

412-18 The following essay by **Arata Isozaki** portrays the city of the latter part of the twentieth century as having superseded its functional and humanistic bases to become a heterogeneous, fluid, and chaotic agglomeration driven by invisible and self-motivating processes. Confirming in advance Roland Barthes's reading of Japan as an "empire of signs," Isozaki's vision of the multiplicative and free-floating nature of urban signifying systems contains an element of prophecy that remains powerful a quarter century later.

325-34 Norbert Wiener's pioneering writings on the cybernetic environment (first published in 1948 and based on his research during the Second World War on feedback-based weaponry) and Marshall McLuhan's annunciation of an age of global electronic communications were seminal for Isozaki in these years. But it was the specific experience of the postwar Japanese city that fundamentally informed his work. Lacking, in Isozaki's view, any historical prototype except continuous transformation, the Japanese city had of necessity been designed according to a succession of simulated and arbitrary models. This led him to the insight that "city designing resembles push-button warfare." Having spent a decade in the office of Kenzo Tange where he collaborated on the plan for Tokyo Bay and was close to the Metabolists, he shared with Tange and his contemporaries a preoccupation with urban growth and change. Yet whereas the others saw the problems of burgeoning population and increasingly complex infrastructural needs as solvable through a utopistic technology, Isozaki remained skeptical, focusing more on technology's symbolic and cultural meanings. This was already clear in a sketch of 1960 for a project called "City in the Air," in which the colossal supports for a bridging system of elevated space-frame structures rise from the mythic ruins of giant-order Doric columns. The drawing recalls Louis Kahn's viaduct scheme for center-city Philadelphia, but in a historicist and ironic vein. Significantly, Tange's 1962 megastructure scheme for the Yamanashi Press and Radio Center is very close to Isozaki's sketch, but without the latter's irony and in spirit evoking more Yona Friedman's *villes spatiales* than Kahn's urban monumentality. An essay by Isozaki of the same year, "City Demolition Industry, Inc.," marked his disengagement from his mentor: the fable of a hit man turned urban demolition contractor, it was apparently an attack on Tange for the destructive "humanism" of his positivistic urban vision. Isozaki left Tange's office in 1963.

389-91 While Tange's strong formal propositions arose from a unified and coordinated overall conception, hierarchically organized and functionally determined, Isozaki's projects of the mid-1960s increasingly pursued a fragmentary and heterogeneous expression. Ever a sophisticated reinterpreter of Western culture, Isozaki fully gleaned the implications of the desacralizing critique of Pop art. Nor was the symbolic use of technology in James Stirling's Leicester Engineering Building (1959-64) lost on him. Monumentality was now a matter of figural rhetoric, of manipulating architecture's formal language, not a manifestation of "truth." In buildings like the Iwata Girls' High School (1963-64), the Oita Prefectural Library (1962-66), and the Fukuoka Mutual Bank in Oita (1966-67), he inflated Kahn's "hollow stones" to the point of hyperbole, exposing the supposed structural role of the "servant" members to be a simulation.

242-48 The son of a businessman who was also a leading haiku poet, Isozaki writes with a marked literary flavor. The surreal city of ruins and indeterminacy that he evokes recalls the writings of contemporary novelist Kobo Abe.

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Only process is trustworthy

Constant movement, diffusion, rejection of fixed images, and infinite increases of advertising and noise are part of daily life in Tokyo and other cities outside as well as inside the United States. Dimly lighted Park Avenue, covered by transparent membranes supported on superhuman-scale space frames, and Sunset Strip, void of pedestrians and traveled only by moving containers (automobiles), represent classical illustrations of the modern city. If only in fragmentary form, however, the same characteristics are found in Tokyo in even more complicated, diverse, and confused forms.

