

Zeitschrift: Outlines
Herausgeber: Schweizerisches Institut für Kunstwissenschaft
Band: 5 (2010)

Artikel: Enclosed by Images : architecture in the Post-Sputnik age
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DOI: <https://doi.org/10.5169/seals-872094>

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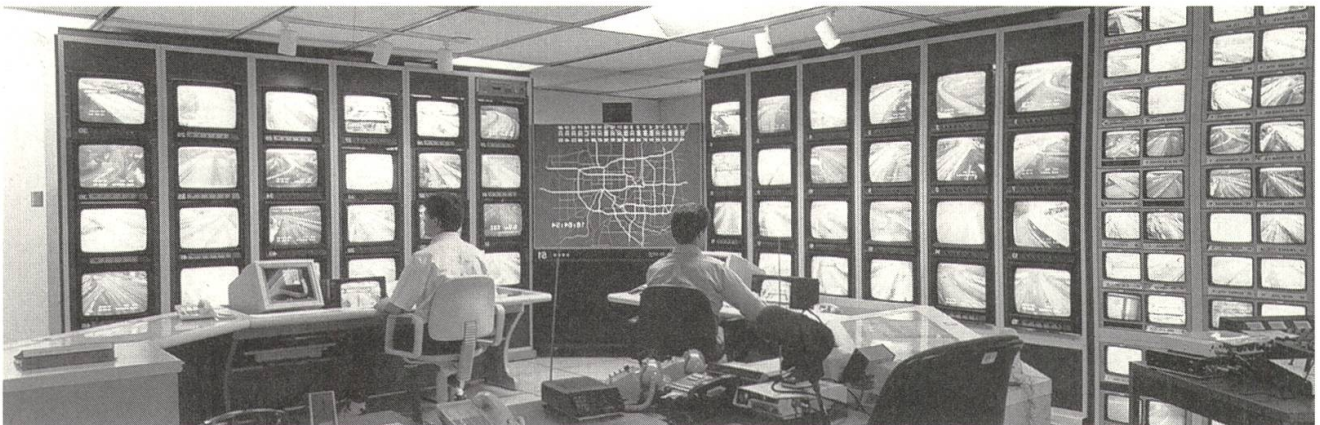
Beatriz Colomina

Enclosed by Images

Architecture in the Post-Sputnik Age

We are surrounded today, everywhere, all the time, by arrays of multiple, simultaneous images – not only in the streets, in airports, shopping centers and gyms, but also on our computers and television sets. The idea of a single image commanding our attention has faded away. It seems as if we need to be distracted in order to concentrate, as if we – all of us living in this new kind of space, the space of information – could be diagnosed en masse with attention deficit disorder. The state of distraction in the metropolis, described so eloquently by Walter Benjamin early in the twentieth century, seems to have been replaced by a new form of distraction, which is to say, a new form of attention. Rather than wander cinematically through the city, we now look in one direction and see many juxtaposed moving images, more than we can possibly synthesize or reduce to a single impression. We sit in front of our computers on our ergonomically perfected chairs, staring with a fixed gaze at many simultaneously ‘open’ windows through which different kinds of information stream toward us. We hardly even notice it. It seems natural, as if we were simply breathing in the information (fig. 1).

How would one go about writing a history of this form of perception? Should one turn to the organization of the television studio, with its wall of monitors from which



