Control rooms featured in the design journal *Dezain*, March 1970.

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Multimedia Environments and Security Operations: Expo '70 as a Laboratory of Governance

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In March 1970, the same month that the World Exposition in Osaka opened, the Japanese design journal *Dezain* published a special issue on the topic of "simulations." A series of illustrations carefully arranged by graphic designer Tsuneyoshi Kimura (known for his satirical constructivist photomontages) presented an array of control rooms outfitted with high-tech information and telecommunications devices. The issue prominently featured photographs: the centralized traffic control room for the newly developed bullet train; the Japanese Self-Defense Forces situation room; and a conference room for corporate executives. These images were juxtaposed with others: film stills, weather charts, computer graphics used to simulate a car crash, and photographs of consumer electronics such as videotape recorders and flat-screen televisions. Appearing next to a diagram of the decision room for the Defense Ministry, a film still from *Dr. Strangelove* (1964), and a photograph of BADGE—the computerized air defense system used by the Japanese Self-Defense Forces—one of the captions stated that the multimedia setups of these command and control systems exemplified a "typical information environment." Alluding to Marshall McLuhan's idea of electronic media "involving" multiple senses, the caption also linked the architectural design of control rooms to the immersive use of multiple screen projections displayed at Expo '67 three years earlier in Montreal.[1]

Although Kimura does not further elaborate on the similarity between the control room, expanded cinema, and environmental artworks, his slender caption offers a useful point of entry into the technical, political, and aesthetic conflation of these two applications of the multimedia logics of immersion and surveillance. As at Expo '67, expanded cinema and environmental artworks—especially ones that relied on multiple screens and immersive projection formats—were major attractions for visitors to Expo '70 and were housed inside corporate and national pavilions alike. Moreover, multiple television monitors arrayed in a control-room format allowed security guards to carefully track visitors' movements to these very pavilions. The

two scenes were complementary: multimedia art installations and multimedia control rooms. While the contents of multimedia technologies may have differed—expanded cinema offered fancy visual experiments, whereas control rooms presented mundane records of crowds moving through the fairgrounds—the architectural design and formal configuration of the multiscreen technologies mirrored each other. Each featured multiple screens or monitors whose similarity in form suggests a common genealogy and a contemporaneity. Together, they embodied a new type of media environment in which communication across screens and monitors became more important than the information displayed within them.

Expo '70 was a laboratory for testing and experimenting with networked systems of governance as much as it was a platform for showcasing artworks based on multiple screen projections. The exposition's designers mobilized various information technologies—from computers and lasers to videophones and closed-circuit television surveillance—and in some cases they were presented as spectacles in their own right. Some of the devices used to monitor and control the movements of visitors at Expo '70 found consumer applications in the ensuing years, and many of them became an integral part of contemporary networked urban environments in Japan and other industrialized nations. This genealogy may be narrated in many ways and traced from many sites. This article offers one version by tracing the discursive and material nodes formed around the event of Expo '70 in Japan, focusing on the control room as a visual motif and a site of tension between artistic practice and governmental surveillance.

World's fairs have long functioned as a testing site for scientists, architects, and state officials. Robert Rydell argues that fairs and expositions have historically "served multiple functions as architectural laboratories, anthropological field research stations, prototheme parks, engines of consumerism, exercises in nationalism, and sites for constructing seemingly utopian and imperial dream cities of tomorrow."[2] Expo '70 was no exception. The political function of Expo '70 as a laboratory of urban governance was strengthened, in part, by its timing. Taking place at the height of massive student protests against the renewal of the controversial Japan–U.S. Security Treaty and against the Vietnam War, Expo '70 served to deflect public attention away from these issues by attempting to simulate a depoliticized and perfectly controlled urban environment. Behind the amusing candy-colored images was a laboratory for conducting simulations of future policing and surveillance technologies.

Expo '70 was thus unique insofar as it served as a site of confluence for architectural, governmental, and cinematic concerns around electronic media within the particular context of Cold War geopolitics and urbanism in Japan. A master planning team hand-picked and

supervised by architect Kenzō Tange designed this future city as a totalizing environment, replete with sewage, gas, and electricity lines, as well as a centralized heating and air-conditioning system.[3] The research team assembled by Tange (many of whom had close connections to his Tange Lab at Tokyo University) used computer simulations to predict flows of visitors, as they planned the city's layout. As architectural historian Hajime Yatsuka points out, "Tange's intention was to create a model of a future city controlled by information."[4]

During the 1960s, technological experiments undertaken by Japanese artists—much like those of their counterparts in North America—often followed concurrent developments of information and communications systems, many of which were developed for military and industrial purposes.[5] In this regard the situation in Japan paralleled that of the United States, albeit with some significant differences. Japan's participation in the Cold War arms race, for instance, was uniquely inflected by its constitutional renunciation—forced on it by the Allied Occupation from 1945 to 1952—of the use of armed forces for settling international disputes. This renunciation did not, however, mean demilitarization and was soon followed by the signing of the Japan–U.S. Security Treaty, which stipulated the establishment of the Self-Defense Forces and the expansion of U.S. military bases on Japanese soil, which enabled material support for U.S. forces during the Korean War and the Vietnam War. The pact thus effectively brought Japan into the orbit of the Cold War conflict as a satellite state of the U.S.-led coalition.[6] The twin questions of security and militarization became the focus of recurrent mass protests against the Japan–U.S. Security Treaty, first renewed in 1960 and then again in 1970. In an effort to curtail these street protests, the conservative Liberal Democratic Party (LDP)–led government expanded police powers and personnel and passed various legislative measures to suppress street-based direct actions. Expo '70 unfolded in this heated political climate.

This political climate also fostered interest in simulations as a cultural paradigm. What Paul Edwards calls the "closed-world" discourse of the Cold War period was marked by the primacy of simulations: "Simulations—computer models, war games, statistical analyses, discourses of nuclear strategy—had, in an important sense, more political significance and more cultural impact than the weapons that could not be used."[7] Expo '70, as a simulated future city, also had more political and cultural impact than actual cities, regardless of whether they were designed according to its model. The idea of the "information society" (*jōhō shakai*)—first articulated in Japan by anthropologist Tadao Umesao in 1963 and later embraced by policy makers—was widely circulated among government-sponsored think tanks, journalists, and architects in the 1960s, and Expo '70 drew on these discourses.[8]

Designing the Environment

As the name suggests, the atmosphere at Tange Lab at the University of Tokyo more closely resembled that of a scientific institution or a research laboratory than an artist's studio or architect's atelier.[9] Graduates of Tange Lab such as Atsushi Shimokōbe and Jun'ichirō Obayashi went on to become bureaucrats working for the Economic Planning Agency and the Ministry of Construction during the 1950s. Tange Lab trained both modernist architects and technocrats, who undertook statistical and theoretical research concerning population density, the distribution of industrial resources, transportation infrastructures, and urban reconstruction and development projects. Their research on industrial productivity, for instance, had a direct impact on the Comprehensive National Development Plan launched by the Economic Planning Agency in 1962.[10] Given this political connection between Tange Lab and the Japanese state, the strong biopolitical undertone one finds in the lab's architectural practice is not surprising.[11] Tange Lab's projects, such as the 1951 urban planning study of Wakkanai and the "Plan for Tokyo 1960," often dovetailed with economic and welfare policies concerning the productivity of the nation and the management of its population.[12] The field of urban planning, and the question of how to design habitable environments, in particular, became a paramount concern for architects working at Tange Lab.