There are no Japanese cities that have been built up steadily and slowly over centuries because the Japanese people have traditionally relied on wooden buildings, which rot and burn readily. But material alone does not explain the situation. It is important to point out the total lack throughout Japanese history of an actual image for the formulation of an urban concept in the Western sense. For me—living as I have in cities of the Japanese kind—finding a basic image for an urban concept has long provided a fascinating theme. My efforts have been directed toward urban design, but, since the very genre lacks definition in Japan, I have been compelled to seek a prototype to serve as my starting point.

Things that might have served as a prototype were reduced to rubble by the B29 incendiary bombs of World War II. Everything I had considered enduring and immutable in architecture was obliterated, one building after the other. The ruins were unlike the romantic ruins of European cities. These places were in their present condition long before I ever saw them. The war ruins were created before my very eyes, instantaneously. But, even destroyed, the cities persisted. Take Hiroshima as an example. It was virtually completely annihilated. But not long after the atom bomb, its urban entities began to reemerge. Today it is a bigger city than ever before.

Immediately after the war, estimates offered little reason to hope that the plan of restoring Tokyo to a population of three million could be realized. But, before anyone knew what had happened, there were ten million people living there. It is said that in the past five years, more money has been spent in Tokyo on construction than in the whole preceding century. Just after the war, no one would have believed this could happen.

Today, the urban environment continues to increase in fluidity. Viewed in terms of the time axis of transformation, the city is in a liquid state of constant organic reproduction and division. As Norbert Wiener explains, the city is neither so tightly bound together that the transformation of one aspect necessitates the destruction of the unity of other aspects, nor so loosely bound together that all things of the same options can come into being with equal ease. Wiener is describing the world of process, the world that lacks both the rigidity of quantum-physics images and the ultimate entropy or extinction of heat in a state of undulation in which no truly new things can be born.

We have before our eyes fragments of cities in the process of flux. The fragments constantly shift into succeeding phases. In a city of this kind, where exterior appearances move and change without cease, process alone is trustworthy.

Design, or this genre of planning, can be called a theorized process. The making of decisions at any given point in time is tantamount to severing the total image of an

object in motion. Even something fixed, like a work of architecture, when set down in the constantly metamorphosing city, is part of growth, change, and metabolism. All design methods posit understanding of the section revealed by the severance (decision) at a certain point in time. They are all, therefore, related to concrete acts. The designer must attempt to foresee from the present moment the ultimate form of the object he is designing. The ultimate condition is the point of origin to which all things return.

The city as virtual structure

In terms of urban design, my image of ruins, while related to various elements of the actual city, ultimately is separate from them. It is a product of the imagination, a created, virtual structure that I have cast into the process of transformation occurring in the actual city.

Certain approaches are necessary in order to give this virtual structure actual form. One of them is abstraction; that is, the creation of a new urban concept born solely of the imagination. In my virtual city, residential spaces can be established in the air, over the sea, or under the ground. They are all mutually balanced and movable. Distance is lost. Labor is transformed to play. Production and consumption are synonymous. For the sake of maintaining this kind of utopia, destruction must be rationalized. This city is a vision by a visionary designer who fills it entirely with his own vocabulary items. This work is lonely, like the work of Buckminster Fuller, who forty years ago introduced his Dymaxion to the world for the sake of giving technological expression to ultimates of universal compositional principles. His geodesic dome settled on earth suddenly like an immense unidentified flying object. The thought behind it was discontinuous with traditional continuity.

There is no point in discussing here Kafka's interpretation of the castle in his novel of the same name. I interpret it to mean the city of today. It is a virtual image, a space of the imagination. The land surveyor is never able to return to the castle. Even if he managed to get inside, he would be unable to survey it. Only uncertain, unreliable signals reach him by telephone, the sole medium of communication with the lord of the castle. The total pattern producing these vague, random signals seems analogous with a human brain and is an organic entity. In other words, it is something like the modern urban structure covered as it is with various communications networks.

Since it is an imaginary mechanism, the castle has an imaginary spatial system that is easy to theorize. If it can be analyzed as an analogue, it might be possible to actualize it by means of systems analysis.

