Jean-Marie Tjibaou Cultural Center in Nouméa, New Caledonia, Renzo Piano Building Workshop integrates global technologies with local traditions and nature. The sociopolitical background for this project exemplifies the tension that can exist between the local and the global, especially when exacerbated by the issue of colonialism. Located within a French territory, which is currently looking towards autonomy, New Caledonia was annexed by the French in the mid-19th century. As described by Piano, "it is a cultivated Occidental culture and it has been demolishing and destroying for a long time its real local culture. And the Kanak people, they feel that and live that experience."¹⁹ For this project to be successful, it was essential that the design not be a form of colonialism.

I can share with a non-Kanak of this country what I have of French culture, it is impossible for him to share with me the universal part contained in my own culture.²⁰

— Jean-Marie Tjibaou, 1981

Spurred by the death of the Kanak leader, Jean-Marie Tjibaou, the French government agreed to funding of the project during the negotiations for independence as a means to clear French

debts from years of colonialism in return for the Kanaks postponing independence.²¹ In an international competition, the Agence de Développement de la Culture Kanak chose the proposal of an international architect, Renzo Piano, who had turned to the native culture for inspiration. In doing so, he elevated the perceived value of the local culture and its *techné* to the global level. According to Piano, "a mistaken concept of universality would have led me to apply my mental categories of history and progress outside the context in which they developed, a grave error."²² As an international architect, Piano brought a process for understanding place rather than a colonial imposition of an outside culture, as well as an knowledge of advanced technologies. Working with the anthropologist, Alban Bensa, Piano studied the culture, the site, and the relationship between the two. Piano attempts to understand the existing culture on a level deeper than a cursory replication of forms. The building is the result of *techné* revealing the logic of the place and enriching both the regional and the global.

In beginning the project, Albans warns Piano, Be careful, you will do a building, but they can't imagine that it's them because they never imagine themselves in a building. They imagine themselves in the trees, in the stones and in the creeks, but not in a building.²³

In general, the Kanak people are not builders other than of the ephemeral huts. In their culture, "Eternity is not the building itself, but the way of building it."²⁴ For the Kanaks, the continued life of a village depends not on the permanence of the physical building, but rather the sustained preservation of the topology and the understanding of the process of construction.²⁵ This ephemeral character is resonant in many aspects of their culture with action being culturally more significant than artifacts. This prominence of action signifies a mode of communication that is interactive with their environment.

The building evolves from the nature of the site (existing location of trees, the ridge, the climatic elements), as well as the essence of the culture. Inspired by the Kanak culture, the form and organization of the building looks to the logic of traditional construction as well as the sociocultural origins. Piano attempts to "produce from a place rather than just make an interpretation of place."²⁶ The project examines the logic of traditional construction, but still allows for adaptation. This permits for an interaction that enhances the vitality of both the local and the universal. Heightening the indigenous understanding of the wind and sun, the curving facades of the buildings allow for air flow, lighting and shading. Because of the characteristics of the materials and construction, the interaction between the natural elements and the structure can be heard, which is similar to the action of the native huts. At a certain point in the design process, the resemblance to the local huts was relaxed resulting in a greater effect of wind ventilation through the building.²⁷ In this way, the building cases maintain a balance between tradition and modernity.

Typically inherent in local cultures is the tension between the aspiration to modernity and preservation of culture. There is a

pride in being modern and a pride in the traditional. The struggle is to take part in the twenty-first century without losing a sense of self. According to Ricoeur, "in order to confront a self other than one's own self, one must first have a self."²⁸ The stronger the self, the richer the discussion. According to Jean-Marie Tjibaou, Nouméa, the city selected as the site for the Cultural Center, is an ideal location for a cultural center for two reasons: first, it is a city populated by outsiders who should be made aware that this is not their native country, and second, the Kanaks who live there need to be able to find their origins in order to enter the modern world.²⁹ Piano's design begins to reveal the complexity and substance of the Kanak culture, as well as exposes its dignity, vitality and readability. In this way, the culture is elevated to its proper status within the global perspective and allows for interaction at that level.

The Jean-Marie Tjibaou Cultural Center capitalizes on the local understanding of place while still implementing global technologies and construction practices, as well as non-local materials. It acknowledges the attributes of the modern day world while still celebrating tradition and the aspects of the local. Following the concept that anthropology is the "science of decolonization," the building begins a "cultural decolonization."³⁰

Coexistence of Globalization and Local Cultures

Inherent in the resolution of this issue of coexistence is the understanding that civilization and culture are two distinct entities. If universal civilization is mistakenly substituted for culture, a uniformity and homogeneity in cultures may occur. However, vernacular architecture should not be merely copied, but rather explored in order to comprehend the logic. A reciprocal relationship between the global and the local may lead to an enrichment of both culture and civilization. As a means to understand the environment, techne results in a legible, enhanced form that embodies the issues of place. In this way, technology not only communicates an comprehension of the essence of site, but is a means to know the place. By intertwining technology with site, the form becomes an animated understanding of the specificities and diversity of place.

