TWENTY-FIRST CENTURY CURTAINS: A THEORY OF FLUID ARCHITECTURE (1990)

FROM THE SKY OVER MOROCCO

Unexpectedly, I have visited Morocco twice during the last six months. Almost 20 years had passed since I last had the opportunity to visit Casablanca and Marrakech. As I expected, Casablanca has been modernised, yet Marrakech has barely changed. In particular, the street performers that fill Djemaa el Fna square were completely unchanged, as if time had frozen. The snake charmers did the same acts, the little girls asking for money looked exactly the same. The souvenirs sold in the medina adjoining the square had not changed in the least. It is emotionally moving to be abruptly thrown from Tokyo, a city where everything changes at a dizzying rate, into a city where nothing has changed for 20 years. The amazing spaces in my memory are preserved intact in this city, and I think anyone passing through this wondrousness would find it moving.

However, during this trip I was above all moved by seeing the terrain of Morocco from the sky. When I saw the beauty of the landscape spreading below our small airplane during the two-hour round trip from Casablanca to Agadir (a resort town located on the Atlantic coast of mid-western Morocco, which is crowded with French, Spanish and other European tourists during the vacation season), I was entranced and rendered speechless.

Amid the flat farmland, like a mosaic woven from fragments of green and reddish brown, there suddenly appeared a huge, perfectly circular area of green. As we moved further away from Casablanca, the green farmland

decreased and the reddish tinged earth – so red in parts that it appeared to run with blood – increased in inverse proportion. Amid this, roads delineating straight lines could sometimes be seen. Contrasting with the roads, flowing water meandered back and forth – multiple flowing lines of water completely untouched by human hand – all of them tracing sinuous curves. None progressed linearly.

It was this dynamic movement in accordance with the rhythms of nature that I found most moving. According to hydraulics researcher Theodor Schwenk (1910–1986), this meandering occurs when water flowing downstream, under the pull of gravity, encounters the eddies simultaneously engendered in the river's transverse direction. In other words, the inflected part of the flow, which is a flow through the water from inside to outside, causes a rotational movement that rises to the surface and returns to the inner part, accompanying the basic motion of the water, and this surging motion merges with the downstream motion, becoming a helical motion.[1]

Schwenk does not restrict this spiralling movement of water to merely a problem of fluids, but expands it into a fundamental principle for the morphogenesis of living things. For example, unicellular protozoa such as paramecium and stentor have spiral forms and propel themselves with a helical motion. This is because they are living things just barely differentiated from the surrounding water. Moreover, the long branching fibrous cells of algae such as spirogyras also depict spiral surfaces – shapes that visualise the motion of water itself. The winding motion of swimming water snakes, or the fanning of fish gills, are embodiments and visualisations of moving water. In short, Schwenk asserts that the structures and functions of an organism, as well as the medium surrounding that organism, all follow the same principles.[2]

Of even greater interest is his view that human tissues and organs are manifestations of the same principles. The structures of every part of a person – muscles, bone shapes, intestines, ears, throat and so on – display the imprint of the motion of flowing water. Considering the fact that

during its embryonic period the physical body, floating in amniotic fluid within the womb, is almost entirely composed of water, and that even elderly people are said to be approximately 60 per cent water, I find this theory extremely compelling.

THE HUMAN BODY AS A FLUID: THE IMAGE OF VITRUVIAN MAN

Perceiving the human body as a form of movement comprising various flows, as opposed to a static and symmetrical solid, leads to a radically different worldview. In other words, according to Schwenk's theory, the parts of the human body are not just the embodiment, visualisation and solidification of flows of water, but their accumulation into a human body is also in a state of continuous transformation. This worldview distantly opposes the image of Vitruvian man, as defined in the *Ten Books of Architecture* (Book 3, Chapter 1):

Then again, in the human body the central point is naturally the navel. For if a man be placed flat on his back, with his hands and feet extended, and a pair of compasses centred at his navel, the fingers and toes of his two hands and feet will touch the circumference of a circle described therefrom. And just as the human body yields a circular outline, so too a square figure may be found from it.

It is sufficient to recall the human figure depicted by Leonardo da Vinci. The image of a man extending his robust limbs with a dignified expression is symmetrically and statically inscribed within a circle and a square. For Alberti and Da Vinci, the circle and the square are perfect geometric figures favoured by nature. Accordingly, these figures testify to the harmony and integrity of the human body and indicate a profound and essential truth about man and the world. If the ideal architectural plans of the Renaissance conformed to this ideal and immutable body

figure, what kind of architecture would result from viewing the human body as a fluid? For example, what about a space enclosed only by curtains? Although curtains are today used for highly formal, ceremonial spaces, they were once used for more free and dynamic spaces unified with nature. Try to imagine a space surrounded by curtains set below cherry blossoms. People take the opportunity to gather together for the extremely ephemeral event of the blossoming of cherry trees. They choose a carpet to spread on the ground below and then, taking into account the wind and sunlight, they pull curtains around the seating area for a banquet. This is the minimum filter necessary to visualise and stabilise human actions (movements) and natural flows. It is a sign of the most primitive architectural act, that of instantaneously mediating an event integrated with nature. Furthermore, this event site is wrapped with a membrane that just barely indicates the existence of an interface.