But for us, the virtual city ruled by codes is not something to view from afar, as the villagers view Kafka's castle. In a confused way it fits down on the expanding actual city. We experience it in daily-life spaces. Sometimes we are perplexed by it and require not the old laws of perspective, but a new surveying technique in order to decode its double structure (in different terms, to actualize it). Though distance is lost, though material objects have lost their meaning, we must nonetheless search for a new surveying method to come to grips with the invisible objects confronting us. And this will enable us to extract another approach. In other words, by means of systems analysis, which we are beginning to be able to command, we will create a set system from urban spaces in which groups of code elements float in suspension.

The various spatial compositional elements are reduced to codes, and attention is paid solely to their relations. The computer is transformed into a range-finder. But

absolute distance disappears as the systems themselves become units of measurement. Instead of being represented in terms of perspective, space becomes a code-sprinkled schema. The observer's eye is not turned on external positions accepted as absolute but is swept inside the object and pluralized. As long as they are systematized, operations can be tied in with computers. At this stage, the city begins to be reorganized as a system model. Probably cybernetics will be the basis for this reorganization.

Before going on with my main theme—the pursuit of urban space supported by cybernetics—I should like to compare the condition today with the one prevailing in the 1920s, the honeymoon period of modern urban planning. During the fifty years that have passed since then, an absolute change in appearance has taken place before us. Rapid technological developments have fundamentally altered the urban situation and our ways of conforming to it.

From coordination to simulation

At the initial stage of urban mechanization, many visionaries produced city plans. By 1920, all of the elements and machines composing the city today were already available, if only in imperfect form: the railway, the automobile, the elevator, and—still experimentally—horizontal pedestrian conveyor belts. All kinds of proposals from fantasy to practical innovation were advanced, and all of them shared one profound inspiration: mechanical technology, just then starting to evolve. Some of the most important visionary plans of the time include Antonio Sant' Elia's *Città Nuova*; Bruno Taut's *Alpine Architecture*, gleaming like crystal on the tops of the Alps; Frederick Kiesler's *Space City*, with its infinite development possibilities; the immense horizontal and vertical structures of the constructivist city by Iakov Chernikhov and others; and Theo van Doesburg's multilevel *Transportation City*. Though none of them was intended for actualization, all of these plans were translations of space made possible by technical advances into mechanical city terms. With at least some elements of practical possibility, they all offered actual images of a new set of circumstances. Theoretical abstraction took place parallel with this visionary planning, as Le Corbusier's metaphorical definition of a house as a machine for living reveals.

The metaphor of the machine involves analyzing the whole into component parts, assigning each part a function, and then reassembling all functions. It was assumed that the same kind of compositional principle could be applied to the city. The *Athens Charter*, the result of years of research conducted by CIAM (formed in 1928), is filled with functionalist urban planning images. Cities were thought to be composed of four functions: daily life, work, relaxation, and circulation. And urban design too was controlled by these functions. An organic image was posited from the outset, and all efforts were directed toward it. Design process was concentrated entirely on the organization and coordination of elements or on the discovery of a structure to serve as an assembly theory. Many vocabulary items were worked out to conform with such efforts.

Theories of composition and integration dominated the mechanical period. The practical condition making their dominating influence possible was industrialization, the nucleus of this was mass production. Ford Motors's assembly line became the accepted standard. The Taylor system was introduced completely into architecture. The use of production models was investigated, and coordination was a major topic of discussion. Innovations and increases in production rapidly filled cities with

machine-made products.

The course of urban design, according to my system, can be classified into four stages:

1. The substantial stage, in which direct connections are made between architectural forms and urban planning;
2. The functional stage, based on abstract principles developed by CIAM;
3. The structural stage, which we first began to notice in the 1950s;
4. The semiotic, or symbolic, stage, which we are only beginning to develop now.