1 Christopher Faust, *Suburban Documentation Project*. Metro Traffic Control, Minneapolis, Minnesota, 1993

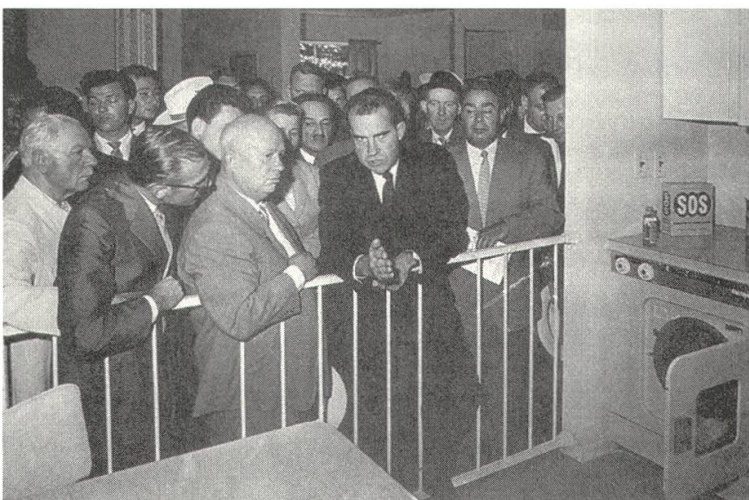
the director chooses the camera angle that will be presented to the viewer; or should one go to Cape Canaveral and look at its mission-control room; or should one even go back to World War II, when so-called situation rooms were envisioned with multiple projections bringing information from all over the world and presenting it side by side for instant analysis by political leaders and military commanders?

But it is not simply technology, and more especially technology developed in a military or war context, that has defined this new form of perception. Designers, architects and artists were involved from the beginning, playing a crucial role in the evolution of these multiscreen and multimedia techniques used for information presentation. While artists' use of these techniques tends to be associated with the Happenings and the expanded cinema of the 1960s, architects were involved much earlier and in very different contexts, such as military operations and governmental propaganda campaigns.

Take the example of the 1959 American National Exhibition in Moscow, for which the government enlisted some of the country's most sophisticated designers. Site of the famous Kitchen Debate between Richard Nixon and Nikita Khrushchev, the exhibition was a Cold-War operation in which the Eameses' multiscreen technique turned out to be a powerful weapon.

To reconstruct a little bit of the atmosphere: in 1958 the USA and the USSR had agreed to exchange national exhibits on 'science, technology and culture.' The Soviet exhibition opened in the New York Coliseum at Columbus Circle in New York City in June 1959, and the American exhibition opened in Sokolniki Park in Moscow in July of the same year. Vice-President Nixon, in Moscow to open the exhibition,

engaged in a heated debate with First Secretary Khrushchev over the virtues of the American way of life. The exchange became known as the Kitchen Debate because it took place – in an event that appeared impromptu but was actually staged by the Americans – in the kitchen of a suburban house split in half to allow easy viewing (fig. 2). The Russians called the house the 'Splitnik', a pun on 'Sputnik', the name of the satellite the Soviets had put into orbit two years earlier.



2 The Kitchen Debate. Nikita Khrushchev and Richard Nixon in front of American kitchen, American National Exhibition in Moscow, July 24, 1959, Wide World Press

What was remarkable about this debate was the focus. As historian Elaine Tyler May has noted, instead of discussing ‘missiles, bombs, or even modes of government [...] [the two leaders] argued over the relative merits of American and Soviet washing machines, televisions, and electric ranges.’¹ For Nixon, American superiority rested on the ideal of the suburban home, complete with modern appliances and distinct gender roles. He proclaimed that this ‘model’ suburban home represented nothing less than American freedom:

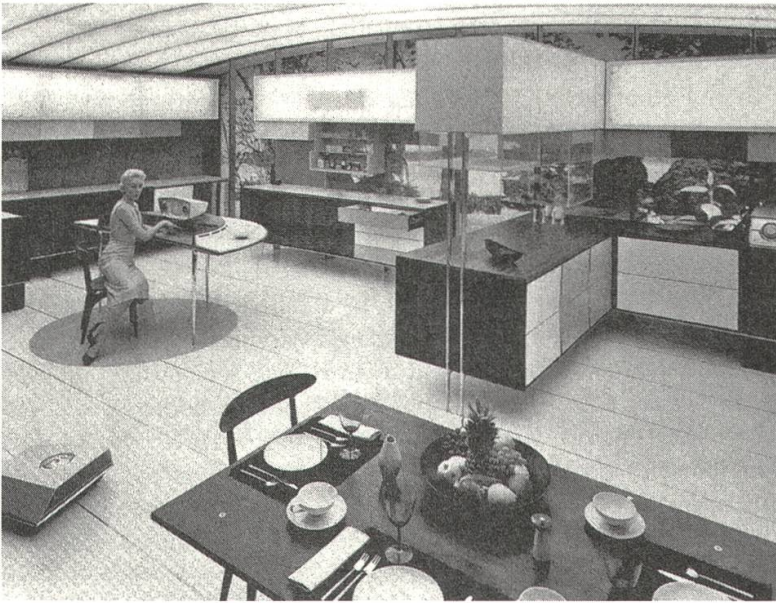
‘To us, diversity, the right to choose, is the most important thing. [...] We don’t have one decision made at the top by one government official. [...] We have many different manufacturers and many different kinds of washing machines so that the housewife has a choice.’²