Art historian Noi Sawaragi argues that the general currency of the term *environment* (*kankyō*) in Japan during the 1960s was owed to the indirect influence of Tange Lab and specifically to the work of architect and urban consultant Takashi Asada, who established Environmental Development Center Inc. in 1961.[13] A close collaborator of Tange's and a mentor to the Metabolist group, Asada helped bring Japanese artists' and architects' attention to developmental conceptions of the organism and its survival. Asada's innovative Antarctic Project (1956) is an exemplary case of Cold War architecture that prioritized the biological survival of its inhabitants. As Hyunjung Cho argues, the Shōwa research base, designed by Asada, was "a survival structure that would protect its inhabitants from the extremely harsh environment of the polar area, with its low temperatures, heavy snowfall, and blizzards." This concern over the biological survival of the human in an otherwise uninhabitable environment also informed the work of Metabolist architects and their investment in capsule housing and prefabricated modules.[14]

The idea of designing protective structures against inhospitable environments, however, was not entirely new to Tange or his lab in the mid-1950s. Sawaragi argues that Tange's intimate involvement with the Japanese imperial project—concretized most forcefully in his competition-winning but unbuilt 1942 design for a "Greater East

Asia Co-Prosperity Sphere Monument" at the base of Mount Fuji—serves as an important precedent for Asada's later use of the term *environmental development* in service of the conservative LDP during the period of high economic growth in the 1950s and 1960s.

Also finding precedents for post-WWII environmental theories in the imperial period, Hajime Yatsuka traces the conceptual lineage of Metabolism back to the work of Shinpei Gotō, the so-called father of Japanese urban planning who served as the chief of the Civil Administration Bureau in colonial Taiwan and was the first director of the South Manchurian Railway Company in the early 1900s. Trained in medicine and biology, Gotō advocated a model of colonial management based on "biological principles." Gotō, who published a book titled *Principles of National Hygiene* (*Kokka eisei genri*, 1889), understood the primary task of the state to be the governance of the population by means of biological and medicinal knowledge. Highlighting the contribution of the colonial administrator Gotō to the practice of urban planning, Yatsuka suggests that modern Japanese architecture was born with the colonial desire to secure and extend the habitat (*Lebensraum*) of the nation.[15] While the notion of *Lebensraum* is traditionally aligned with the genocidal and expansionist policies of Nazi Germany, Japan also embraced the eugenicist synthesis of the modern human sciences of evolutionary biology, immunology, and medicine in the course of its colonial endeavor.[16] Despite the collapse of the empire following the end of WWII, Gotō's conception of the nation as a living organism, whose health the state must vigilantly administer and manage, survived in the work of the postwar generation of architects associated with Tange Lab.

In contrast to such narratives, which privilege the influence of architecture, art historian Midori Yoshimoto argues that the popularity of the term *environment* in Japanese art criticism of the 1960s emerged from the more specific context of avant-garde artistic movements; in particular, the rise of intermedia and environmental art in Japan and North America.[17] These two narratives, however, are not necessarily incompatible. The central role taken by Tange Lab and its associates—including Arata Isozaki as well as members of the Metabolism group—in the overall planning of Expo '70, and their collaboration with visual artists and filmmakers in designing multimedia exhibitions, suggests that one cannot and should not separate the history of architecture from the history of visual arts in this case. To do so would obscure the multiplicity and contradictory conceptions of environment operative in the multimedia interdisciplinary exchanges that characterized art and architectural movements in Japan and abroad during this period. One case in point is the intermediary role played by Isozaki, who was responsible for designing

the multimedia setup of the Festival Plaza.[18] Although he has often been associated with the Metabolism movement and collaborated frequently with Tange, Isozaki distanced himself from the group as he moved from biological views of environment toward a semiotic understanding of environment as a field of communications mediated by information and telecommunications technologies.[19]

Isozaki was one of the principal organizers of the landmark art exhibition From Space to Environment (Kūkan kara kankyō e), held in Tokyo in November 1966. The exhibition was organized by the interdisciplinary art collective Enbairamento no kai (a title they translated as "Group Environment"). Yoshimoto argues that the group was influential in disseminating the concept of the environment among various circles of artists and art critics.[20] In 1968 Isozaki also established a design firm with visual artist Katsuhiro Yamaguchi, a fellow member of Group Environment and a main designer of the Mitsui Group pavilion at Expo '70. In a nod to Asada's Environmental Development Center, Isozaki and Yamaguchi named their company Environmental Planning (Kankyō Keikaku).[21] In addition to the architectural discourse on the environment, Isozaki and Yamaguchi were fully aware of the concurrent avant-garde art movements unfolding in North America that foregrounded the interactive participation of the spectator. The activities of Group Environment paralleled the practices of Fluxus (some artists, such as Mieko Shiomi and Kuniharu Akiyama, were involved in both groups) and the Japanese art collective Gutai, as well as the work of Allan Kaprow, whose "environments," large-scale assemblages or installations, had attempted to obliterate the distinction between the gallery space and the artwork.[22]

Expanded Cinema and Environmental Art at the Expo '70 Festival Plaza

The introduction of expanded cinema to Japan coincided with this upsurge of artistic interest in the construction of an interactive intermedial environment as art. Cinema became a medium with which to theorize and think through the construction of the environment as an object of architectural design and to raise the vexed question of appropriating military technologies for art. Take, for instance, art critic Yūsuke Nakahara's essay, "The Expansion of Time and the Decline of the Image," published in the February 1969 issue of the film journal *Kikan firumu*. Citing McLuhan's thesis on the tactility of electronic media, Nakahara argues that the primacy of tactility over vision in the Information Age explains the increased attention paid to the notion of the environment by artists. Expanded cinema belonged to this general shift toward an environmental—tactile, interactive, and extensive—art.[23]

Within this context, the work of Stan VanDerBeek and, in particular, his Movie-Drome, a hemispheric theater designed for multiple

projections, became icons of expanded cinema in Japan. VanDerBeek's films were first screened in Japan in 1966, the same year From Space to Environment was organized. Experimental filmmaker Takahiko Iimura—together with New York–based experimental filmmaker and critic Kenji Kanesaka—curated the July 1966 Japan–U.S. Underground Cinema show at the Sōgetsu Art Center, which presented films by VanDerBeek alongside films by Stan Brakhage, Donald Richie, and Iimura.[24] This was also the same year that VanDerBeek participated in the New York Film Festival's symposium on expanded cinema. Recalling his first impressions of the Movie-Drome (which he experienced at Stony Point after the New York Film Festival in September of 1966), Iimura called VanDerBeek "the leader of the Environmental Cinema movement."[25]

In the following year, avant-garde filmmaker and film theorist Toshio Matsumoto championed VanDerBeek as the representative practitioner of expanded cinema. Taking the Movie-Drome as the prototype of expanded cinema, Matsumoto wrote, "What is called expanded cinema or intermedia is a movement that rejects the traditional format of film projection; it transgresses the very boundary of cinema through its interactions with cutting edge practices in visual art and music."[26] Thoroughly impressed, Matsumoto paid a visit to VanDerBeek's home in Stony Point in 1968. In February 1969 VanDerBeek was in turn invited to Japan (along with John Cage, Merce Cunningham, Robert Ashley, Gordon Mumma, Salvatore Martirano, and David Rosenboom) to participate in an international event, *Cross Talk: Intermedia*. In collaboration with the American Cultural Center in Tokyo, Japanese and American composers Kuniharu Akiyama, Jōji Yuasa, Roger Reynolds, and his wife Karen Reynolds took the initiative in organizing this event in Tokyo. VanDerBeek presented *Found Forms* (1969) and a film from the *Poem-Field* series, while Matsumoto and Iimura presented their expanded cinema works *Projections for Icon* (1969) and *Circle* (1969), respectively.[27] Two months later, art critic Kōichirō Ishizaki published his interview with VanDerBeek, who argued that the purpose of using a dome-shaped architecture was "to make full use of the very environment of environmental art."[28] He thus made clear that the architectural design of the Movie-Drome was key to the environmental aspect of his film performance.