In terms of living things, these spaces surrounded by curtains are similar to unicellular protozoa: in other words, this is just a condition in which the organisation and structure of a human body cannot yet be seen. Looking at traditional Japanese architecture, the curtain first becomes an architectural element within the stable format of a roof supported by systematically erected posts. Accordingly, while traditional architecture is oriented toward nature, it is formed in a style with a contrasting organisation and systematisation. Rather than opposing natural flows such as terrain, wind and water, it absorbs those flows, and by being closed into the minimum format of an immobile flow it is converted from an installation into architecture. Thus, white curtains billowing in the wind were incorporated in architecture as compositional elements such as *shoji* screens or *fusuma* panels. However one yields to the flows of nature, even if the flow is adopted as the form, the architecture will not become architectural unless it is constantly accompanied by actions in the opposing direction of fixity and independence. But nonetheless, we can still say this is a 180-degree shift from notions that conform to a concept

of abstracted nature that entraps the human body and architecture in geometry and makes them completely independent.

ARCHITECTURE INTEGRATED WITH THE ENVIRONMENT

The city in which I live is constantly stimulating and has provoked in me a series of architectural images. Taking a step back, the things that I build should not be described as highly creative acts, but are simply projections of various phenomena and scenes from the city, and perhaps no more than the reality of urban space viewed through a filter. So I have always thought that my architecture cannot be understood in isolation from the city.

Put another way, nature has had no impact on me at all. In my mind, nature and city, or nature and architecture, have long been antagonistic concepts. Of course, some of my architectural works have been built in natural surroundings. In such cases, I gave consideration to natural and environmental conditions such as topography, sunlight, wind direction and views. Beyond that, however, my architecture has not been actively influenced by nature. I had thought that architecture should be resolved within the autonomous system of architecture itself, and not opened up as part of a larger system that includes the environment.

However, I feel that my Guest House for Sapporo Breweries project, completed in 1989, has somewhat expanded my view on these issues. That is to say, architecture can also be viewed as, ultimately, an element in the formation of nature or the environment. Of course, it might be argued that this has been completely obvious from the outset. However, for me, the theme of how far it is possible to open up architecture has been a major issue over the decades since I began work.

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Sapporo Breweries is a relatively large, flat field in the midst of nature. When I visited the site for the first time, in midwinter, it was blanketed with snow. The site did not contain a single tree and its boundaries were vague. This was the first time I had seen such a thing. In the city, there are always multiple regulations – site coverage ratios, floor area ratios, volumetric setbacks and so on – that almost automatically determine the appearance of the exterior form. It was obvious that all the methods I had been attempting until now would be inapplicable here. Half buried by snow, I stood stupefied.

On my way back to the city, I began to think that my only option was to bury the building underground. I thought there was no way to build a small building isolated in such a vast site. Not to mention that the architecture of thin membranes, which I had been enthusiastically describing with terms such as 'transfiguration of wind', really might be blown away by the wind. Buried underground, it would be safe, preventing the thick, heavy walls and roof from being exposed to the elements. My motives were extremely impure. Excavate the flat site, make a plaza like a buried shell, bury buildings around its perimeter, then pile up the excavated earth to make a small hill nearby.

Although my motives were impure, this 'earthwork'-like method taught me something extremely important. By manipulating the soil of this originally flat site, a topographic map of contour lines would be delineated, like a weather map indicating bands of high and low air pressure. Various flows began to occur in this terrain, like the swirling vortices of wind flows from high-pressure centres to low-pressure centres. Following these contour lines, it became possible to depict flows of people, flows of plants, flows of water. It was easy to insert the architecture within such flows. In other words, architecture was absorbed into the environment as one of its constituent elements. Rather than being an independent entity that confronts nature, architecture would become unified with nature.

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The moment I began to think in this way, the assertiveness of my own architecture as a morphological expression in confrontation with the environment did not seem to be a futile gesture. Furthermore, I began to consider that this way of thinking was not limited to natural environments, and might be applied equally to an urban setting. That is to say, urban space is also nothing other than a space for flows of people, cars and various other objects. Whether one is looking at groups of buildings or plants, certain flows can be perceived, and water, air and sounds incessantly flow through all urban spaces. To make architecture in such urban spaces, the task of placing one's architecture within these relative relationships is nothing other than placing one's body within various flows.

In a city like Tokyo, even when designing a single building, the buildings surrounding the site will be completely different in terms of volume, form, number of floors, materials, structure and usage. However, one can rarely predict when each building will vanish and be replaced with a new one. Casting new architecture amid this condition is like casting pieces on a Go gameboard – a completely relative, phenomenological and playful act. This is totally different from European cities, where the act of design responds to a particular context, and gradually approaches a coherent townscape. It is an eternally repeated game. In these urban spaces, what kind of context do we have?