The exhibition captivated the national and international media. Newspapers, illustrated magazines and television networks reported on the event. Symptomatically, ‘Life’ magazine chose the wives instead of the politicians for its cover (fig. 3). Pat Nixon appears as the prototype of the American woman depicted in advertisements of the 1950s: slim, well groomed, fashionable, happy. In contrast, the Soviet ladies appear stocky and dowdy, and while two of them, Mrs. Khrushchev and Mrs. Mikoyan, look proudly toward the camera, the third one, Mrs. Kozlov, in what Roland Barthes may have seen as the *punctum* of this photograph, cannot keep her eyes off Pat Nixon’s dress.³

Envy: that is what the American exhibition seems to have been designed to produce (despite the vigorous denials offered by Nixon in his debate with Khrushchev, when he said, ‘We do not claim to astonish the Soviet people’⁴) – yet not envy of scientific, military, or industrial achievements, but envy of washing machines, dishwashers, color televisions, suburban houses, lawnmowers, supermarkets stocked full of groceries, Cadillac convertibles, makeup colors, lipstick, spike-heeled shoes, hi-fi sets, cake mixes, TV dinners, Pepsi-Cola, and so on (fig. 4, p. 184). ‘What is this’, the newspaper ‘Izvestia’ asked in its news report, ‘a national exhibit of a great country or of a branch department store? Where is American science, American industry, and particularly their factory techniques?’⁵ And a Russian teacher is quoted by the ‘Wall Street Journal’ as asking: ‘You have lots of dolls, furniture, dishes, but where are your technical exhibits?’⁶ Even American newspapers described the main pavilion of the



3 Cover of ‘Life’ magazine showing the American and Russian First Ladies at the American National Exhibition in Moscow, August 10, 1959

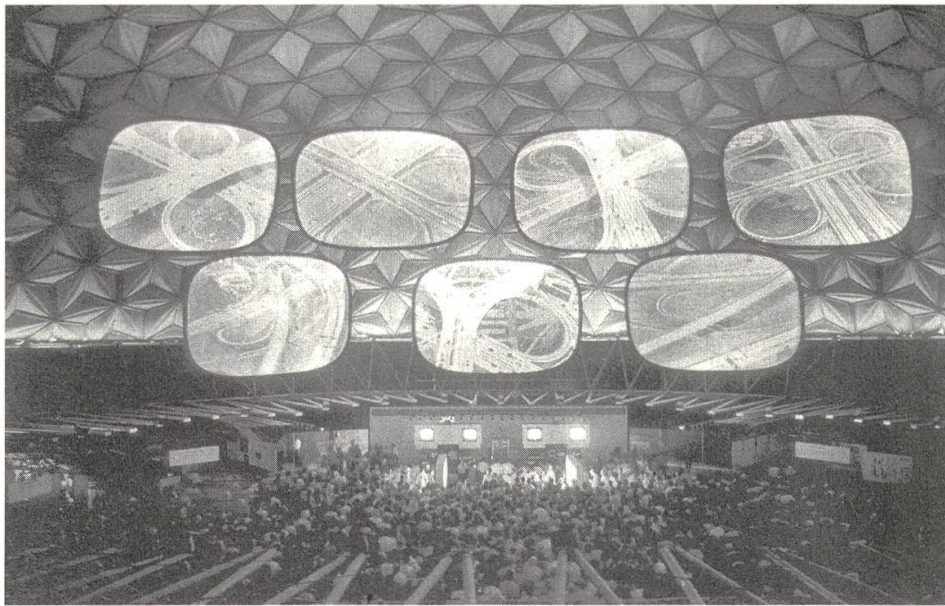


- 4 RCA Whirlpool Miracle Kitchen at Moscow, 1959. The Robotic Kitchen is operated by a computer
- 5 Charles and Ray Eames, *Glimpses of the USA*, showing the interior of the Moscow World's Fair auditorium, 1959

exhibition as a 'lush bargain basement' but one that, owing to the dust from a concrete floor that had crumbled forty-eight hours after the opening, already looked as if it 'had barely survived a fire sale.'⁷