What VanDerBeek did not overtly discuss, however, was the connection between the Movie-Drome and Cold War architecture. As Jacob Proctor argues, VanDerBeek was profoundly affected by the nuclear arms race, modeling the Movie-Drome in part on the ubiquitous backyard bomb shelter and addressing the issue of nuclear warfare in his films. His use of the multiprojection format was directly informed by the military practice of projecting multiple

types of information onto a planar surface.[29]

As has been argued by numerous art historians in recent years, artists' claims for the sensory and political emancipation made possible by participatory and multimedia art forms such as expanded cinema, happenings, installation art, and performance art are troubled by their reliance upon the very military technologies and political techniques from which those same artists sought to escape.[30] VanDerBeek's utopian vision of global communication facilitated by a network of communications satellites and multiple Movie-Dromes across geopolitical boundaries was exemplary in this regard.

VanDerBeek was not alone in his utopianism. Many of the multimedia environments featuring expanded cinematic works at Expo '70 (and often housed inside its dome-shaped pavilions) projected similarly utopian images of emancipation through sensory immersion and the expansion of consciousness. A number of pavilions displayed attractions based on multiple screen projections and surround sound effects. The Toshiba IHI pavilion, designed by Metabolist architect Kishō Kurokawa, boasted a 360-degree cinematic experience inside a gigantic dome. The textile pavilion, produced by Matsumoto and designed by visual artist Tadanori Yokoo, featured Matsumoto's expanded cinema piece *Space Projection Ako*, which made use of ten film projectors, eight slide projectors, and fifty-seven speakers.[31] The Mitsui Group pavilion, produced by Yamaguchi, was equipped with three giant screens and three rotating mobile platforms that lifted hundreds of spectators at once. Its main attraction, *Space Revue*, relied on eighteen film projectors, nine slide projectors, three strobe-light projectors, and 1,726 speakers. Yamaguchi called it a work of "total theater," emphasizing the immersive effects of the circular screens and sonic environment.[32]

In a variation on the combination of utopian vision and Cold War paranoia found in VanDerBeek, the utopian vision of Expo '70 was held in tension with the emergent paradigm of urban governance aided by technologically mediated surveillance. In spite of the leveling and liberating effects intended by architects and filmmakers, most visitors moved through these pavilions in a programmed manner under the vigilant gaze of security guards. Spectators at the Mitsui Group pavilion, for instance, were passively carried away by a mobile platform operated by technicians sitting in an adjacent con-

Katsuhiro Yamaguchi. *Space Revue*, 1970. Mitsui Group Pavilion, Expo '70, Tokyo. Video still from *Kōshiki kiroku eiga: Nihon bankokuhaku 40 shūne kinen*, 2010.

trol room. In the case of the Mitsubishi Future pavilion, which featured the spectacle of multiple screen projections with the use of gigantic mirrors and smoke, visitors were corralled along a moving walkway.[33] No one was allowed to deviate from the preprogrammed paths. The supposedly nonhierarchical potential of the expanded cinema and environmental art housed inside these pavilions was thus undermined by their very design. Equally detrimental was the disciplinary effect of security operations. Because popular attractions such as the U.S. pavilion's space technology exhibit drew large crowds, two to three hundred security guards had to be stationed at all times to manage pedestrian traffic.[34] Moreover, the systems of surveillance and governance often relied on the same technologies used by architects and filmmakers to stage their multimedia environments.

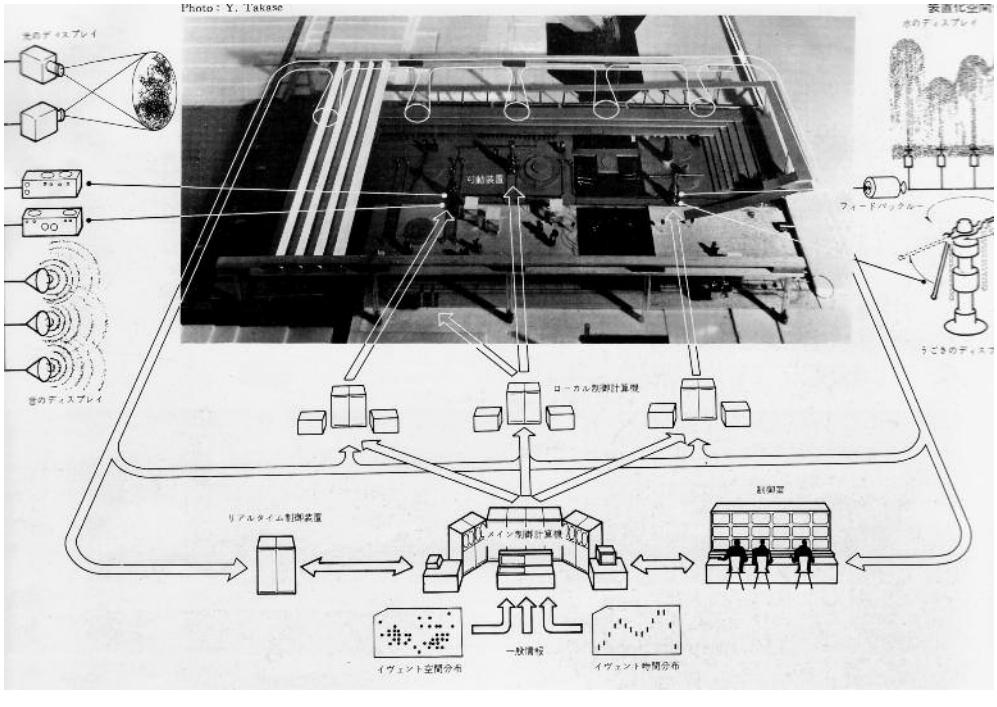
The architect whose work most emblematized the tension between surveillance and spectacle was Isozaki. Although Isozaki was not directly involved in the planning of the Mitsui Group pavilion, the multimedia setup of the Festival Plaza echoed Yamaguchi's vision of total theater. Isozaki hoped that the Festival Plaza would be a site of spontaneous communion where spectators, performers, and mechanical apparatuses came together. Isozaki envisioned the plaza to be the prototype of what he called the "Cybernetic Environment," a field of electronic communication in which "humans and machines become unified within space-time to form a dynamic totality."[35] The Festival Plaza was equipped with elaborate illumination, projection, and sound systems connected to computers set in an adjacent control room. These computers could activate preprogrammed patterns as a complement to onsite workers who operated these apparatuses manually.[36] According to Isozaki, what he had in mind was the Mission Control Center at the U.S. National Aeronautics and Space Administration (NASA), which he had visited in 1967 while researching for Expo '70. Recalling the time he first saw the Mission Control Center, Isozaki notes,