NOTES

- ¹ Richard Critchfield, *The Villagers: Changed Values, Altered Lives: The Closing of the Urban-Rural Gap* (New York: An Anchor Book, 1994), p. 12.
- ² Paul Ricoeur, *History and Truth* (Evanston: Northwestern University Press, 1965), p. 272.
- ³ Gottfried Semper, *The Four Elements of Architecture and Other Writings* (Cambridge: Cambridge University Press, 1989), p.269.
- ⁴ Ricoeur, *History and Truth*, p. 278.
- ⁵ Martin Heidegger, *Poetry, Language, Thought* (New York: Harper & Row, Publishers, 1971), p. 59.
- ⁶ *Ibid.*, p. 64.

- ⁷ Michael Moquin, "Adobe, Rammed Earth, and Mud: Ancient Solutions for Future Sustainability," *Earthword: the Journal of Environmental and Social Responsibility*, Issue Number 5, pp. 26-7.
- ⁸ William McDonough Architects, *GAP Corporate Campus Competition Proposal*, (New York: 1994), p.
- ⁹ William McDonough, "Securing a Sustaining Prosperity," Lecture to Darden School of Business, 1996, p. 10.
- ¹⁰ *Ibid.*, p. 10.
- ¹¹ *Ibid.*, p. 10.
- ¹² Kaizer Talib, *Shelter in Saudi Arabia* (London: Academy Editions, 1984), pp. 51-2.
- ¹³ Glenn Murcutt, "Mining and Minerals Museum, Broken Hill, Australia" in *Perspecta 27: The Yale Architectural Journal* (1992), pp. 175 and 184.
- ¹⁴ *Ibid.*, p. 184.
- ¹⁵ Francois Fromonot, *Glenn Murcutt: Buildings and Projects* (New York: Whitney Library of Design, 1995), p. 45
- ¹⁶ Murcutt, "Mining and Minerals Museum," p. 175.
- ¹⁷ *Ibid.*, p. 184.
- ¹⁸ Kenneth Frampton, editor, *Technology, Place & Architecture* (New York: Rizzoli, 1998), p. 58.
- ¹⁹ Nobuyuki Yoshida, "Renzo Piano Building Workshop: Interview," *A+U: Architecture and Urbanism*, no. 12/315 (December, 1996), p.92.
- ²⁰ Alban Bensa, "Entre Deux Mondes," *Architecture d'Aujourd'hui*, no. 308 (December, 1996), p. 44.
- ²¹ Riichi Miyake, "From Vernacular to Universal," *A+U: Architecture and Urbanism*, no. 8, (August, 1998), p.82.
- ²² Renzo Piano, *The Renzo Piano Logbook* (London: Thames and Hudson, 1997), p. 180.
- ²³ Miyake, "From Vernacular to Universal," p. 107
- ²⁴ *Ibid.*
- ²⁵ *Ibid.*, p. 92.
- ²⁶ Bensa, "Entre Deux Mondes," p. 93.
- ²⁷ Renzo Piano, *The Renzo Piano Logbook*, p. 180.
- ²⁸ Ricoeur, *History and Truth*, p.283.
- ²⁹ Miyake, "From the Vernacular to the Universal," p. 107.
- ³⁰ Francois Chaslin, "The Kanak Cultural Centre at Nouméa," *Domus*, October, 1996, p. 48.

REFERENCES

- Bensa, Alban. "Entre Deux Monde," *Architecture d'Aujourd'hui* 308 (December, 1996): 44-57.
- Chaslin, Francois. "The Kanak Cultural Centre at Nouméa," *Domus* (October, 1996): 41-48.
- Critchfield, Richard. *The Villagers Changed Values, Altered Lives: The Closing of the Urban-Rural Gap*. New York: An Anchor Book, 1994.
- Frampton, Kenneth, editor. *Technology, Place & Architecture*. New York: Rizzoli, 1998.
- Fromonot, Francois. *Glenn Murcutt: Buildings and Projects*. New York: Whitney Library of Design, 1995.
- Heidegger, Martin. *Poetry, Language, Thought*. New York: Harper & Row, Publishers, 1971.
- McDonough, William. "Securing a Sustaining Prosperity," Lecture to

- the Darden School of Business (June, 1996).
- Miyake, Riichi. "From Vernacular to Universal," *A+U: Architecture and Urbanism* 8 (August, 1998): 82-105.
- Moquin, Michael. "Adobe, Rammed Earth, and Mud: Ancient Solutions for Future Sustainability," *Earthword: the Journal of Environmental and Social Responsibility* 5 (1994): 22-28.
- Murcutt, Glenn. "Mining and Minerals Museum, Broken Hill, Australia," *Perspecta* 27: *The Yale Architectural Journal* (1992): 168-185.
- Piano, Renzo. *The Renzo Piano Logbook*. London: Thames and Hudson, 1997.
- Ricoeur, Paul. *History and Truth*. Evanston: Northwestern University Press, 1965.
- Semper, Gottfried. *The Four Elements of Architecture and Other Writings*. Cambridge: Cambridge University Press, 1989.
- Talib, Kaizer. *Shelter in Saudi Arabia*. London: Academy Editions, 1984.
- William McDonough Architects, *GAP Corporate Campus Competition Proposal*. New York: 1994.
- Yoshida, Nobuyuki, editor. "Renzo Piano Building Workshop: Interview," *A+U: Architecture and Urbanism* 12/315 (December, 1996): 92-103.