Technological developments over the past fifty years have been the necessary conditions for a shift like the above. As the functionalist and structuralist stages were directly linked with mechanical production theories, so the semiotic stage has evolved from electronics theories. Mass production was made possible by the assembly line; and computers have made possible feedback channels. Coordination of disorganized, fragmentary products will be replaced by simulation, establishing various different kinds of models. The results of this transition are certain to alter the major themes of urban design. In this connection Marshall McLuhan made the following interesting suggestion about electronic music in relation to traditional music:

"With the electronic musical instrument, any tone can be made available in any intensity for any length of time. Note that the older symphony orchestra was, by comparison, a machine of separate instruments that *gave the effect of organic unity*. With the electronic instrument, one starts with organic unity as an immediate effect of perfect synchronization. This makes the attempt to create the effect of organic unity quite pointless. Electronic music must seek other goals."¹

Through the medium of the musical instrument, according to McLuhan, electronic speed-up transforms the goals of art. A rupture similar to the one between traditional and electronic music can be seen preceding what I call the semiotic, or symbolic, stage of thought on urban design.

This is no doubt connected with the controlling power of simulation through the medium of the computer. The elements of urban composition are no longer judged in terms solely of external form but are understood on the basis of the combinations of totally invisible systems. Simulation, then, is first setting up a model of a city containing innumerable abstract systems and then proceeding to work out hypothetical conditions on the basis of a comparison of this model with reality. Today's construction of virtual cities through simulation is entirely different from the fantasy and utopian plans of the twenties. Now impractical, fantastic city models can be produced only through the systems process. And, even if such a model is totally disparate and incompatible with urban reality, once it has been expressed as a model, simulation becomes possible. This means that, through computers, its possibilities become linked with the possibility of flow into the actual city. Under such conditions, considerations of totality, creation of visual order, and formal unity lose significance. But all kinds of cities can be planned: City on the Sea, City in the Air, Labyrinth City, City for the Dead, and so on. In the process of expressing these ideas in models and manipulating them so that they overlap with the real city, the designer acts as a pilot and must not be swayed by his own fixed, preconceived concepts, since he is dealing with constant mutual response between reality and hypothesis. His city designing resembles push-button warfare.

Cybernetic environment

Though I may be jumping to conclusions, I suspect that urban spaces—including, of

course, architectural spaces—will be of the following nature. The conditions below must be developed as future design themes, but they can be found existing in the city right now.

1. The environment will be enveloped in a protective membrane for the sake of preserving definite, balanced conditions;
2. Spaces will be extensively interchangeable;
3. The environment will include a wide variety of movable equipment;
4. A man-machine system will be developed;
5. This system will possess a self-instructing feedback channel.

Although, in the invisible city, the value of human sight will diminish, the five senses will be more greatly stimulated than they are in the city of today. Now that the age of generating city forms has passed out of its range of responsibility, urban design must expand its field by concentrating on invisible systems, in which technology and planning overlap. From this standpoint, it is clear that the conditions outlined above become proper objects of design work.

In more concise terms, urban space—an extremely abstract term—is a place where human beings can support an environment for city-style living through the full application of modern electronic technology. The five conditions above are the necessary characteristics of such an environment, defined in urban-design terms.

This environment is, as Edward Hall says, a space for the transmission of the various communications and information processes supporting modern culture; as Marshall McLuhan says, something that instantaneously involves human beings; from the systems-engineering viewpoint, the assembly of all events embodying changing systems; in terms of art, a work that, as Alan Kaprow says, all people, willy-nilly, must be part of; and, finally, the place of active relations arising among human beings and their surroundings. These approaches—from practically all fields—to the concept of environment reveal the kinds of work and thought now being devoted to general experiments on the invisible parts of the city.

For me, the modern city is a nest of invisibilities, a place, like the labyrinth in *Through the Looking Glass*, where it is impossible to grasp the things that fly out toward one. It is still impossible to know its true form or to make forecasts about the future behind the looking glass. Cybernetics lies at the foundation of the predicted spaces accompanying the five conditions. The space itself can be called a cybernetics environment. Adopting this attitude may provide an Ariadne's thread to lead us out of the maze of the city interior.

Note

1. Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw Hill, 1964).