> It was the time I was writing my essay, "The Invisible City," and the Control Center seemed like a perfect model of control and operation, which could handle complex levels of urban design and diverse social phenomena. I thought that if computers could control the Apollo Mission, they should be able to control society. So I decided to turn the Festival Plaza into a miniature version of this operation.[37]

Isozaki's evocation of the Mission Control Center as a model for designing the Festival Plaza is evidence of his understanding of the environment as an invisible network of information and communication governing a homeostatic system consisting of solid material

objects and pliant subjects. By the late 1960s Tange, Isozaki, and Metabolist architects alike had redefined the city—emblematized by the Festival Plaza—in cybernetic terms. Tange and his students at Tange Lab had already imagined the city as a living organism exposed to metabolic processes of digestion, energy transfer, the elimination of waste, and the maintenance of internal equilibrium. Cybernetics and information theory allowed them to emphasize the communication and transportation networks that structured the city, which they considered vital to its self-regulation, while retaining the biological metaphors so crucial to earlier manifestations of Metabolism. Isozaki's vision of the Festival Plaza shares this cybernetic paradigm of homeostasis.[38]

The goal of self-regulation, however, proved elusive. Isozaki's conception of the Festival Plaza was, marked by a tension between the master designer who programed the equilibrium of the environment and the artist who inserted incalculable elements of chance and indeterminacy into this ostensibly stable environment. In spite of his evocation of control-room aesthetics, Isozaki's intention was to resist exerting total control over the system. In addition to the main control room, equipped with computers responsible for coordinating the entire operation (using a specially developed computer program, Display Instruments Systematic Programming Language at Anytime by Yourself), Isozaki and engineer Yoshio Tsukio also designed two robots. The heads of the robots housed secondary control rooms, while their bodies contained built-in sensors that responded to changing lights and sounds in the surrounding environment and sent back signals to the main control room, which in turn modulated the lighting, sound, smoke, and mist machines that constituted the multimedia setup of the Festival Plaza.[39] In effect, the robots operated as elements of indeterminacy that affected the Festival Plaza's operations.



Arata Isozaki. Plan of the Festival Plaza. From *Kenchiku bunka*, January 1970. Courtesy Arata Isozaki.

Isozaki's 1967 essay "The Invisible City" provides a theoretical support for the conception and design of the Festival Plaza. In the essay he argues that the cybernetic environment of the future must meet the following conditions: (1) the environment will have a protective membrane that maintains an equilibrium within it; (2) any space will be interchangeable with any other space; (3) it will be equipped with various movable mechanical devices; (4) it will allow for a human-machine interface; and (5) it will possess a feedback circuit that supports self-learning.[40] The theorization of this networked cybernetic environment was a direct result of his preparatory research on the Festival Plaza, which he conducted with the members of Group Environment.[41] Foregrounding the idea of the city as a constant process of dissolution, metabolism, and flow, which disoriented residents and planners alike, Isozaki emphasized the subjective perception of relations between objects instead of the objective measurement of distance between objects. For Isozaki, cybernetics and systems theory had enabled architects to design the city based on these relational elements. The introduction of computers also marked a shift away from the industrial "coordination" model of urban planning to the new "simulation" model of urban design appropriate for a postindustrial society.[42] Simulation-based operations and networked control rooms thus became the model of urban design.

Security Operations

The control room as the model of urban design was already close to realization by the time of Expo '67 in Montreal. In 1967 the journal *The Japan Architect* published a special issue on Expo '67 highlighting the exposition's Operations Control Center, located on the Ile Sainte-Hélène. "For the first time in the history of world expositions, Expo '67 employs a completely computerized management system," the report notes. The report then goes on to describe the Operations Control Center in detail:

> Also known as the Cybernetics Center, the building is open to the public, though its heart, the control room, is strictly off limits. The centre is in the mid-section of the grounds, at some distance from the Corporation's main office on Cité du Havre. The designers have taken fairly conscious pains to display the computers symbolically in a glass-enclosed building, which is itself moderate in form and scale. The following is how we imagine the control room must look. It contains a large control board (16.5 x 5.4 m) loaded with switches and buttons. In front of the board sit four operators. In the center of the board is a map of the grounds (5.5 x .34 m). Monitor television screens ranged on either side flash on-the-spot broadcasts from all over

> the grounds. In other words, the room is an orthodox equipment space. Should, for instance, a fire break out at La Ronde, in response to contact from the La Ronde control branch, a red light would flash on in the La Ronde section of the master control board.[43]

The extraordinary attention paid by *The Japan Architect*—two full pages—to the design of the Operations Control Center and its computerized system of planning and management suggests that for Japanese architects the issue of efficient management of the World's Fair and the use of networked systems of communication and information for security operations were deeply intertwined.

The contemporaneous response to the Operations Control Center was, however, not devoid of criticism. Writing for the journal *Architectural Review*, Jeremy Baker, a British architect based in Montreal at the time, described the computerized system of management adopted by Expo '67 organizers as "a form of benevolent despotism." In Baker's analysis, even crisis management appears as a calculated component of the systematic operation of the fair. Noting the efficiency of crowd control undertaken by the Operations Control Center, Baker writes, "Should the situations room see a bottleneck on the site, the gallant Expo Band is ordered into action to siphon off some of the crowd; or if an area of the site looks dull, then a mobile pop group can be driven over there to liven up the proceedings."[44] The management of the fair thus relied on instantaneous communications between security operations and entertainment. The two were handled by the same system of control.

The confluence of crisis management and entertainment was made literal through the Operations Control Center's status as an attraction in and of itself. As Montreal's city newspaper the *Gazette* reported, "Apparatus in the Security Headquarters is so sophisticated that the building has been classified as an exhibit and visitors can watch the emergency equipment at work through an observation window."[45] This elevation of the Operations Control Center to a multimedia spectacle in its own right formed a scientific counterpart to the artistic displays of expanded cinema. Like the Festival Plaza at Expo '70, the Operations Control Center at Expo '67 provided a networked information environment in which the apparatuses of communication and control became a source of excitement in themselves.

Building on its precursor in Expo '67, the Operations Control Center of Expo '70 went even further in monitoring, tracking, and managing visitors. Expo '70's more-systematic monitoring contrasts even more starkly with the stated aims motivating the expanded cinema and environmental artworks housed inside its pavilions. The difference between the policing and the display functions of these two multimedia environments is crucial, highlighting the tensions

already noted in relation to individual pavilions at Expo ’70. The Operation Control Centers at Expo ’67 and Expo ’70 were more faithful replicas of NASA’s Mission Control Room than Isozaki’s Festival Plaza. At the core of the Operations Control Center at Expo ’70, for instance, were four mainframe computers connected to numerous terminals scattered across the fair site that processed data ranging from pedestrian traffic to lost children. The headquarters of the Expo ’70 security team also had its own situation room. There a flashing map of the exposition grounds was surrounded by dozens of television monitors, videophones, and rows of control panels and switchboards that formed a semicircular information environment.