For these constantly changing, relativistic spaces, the only act open to us is to produce new, tense relationships. This is like the act of planting a stick in the flow of a river. The upright stick creates an eddy in the river, which interferes with other, already occurring eddies, forming a place with a more complex flow. And at the centre of these multiple small eddies is a stagnant place where people gather. This centre was once occupied by cherry blossoms or a fire. Nowadays it is probably a television or audiovisual equipment – in other words, a place where information arises. Contemporary urban space can be described as the accumulation of an incessant series of innumerable eddies.

Within these innumerable eddies we do no more than throw in new eddies in order to stimulate the environs and induce new flows in the surrounding spaces. With such a theory of relativity, perhaps we need to revise our view of our city in phenomenological terms.

In any case, the antitheses that had been troubling me – the oppositions between city and nature, or architecture and nature – began gradually to dissolve. Intently thinking about how to open my architecture over the preceding decades, I concluded that architecture should be absorbed into the environment.

TWENTY-FIRST CENTURY CURTAINS

My project for a 'Media Ship Floating on the Seine River' (Franco-Japanese Cultural Centre competition entry) is a proposal for a phenomenological, relativistic architecture for the media era. The core of this project is formed by three media ships, that is to say, information-emitting devices. These media ships float in the air and are reflected in the Seine, which flows in front of the site. They transmit a variety of information to the surrounding areas. In accordance with the character of the information, the periphery is divided into spaces with different functions, such as a theatre, an art gallery, a café, a library and a seminar space. In order to isolate each separate space, corrugated screens are placed to enclose each information source. Much as curtains did in the past, these screens serve as lightweight partitions that just barely define fields where people may gather.

In addition, a glass screen stands along the street frontage to isolate the entire building from the outer world. This screen is also intended to be the thinnest possible isolating membrane, an interface with the environment like a curtain for a field where people may gather. Comprising a sandwich panel of liquid crystal and glass, the transparency and opacity of each delicate panel can be controlled electronically. In other words, like a large electronic

scoreboard, it is possible to freely depict a pattern using the transparency and opacity of every part of the facade.

This general area is strongly influenced by one of Paris's urban axes, and architectural elements such as the corrugated screens and media ships are organised and structured by inserting a grid frame parallel or perpendicular to this axis line.

Thus the media ships take the place of cherry blossoms (information), and the screens with inserted liquid crystal can be regarded as curtains for the twenty-first century, supported by new technologies. These curtains can be opaque, as if clouds or fog had appeared, or transparent, as if they had cleared. The backdrop comprises the solid volumes located along the Paris axis, their visibility changing according to the level of transparency required. Concealing the activities and following the incessant flows of nature and information, the various eddies produced inside are wrapped with a light membrane, and an architecture of minimal forms is arranged between them – this is the 'Media Ship Floating on the Seine River' concept.

As I have already mentioned, people once placed their bodies within the restlessly changing flows of nature, giving it a barely permanent form and creating an open architectural style. Today we place our bodies not only within nature but within the still more dynamic flows of the city. In these unstable, transient, phenomenological and relativistic spaces, we must also find the minimum fixed system and convert phenomenal spaces into durable architecture. Furthermore, it is impossible for today's architecture to avoid a connection with the tremendous energy of consumer society and the accelerating speed of transformation of the environment. Wherever we look, we cannot find a stable foundation for architecture. Architecture that yields to the flows and only pursues phenomena will surely be immediately consumed. However, architecture that ponderously settles into place by just relying on the appearance of clichéd architectural formats has absolutely no resonance with the era. Overflowing with vitality, the architecture of today can just barely exist

in the contradiction between the unstable condition of ceaseless flows and the stable systems shared by people.

Due to the remarkably limited sightlines facing the narrow stage in Nō theatre – said to be the most accomplished performance art style – the body of an actor may display a 'posture of suspense'.[3] The upper body leans forward from the seat and, as if drawn upward, the chest of this leaning upper body will again bulge. It is said that in order to prepare this body posture, unstable energy is first produced within the body. Thus, Nō dance is not simply walking on a stage, but inducing energy produced by the body posture, then moving to the place led by the energy. The performance becomes 'fluid energy'.[4]

This observation is extremely evocative. How can we derive fluid energy from an unstable posture on a stage? The architecture of today is that which a superb Nō actor can convey with nothing more than their body language.

NOTES

1. Theodor Schwenk, *Sensitive Chaos: The Creation of Flowing Forms in Water and Air*, translated by Olive Whicher and Johanna Weigley (London: Rudolf Steiner Press, 1965).
2. Ibid.
3. Keiichiro Tsuchiya, *Nō* (Tokyo: Shinyosha, 1989).
4. Ibid.