The security operations at Expo ’70 also received critical attention. The most emblematic case was “Operation Buffalo” (*Baffarō sakusen*), a military-inspired crowd-control strategy that was designed to prevent a stampede. The strategy was devised by a former Self-Defense Forces officer and has since made its way into Japanese security-guard manuals and textbooks.[46] As the metaphor of the wild beast in Operation Buffalo suggests, what the Expo security guards feared most was the potential of rioting. A takeover of this simulated urban environment by uncontrolled crowds was something that both the police and security officers had anticipated and tried to stave off. From the fair’s initial planning in the mid-1960s, the government had put the issue of crowd control at the top of its agenda. In May 1965 Japan’s bid to hold the fair in Osaka was approved by the Bureau of

***Expo Life at Expo 67—Operations and Control, Montréal, Quebec*, 1967. The Operations Control Center at Expo ’67. Photo © Government of Canada. Reproduced with the permission of the Minister of Public Works and Government Services Canada (2012). Source: Library and Archives Canada/Canadian Corporation for the 1967 World Exhibition fonds/e001096661.**

International Expositions in Paris. Soon after, the government established the Japan World Exposition Association Security Team, recruiting members from both the public and private sectors. The members of this special security team ranged from local police officers and the Self-Defense Forces to employees of private security companies. Private security and communications companies lent their manpower, and the metropolitan police department dispatched delegates to Montreal to observe security measures undertaken at Expo '67.[47] The cost of developing and installing closed-circuit televisions, videophones, laser devices, and computers to create networked security systems was over $350 million.[48]

Given the specific timing of Expo '70, which coincided with the protests against the renewal of the Japan–U.S. Security Treaty, and given the significant amount of criticism the fair garnered from the New Left student activists and artists who were critical of its function as state propaganda, the organizers and the security team not surprisingly poured much effort into crowd control. According to Osaka Metropolitan Police records, officials expected massive protests against Expo '70 and later gloated that they had prevented the protests from disrupting events during the fair.[49] Memories of the Shinjuku riots of 1968—during which the antiriot law was invoked and hundreds of youths protesting against the Vietnam War were indiscriminately arrested—were still fresh in the minds of many engaged in the planning of the fair.[50] Within this heated political climate, the novel techniques of governance used at Expo '70 found an immediate application outside the fair compound.

By 1970 government at various levels had taken several preventive measures in the area of urban governance as well. For instance, the municipal government of Tokyo had rebuilt entire sidewalks by demolishing stone pavements and covering them with asphalt so that protestors could not use paving stones as weapons during

protests.[51] Another measure was the renaming of Shinjuku Station's West Exit Underground Square in 1969. This square was frequently used for peaceful demonstrations, drawing crowds of hundreds.[52] In order to take back the occupied square, the city of Tokyo changed the name from West Exit Underground Square to West Exit Underground Passageway. By designating the space as a passageway instead of a square, the police were able to apply traffic laws and arrest anyone who refused to *pass through* the square.[53] The suppression of public dissent by means of redesigning urban space (or simply renaming it) was not limited to these incidents. The appearance of the so-called Pedestrian Paradise (*hokousha tengoku*), which prevented not only automobiles but street performances and political assembly, is a case in point. First implemented in 1970, the Pedestrian Paradise provided "a perfectly controlled event space," one pervaded by a semblance of freedom in spite of the tightly managed atmosphere.[54]

In light of such policies, much media hype surrounded the elite Expo '70 security team. The sharp growth of the private security industry during the 1960s contributed to this hype. Nihon Keibihoshō (now known as SECOM), the first private security service company in Japan, and now its largest, was established in 1962. The Tokyo Olympics Organizing Committee hired the company to guard the Olympic Village during the 1964 Tokyo Olympics. Media attention around its success helped spur the growth of the industry. By the mid-1970s more than 1,900 private security firms were operating in Japan.[55] Also notable are the concurrent technological developments, including Nihon Keibihoshō's Security Patrol Alarm System, which used private telephone lines leased from Nippon Telegraph and Telephone Corporation to provide online security services to banks, government buildings, factories, and small businesses, replacing the patrolling services used previously.[56]

The gradual transformation of security businesses from labor-intensive patrolling services to networked communications services, initiated by Nihon Keibihoshō, echoed the concurrent discourse around information society, which Expo '70 ostensibly simulated. Armed with its computerized system of management and its multimedia setup, the Operations Control Center of Expo '70 provided the idealized image of security that the government and industry wished to project. Standing on the other side of the Expo '70 compound,

Opposite: Expo '70 security team. Video still from *Project X: Osaka Banpaku shijō saidai no keibi sakusen*, 2005.

Below: The Operations Control Center at Expo '70. Video still from *Kōshiki kiroku eiga: Nihon bankokuhaku 40 shūne kinen*, 2010.

away from the Festival Plaza and pavilions that enticed visitors with multimedia spectacles, the Operations Control Center represented an ideological and functional counterpart to the experimental spirit of expanded cinema and environmental art.

The regulatory mechanisms of policing and surveillance, modeled as multimedia systems and aided by networked communications, form a much darker and somber counterpart to the types of artistic multimedia environments that emerged in the 1960s. Focusing on control rooms and expanded cinema, two exemplary multimedia environments that gained attention around the time of Expo '70, this essay has brought to the fore the historical resonance between the architectural practice of designing the environment, the artistic practice of constructing the environment, and the governmental practice of managing the environment. While each practice approaches the notion of the environment differently (and to markedly different ends), they share similar concerns over information and communications technologies. The artistic use of multiple screens to create immersive environments and the regulatory use of multiple monitors within control rooms to manage crowds in urban environments form two poles of the same multimedia spectrum. Moreover, these two poles are mediated by the practice of architects who design networked environments that are at once the sites of artistic experimentation and the locus of securitization and control.

Computers, multiple screens, electronic surveillance, and networked information systems have become so integral to our daily life that we no longer pay close attention to their presence. These media have become environmental, to paraphrase McLuhan. But the processes by which they have become pervasive, ubiquitous, and thus invisible, needs to be historicized. Returning to Expo '70 is one way to historicize these processes, and reimagine the moment when simulations of such ubiquity commanded attention and excitement. As a laboratory for both artistic experimentation and urban governance, the legacy of Expo '70 is significant, though much of the existing accounts of it focus on its artistic contributions. Somewhat forgotten is its legacy in developing a simulated model of the information city, and methods of surveillance that shape the contours of urban design in Japan today. If Expo '70 operated as a laboratory or as a site of simulation and offered the promise of a better future, we can with hindsight, from an era of heightened security and pervasive information surveillance, wonder: Would the future have been different if these simulations had never been actualized?

Notes

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1. Kimura Tsuneyoshi, "Shimyureeshon" [Simulation], *Dezain* [Design] 131 (March 1970): 20.

2. Robert Rydell, "World's Fairs and Museums," in *A Companion to Museum Studies*, ed. Sharon Macdonald (Malden, MA: Wiley-Blackwell, 2011), 136. On the political function of the world's fairs and exhibition design as an apparatus of disciplinary power, see, Tony Bennett, "The Exhibitionary Complex," in *Culture/Power/History: A Reader in Contemporary Social Theory*, ed. Nicholas B. Dirks, Geoff Eley, and Sherry B. Ortner (Princeton: Princeton University Press, 1994), 123–54. Highlighting the connection between the ephemerality of commodity and visual spectacle, Tom Gunning also notes a dual role of cinema in training visitors as future consumers. See Tom Gunning, "The World as Object Lesson: Cinema Audiences, Visual Culture and the St. Louis World's Fair, 1904," *Film History* 6, no. 4 (Winter 1994): 423. Haidee Wasson offers an insightful analysis of the historical development of small, portable film screens and their corporate appropriation at the 1939 World's Fair in New York. See Haidee Wasson, "The Other Small Screen: Moving Images at the New York's World Fair, 1939," *Canadian Journal of Film Studies* 21, no. 1 (Spring 2012): 81–105. On the connection between Japan's world's fairs and politics in the postwar period, see Yoshimi Shunya, *Banpaku to sengo Nihon* [World's fairs and postwar Japan] (Tokyo: Kōdansha, 2011). For an overview of the history of world's fairs, see Erik Mattie, *World's Fairs* (New York: Princeton Architectural Press, 1998).

3. Tange Kenzō, *Kenchiku to toshi* [Architecture and the city] (Tokyo: Shōkokusha, 2011), 173. See also, "Aatisuto-Aakitekuto no jidai" [The era of the artist-architect], interview with Arata Isozaki by Yasuko Imura, Yuriko Furuhata, and Shigeru Matsui, *Tokyo Geijutsu Daigaku Daigakuin Eizōkenkyūka kiyō* [Tokyo University of the Arts Graduate School of Film and New Media Studies Journal] (March 2013): 65–107.

4. Yatsuka Hajime, *Metaborizumu nekusasu/Metabolism Nexus* (Tokyo: Ohmsha, 2011), 400.

5. On the connection between the development of the military-industrial complex and the countercultural, artistic appropriations of cybernetics and systems theory in the United States during the 1960s, see Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: The University of Chicago Press, 2006).

6. A salient example of Japan's covert participation in the Cold War arms race is the Self-Defense Forces' computerized Base Air Defense Ground Environment system, or BADGE, introduced in 1969. Modeled after the Semi-Automatic Ground Environment system (SAGE), BADGE introduced the computerized network into the semiautomated air defense system. According to Paul Edwards, "SAGE—Air Force project 416L—became the pattern for at least *twenty-five* other major military command-control systems of the late 1950s and early 1960s (and, subsequently,

many more). These were the so-called 'Big L' systems, many built in response to the emerging threat of intercontinental ballistic missiles (ICBMs). They included 425L, the NORAD system; 438L, the Air Force Intelligence Data Handling System; and 474L, the Ballistic Missile Early Warning System (BMEWS). SAGE-like systems were also built for NATO (NADGE, the NATO Air Defense Ground Environment) and for Japan (BADGE, Base Air Defense Ground Environment)." See, Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA: MIT Press, 1996), 107. Emphasis in the original.

7. Edwards, 14.

8. Hyunjung Cho, "The Model City of an Information Society," in "Expo '70 and Japanese Art: Dissonant Voices," ed. Midori Yoshimoto, special issue, *Review of Japanese Culture and Society* 23 (December 2011): 59; and William O. Gardner, "The 1970 Osaka Expo and/as Science Fiction," in "Expo '70 and Japanese Art: Dissonant Voices," ed. Midori Yoshimoto, special issue, *Review of Japanese Culture and Society* 23 (December 2011): 29. While Umesao's book *Jōhō sangyō ron* [On the information industry] (Tokyo: Chūokōron, 1963) helped bring attention to the concept of *jō hō* (information) in Japan, Fritz Machlup's *The Production and Distribution of Knowledge in the United States* (1962; Princeton: Princeton University Press, 1973) was the first book to popularize the notion of "information society" in the West. Machlup's book was translated into Japanese in 1969, the same year Yūjirō Hayashi's influential *Jōhōka shakai: Haado na shakai kara sofuto na shakai e* [Informatized society: From hard society to soft society] (Tokyo: Kōdansha, 1969) was published. Architects close to Tange, such as Kishō Kurokawa and Atsushi Shimokōbe also wrote extensively on the challenges and promises posed by informatization and computerization of society. See Shimokōbe Atsushi, ed., *Jōhōka shakai to no taiwa: Mirai Nihon no jōhō netto waaku* [Dialogues on information society: Information networks of future Japan] (Tokyo: Tōyō keizai shinpōsha, 1970); and Kurokawa Kishō, *Jōhō rettō Nihon no shōrai* [The future of information archipelago Japan] (Tokyo: Dai san bunmeisha, 1972).

9. Fumihiko Maki, a graduate of Tange Lab and a member of the Metabolist group once noted that the lab "had qualities of both the atelier of an artist and the laboratory of a scientist. The artistic side of design studio was then and is today well understood, but the scientific laboratory's mode of investigation required the existence of issues that could be clearly tested and solved." Fumihiko Maki, *Nurturing Dreams: Collected Essays on Architecture and the City*, ed. Mark Mulligan (Cambridge, MA: MIT Press, 2008), 13.

10. Toyokawa Saikaku, *Gunzō to shite no Tange Kenkyūshitsu: Sengo Nihon kenchiku toshi shi no meinsutoriimu* [A group portrait of the Tange Laboratory: The mainstream of postwar Japanese architecture and urban history] (Tokyo: Ohmsha, 2012), 44. On Tange Lab's impact on social and economic policies, see also Toyokawa Saikaku, "The Core System and Social Scale: Design Methodology at the Tange Laboratory," trans. Watanabe Hiroshi, in *Kenzō Tange: Architecture for the World*, ed. Seng Kuan and Yukio Lippit (Zurich: Lars Müller Publishers and the President and Fellows of Harvard College, 2012), 15–28.

11. Biopolitics is a mode of governance aimed at the economic management of a population within a given territory. Operating alongside disciplinary mechanisms that individuate, the modern regime of biopolitical governance relies on regulatory mechanisms of security and targets the life of the entire population as its object. See Michel Foucault, *Society Must Be Defended: Lectures at the Collège de France, 1975–1976*, trans. David Macey, ed. Mauro Bertani and Alessandro Fontana (New

York: Picador, 2003), 240. See also Mitchell Dean, *Governmentality: Power and Rule in Modern Society* (London: Sage Publications, 1999), 20.

12. Toyokawa, *Gunzō to shite no Tange Kenkyūshitsu*, 39–41; Toyokawa, "The Core System and Social Scale," 19.

13. Sawaragi Noi, *Sensō to banpaku* [War and world's fairs] (Tokyo: Bijutsu shuppansha, 2005), 20. The original Japanese name for Environmental Development Center Inc. is Kabushikigaisha kankyō kaihatsu sentaa.

14. Hyunjung Cho, "Competing Futures: War Narratives in Postwar Japanese Architecture 1945–1970" (Ph.D. diss., University of Southern California, 2011), 187.

15. Yatsuka Hajime, "Metaborizumu gurūpu no seiritsu" [The establishment of the Metabolist group], in *Metaborizumu: 1960 nendai Nihon no abangyarudo* [Metabolism: The 1960s Japanese avant-garde], ed. Yatsuka Hajime and Yoshimatsu Hideki (Tokyo: INAX shuppan, 1997), 18–20.

16. On Gotō's *Principles of National Hygiene*, see Ruth Rogaski, *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China* (Berkeley and Los Angeles: University of California Press, 2004). Rogaski writes, "Echoing themes found in the works of Herbert Spencer, Gotō first established that individual human lives were motivated by the struggle for survival and the desire to satisfy physical needs. When humans came together to form society, however, the struggle for survival between individuals ran counter to the interests of the whole. Therefore, the responsibility for the maintenance of health was transferred to the nation. The nation itself becomes a biological entity, a 'national organism' (*yūkitaiteki kokkai* [*sic*]) or 'corporal nation' (*jintaiteki kokka*) through which the satisfaction of the biological needs of the individual are realized" (153).

17. Midori Yoshimoto, "From Space to Environment: The Origins of Kankyō and the Emergence of Intermedia Art in Japan," *Art Journal* 67, no. 3 (Fall 2008): 24–45; and Midori Yoshimoto, "Expo '70 and Japanese Art: Dissonant Voices: An Introduction and Commentary," *Review of Japanese Culture and Society* 23 (December 2011): 1–12.

18. Sawaragi, *Sensō to banpaku*, 21.

19. The notion of environment for Isozaki is closely related to his understanding of urban design. Moreover, at this point he saw the future of urban design as residing in attention to the networked relations between electrical signals and data transmitted by the computer, radio, telephone, and television. The movement of information determines the environment. For instance, he writes, "Aggregates of various invisible signs and codes—flickering lights, acoustic sounds, telecommunications, traffic, activities, and trajectories of moving objects—surround us. They act directly on our senses, calling forth complex haptic sensations within us." Isozaki Arata, "Mienai toshi" [The invisible city], in *Kūkan e: Kongen e to sokō suru shikō* [Toward space: Thinking against the current towards the origin] (Tokyo: Kajima Shuppankai, 1997), 378; my translation. See also Arata Isozaki, "The Invisible City," in *Architecture Culture 1943–1968: A Documentary Anthology*, ed. Joan Ockman (New York: Columbia Books of Architecture, 1993), 403–497. Isozaki also discusses the concept of environment and its connection to urban design in his published dialogue with art critic Yoshiaki Tōno. See, Isozaki Arata and Tōno Yoshiaki, "*Kankyō* ni tsuite" [On "environment"], *Bijutsu techō* [Art notebook] 257 (November 1966): 91–105.

20. Sawaragi, *Sensōto banpaku*, 71; and Yoshimoto, "From Space to Environment," 28. On the detailed history of postwar performance art and intermedia, see KuroDalaiJee, *Nikutai no anaakizumu: 1960 nendai Nihon bijutsu ni okeru*

pafōmansu no chika suimyaku [Anarchy of the body: Undercurrents of performance art in 1960s Japan] (Tokyo: Grambooks, 2010).

21. Isozaki Arata and Hino Naohiko, "Taaning pointo: Kūkan kara kankyō e" [Turning point: From space to environment], *10+1* 48 (2007): 197.

22. The art journal *Bijutsu techō* also published a special report on the happening staged during the From Space to Environment exhibition. See, Yoshimura Masunobu, "Happening: '*Kūkan kara kankyōe*'" [Happening: 'From space to environment'], *Bijutsu techō* [Art notebook] 278 (January 1967): 89–91. According to Kaprow, not only does the exhibition space become part of the environment artwork, so does the spectator. See Paul Schimmel, "'Only Memory Can Carry It into the Future': Kaprow's Development from the Action-Collage to the Happenings," in *Allan Kaprow: Art as Life*, ed. Eva Meyer-Hermann, Andrew Perchuk, and Stephanie Rosenthal (London: Thames and Hudson, 2008); and William R. Kaizen, "Framed Space: Allan Kaprow and the Spread of Painting," *Grey Room* 13 (Fall 2003): 80–107. On the connection between Kaprow and Gutai, see Ming Tiampo, *Gutai: Decentering Modernism* (Chicago: The University of Chicago Press, 2010).

23. Nakahara Yūsuke, "Jikan no kakuchō to eizō no chōraku" [The expansion of time and the decline of the image], *Kikan firumu* [Film quarterly] 2 (February 1969): 138. That Nakahara draws a connection between expanded cinema, environment, and McLuhan is not coincidental. Noteworthy here is the 1967 Japanese translation of McLuhan's *Understanding Media: The Extensions of Man* (1964), which bears the word *kakuchō* ("extension" or "expansion"), the same word used to translate the term *expanded cinema*. In his detailed analysis of *Cross Talk*, Kōichirō Ishizaki also positions the phenomenon of expanded cinema as part of the general shift toward boundary-crossing artistic experiments that encompass diverse fields of contemporary music, dance, performance art, painting, and cinema. Expanded cinema, in Ishizaki's view, belongs to the lineage of "happenings," "intermedia," and "kinetic environment." See Ishizaki Kōichirō, "Geijutsu o norikoeru mono: Busshitsu kan kara no kaihō" [What overcomes art: Liberation from materialism], *Bijutsu techō* [Art notebook] 311 (April 1969): 75–94.

24. Julian Ross, "As I See You You See Me," *Vertigo* 31 (Winter 2012), http://www.closeupfilmcentre.com/vertigo_magazine/issue-31-winter-2012-in-conversation/as-i-see-you-you-see-me/.

25. Takahiko Iimura, *The Collected Writings of Takahiko Iimura* (Rockville, MD: Wildside Press, 2007), 47.

26. Matsumoto Toshio, "Andaaguraundo shinema" [Underground cinema], in *Gendai eiga jiten* [Contemporary encyclopedia of cinema], ed. Okaꜜı Susumu et al. (Tokyo: Bijutsu shuppansha, 1967), 281.

27. Yuasa Jōji, "Hirogerareta kūkan e no kairo" [A circuit toward expanded space], *Bijutsu techō* [Art notebook] 311 (April 1969): 96–134.

28. Ishizaki Kōichirō, "Sekai no tame no paneru: Sutan Vandaabiku o kakonde" [A panel for the world: With Stan VanDerBeek], *Eiga hyōron* [Film criticism] 26, no. 4 (April 1969): 76.

29. Jacob Proctor, "From the Ivory Tower to the Control Room," in *Stan VanDerBeek: The Culture Intercom*, ed. Bill Arning and João Ribas (Cambridge, MA: The MIT List Visual Arts Center/Contemporary Arts Museum Houston, 2011), 104–105. Fluxus artist George Maciunas's "expanded arts" diagram published in the Winter 1966 issue of the journal *Film Culture* and Sheldon Renan's *An Introduction to the American Underground Film* (New York: E.P. Dutton, 1967) both allude to the work of architects Charles Eames and Ray Eames. In particular, they

allude to the Eameses experiment with multiple screens in projecting the film *Glimpses of the USA* (1959) at the American National Exhibition in Moscow. Beatriz Colomina in turn suggests that *Glimpses of the USA* "simulates the operation of satellite surveillance" and mimics the design of the war-situation room through its use of the multiple screen format: "[T]he technological model for multiscreen, multimedia presentations may have been provided by the war-situation room, which was designed in those same years to bring information in simultaneously from numerous sources around the world so that the president and military commanders could make critical decisions." Beatriz Colomina, *Domesticity at War* (Cambridge, MA: MIT Press, 2007), 260. As Barry Katz argues, during World War II the U.S. Office of Strategic Services and its "visual presentation" unit worked toward developing a situation room outfitted with multiple film screens, slide projectors, and a "Variable-Speed Statistical Visualizer," though this room was not built in the end. Barry Katz, "The Arts of War: 'Visual Presentation' and National Intelligence," *Design Issues* 12, no. 2 (Summer 1996): 3–21. John Harwood's *The Interface: IBM and the Transformation of Corporate Design 1945–1976* (Minneapolis: University of Minnesota Press, 2011) also offers an insightful analysis of the Eameses' design of the IBM pavilion at the 1964 New York World's Fair and their pedagogical use of multiple screen projections to spectacularize and naturalize the computer.

30. As Janet Kraynak argues in her analysis of Bruce Nauman's environments (or multimedia installations), the very concept of participation that became prominent during the 1960s needs to be historicized in relation to the technocratic paradigm of participation as a new form of submission. See, Janet Kraynak, "Dependent Participation: Bruce Nauman's Environments," *Grey Room* 10 (Winter 2003), 26–27.

31. Matsumoto Toshio, *Eiga no henkaku* [Transformation of cinema] (Tokyo: San'ichi Shobo, 1972), 192.

32. Yamaguchi Katsuhiro, "Tōtaru shiataa no kokoromi" [An experiment with total theater], *Bijutsu techō* [Art notebook], 326 (April 1970): 9–19. Yamaguchi was interested in the work of the architect and theater designer Frederick John Kiesler. The phrase "total theater" also evokes the Bauhaus vision of a total theater that broke down the boundary between the stage and the audience. See Yamaguchi Katsuhiro, *Kankyō geijutsuka Kiisuraa* [Environmental artist Kiesler] (Tokyo: Bijutsu shuppansha, 1978). On the connection between multiple screen projections and "environmental theater," see also, Michael Kirby, "Environmental Theatre," in *Total Theatre: A Critical Anthology*, ed. E.T. Kirby (New York: E.P. Dutton, 1969), 265–280.

33. Fujiki Hajime and Suzuki Hideo, "Mitsubishi Miraikan no onkyō sekkei gijustu" [Technology of sound design for the Mitsubishi Pavilion], *Mitsubishi denki gihō* [Mitsubishi electronic technology journal] 45, no. 2 (February 1971): 285.

34. Osakafu keisatsu honbu [Osaka Police Headquarters], ed., *Nihon bankoku hakuran kai no keisatsu kiroku* [Police records for Japan's World's Fair] (Osaka: Naniwa Insatsu, 1971), 62.

35. Isozaki Arata, "Souchika kūkan moderu to shite no omatsuri hiroba keikaku" [Plan for the Festival Plaza as a model of equipped space], *Kenchiku bunka* [Architecture culture] 279 (January 1970): 70–71.

36. Isozaki Arata, *Kenchiku zasshi* [Architecture magazine] 85 (March 1970): 219.

37. Isozaki and Hino, "Taaningu pointo: Kūkan kara kankyō e," 203.

38. The metaphor of homeostasis most frequently used by Kurokawa summarizes this relational understanding of regulation and control. See Kurokawa Kishō,

Metaborizumu no hassō [Conceptualization of Metabolism] (Tokyo: Hakubashuppan, 1972), 182. This idea of regulating temperature is something that also characterizes the vision of modernist architecture. See Reyner Banham, *The Architecture of the Well-Tempered Environment*, 2nd ed. (1969; Chicago: University of Chicago Press, 1984). On the history of the thermostat, see Michael Osman, "Regulation, Architecture and Modernism in the United States, 1890–1920" (Ph.D. diss., Massachusetts Institute of Technology, Cambridge, MA, 2008). *Homeostasis* is a term first used by physiologist Walter B. Cannon in the late 1920s to describe an organism's ability to self-regulate its internal environment. In the 1940s, homeostasis was taken up by Norbert Wiener; it had become one of the central concepts of cybernetics by the early 1960s. As Katherine Hayles argues, the idea that homeostatic regulation sustains the life of an organism or a system played an important role in the early discourse of cybernetics, before its emphasis shifted toward reflexivity. N. Katherine Hayles, "Virtual Bodies and Flickering Signifiers," *October* 66 (Autumn 1993): 80. On the centrality of homeostasis for the first wave of cybernetics, see N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999).

39. Tsukio Yoshio, an engineer who developed the computer program to run the Festival Plaza, also helped computerize the design process at Tange Lab. For more on the robots and the multimedia setup of the Festival Plaza, see Isozaki Atelier, "Sofuto aakitekuchua: Ōtōba to shite no kankyō" [Soft architecture: Environment as a responsive field], *Kenchiku bunka* [Architecture culture] 279 (January 1970): 67–93.

40. Isozaki, *Kūkan e*, 393. The essay was originally published in the November 1967 issue of the journal *Tenbō* [Panoramic viewpoint] and later collected in *Kūkan e*.

41. Isozaki Arata and Hino Naohiko, "*Kūkan e*, Omatsuri Hiroba, *Nihon no toshi kūkan*: 1960 nen dai ni okeru toshiron no hōhō o megutte" [*Toward Space*, the Festival Plaza, and *Japanese Urban Space*: On theories of the city of the 1960s], *10+1* 45 (2006): 187–197.

42. Isozaki, *Kūkan e*, 390.

43. Team Random, "The General Plan," *The Japan Architect* 133 (August 1967): 34.

44. Jeremy Baker, "Expo and the Future City," *Architectural Review* 142 (August 1967): 152. Baker's article was translated into Japanese and published in the January 1968 issue of the architectural journal *SD/Space Design*.

45. Terry Haig, "Elaborate Security System Designed to Protect Visitors at Expo," *The Gazette*, 28 April 1967. (For a digitized version of Haig's article, see http://news.google.com/newspapers?id=Tu4tAAAAIBAJ&sjid=058FAAAAIBAJ&pg=7212%2C6981879.)

46 *Project X: Osaka Banpaku shijō saidai no keibi sakusen* [Project X: Osaka Expo: The biggest security operation in history], DVD (Tokyo: NHK Enterprise, 2005).

47. Osakafu keisatsu honbu, 11–16; and H.T. Shimazaki, *Vision in Japanese Entrepreneurship: The Evolution of a Security Enterprise* (London: Routledge, 1992), 54–55, 93.

48. Hashizume Shinya, ed., *Expo '70: Pabirion: Osaka Banpaku kōshiki memoriaru gaido* [Expo '70 pavilions: Official memorial guide for Osaka Expo] (Tokyo: Heibonsha, 2010), 105.

49. Osakafu keisatsu honbu, 28. Immediately after Expo '70, Isozaki also criticized the negative effects that the excessive presence of security guards had on the Festival Plaza, which failed to serve as a space of spontaneous communication for

visitors. See Isozaki Arata, "Tekunorojii, geijutsu, taisei" [Technology, art, system], in *Geijutsu no susume* [Recommendations for art], ed. Tōno Yoshiaki (Tokyo: Chikuma Shobō, 1972), 161.

50. On the Shinjuku riots held on Antiwar Day (October 21) and other mass protests that took place in 1968, see Mainichi Shinbunsha, *1968 nen gurafitii* [Graffiti of 1968] (Tokyo: Mainichi Shinbunsha, 2010), 319.

51. "Anpo no suteishi" [Thrown stones at Anpo], *Asahi shinbun* [Asahi newspaper], 24 February 1969, 16.

51. KuroDalaiJee, 268.

52. Tsuji Shun'ichirō, *Fōku songu undō: 25 nenme no sōkatsu* [The folk song movement: An overview after twenty-five years] (Tokyo: Shinpūsha, 2001), 48.

53. Ushida Ayami, *ATG Eiga + Shinjuku* [ATG films + Shinjuku] (Tokyo: D-bungaku Kenkyūkai, 2007), 22; and "Ichinen buri 'Doyō gerira" [Saturday guerrillas one year later], *Asahi shinbun* [Asahi newspaper], 6 June 1970, 22.

54. KuroDalaiJee, 486.

55. Tanaka Tomohito, *Keibigyō no shakaigaku* [The sociology of the security-guard business] (Tokyo: Akashi Shoten, 2009), 54. In 1965 the Tokyo Broadcasting System television network started to air a popular television series, *The Guardman*, modeled after the firm Nihon Keibihoshō. For more on the company's involvement in the Tokyo Olympics and the production of the television program, see Shimazaki.

56. Shimazaki, 73–75.