It was for this context that Ray and Charles Eames produced their film *Glimpses of the USA*, projecting it onto seven twenty-by-thirty-foot screens suspended within a vast (250 feet in diameter) golden geodesic dome designed by Buckminster ('Bucky') Fuller (fig. 5). More than 2200 still and moving images (some from Billy Wilder's *Some Like It Hot*) presented 'a typical work day' in the life of the United States in nine minutes and 'a typical weekend day' in three minutes.⁸ Drawn from many different sources, including photo archives (such as Magnum Photos, Photo Researchers, and the magazines 'Fortune', 'Holiday', 'Life', 'Look', the 'Saturday Evening Post', 'Sports Illustrated', 'Sunset' and 'Time'), the work of individual photographers (such as Ferenc Berko, Julius Shulman, Ezra Stoller, Ernest Braun, George Zimbel and Charles Eames himself), as well as of friends and associates of the Eameses (including Eliot Noyes, George Nelson, Alexander Girard, Eero Saarinen, Billy Wilder, Don Albinson and Robert Staples),⁹ the images were combined into seven separate film reels and projected simultaneously through seven interlocked projectors.

The Eameses did not simply install their film in Fuller's space: they were involved in the organization of the entire exhibition from the beginning. Jack Masey of the United States Information Agency (USIA) and George Nelson, who had been commissioned by the USIA to design the exhibition, brought them onto the team. Accord-



ing to Nelson, it was during an evening meeting in the Eames House in Los Angeles, the culmination of three days of discussions, that 'all the basic decisions for the fair were made. Present were Nelson, Ray and Charles (the latter occasionally swooping past on a swing hung from the ceiling), the movie director Billy Wilder, and Masey.'¹⁰ According to Nelson, by the end of the evening a basic scheme had emerged:

- (1) A dome (by Bucky Fuller).
- (2) A glass pavilion (by Welton Becket) 'as a kind of bazaar stuffed full of things, [the] idea being that consumer products represented one of the areas in which we were most effective, as well as one in which the Russians [...] were more interested.'
- (3) An introductory film by the Eameses, since the team felt that the '80 000 square feet of exhibition space was not enough to communicate more than a small fraction of what we wanted to say.'¹¹

In addition, the USIA had already contracted for the inclusion of Disney's 'Circarama', the 'movies-in-the-round' system used to present a 360-degree motion picture offering a twenty-minute tour of American cities and tourist attractions and which played to about one thousand Russians an hour¹²; an architecture exhibit curated by Peter Blake; a fashion show curated by Eleanor Lambert; a packaging exhibition by the Museum of Modern Art's associate curator of design, Mildred Constantine; and Edward Steichen's famous photographic exhibit *The Family of Man*.¹³ The exhibition also included a full-scale ranch-style suburban house, erected by a Long Island

builder and furnished by Macy's. It was in the kitchen of this fourteen-thousand-dollar, six-room house filled with appliances, that the Kitchen Debate began, with an argument over automatic washers.

The multiscreen performance turned out to be one of the most popular exhibits at the fair (second only to the cars and color televisions).¹⁴ 'Time' magazine called it the exhibition's 'smash hit',¹⁵ the 'Wall Street Journal' described it as the 'real bomb shell', and US officials believed it was 'the real pile-driver of the fair.'¹⁶ Groups of five thousand people were brought into the dome every forty-five minutes, sixteen times a day.¹⁷ Close to three million people saw the show, and the floor had to be resurfaced three or four times during the six-week exhibition.¹⁸

The Eameses were not just popular entertainers in an official exhibition, and *Glimpses of the USA* was not just a series of images inside a dome. The huge array of suspended screens defined a space within a space. The Eameses were self-consciously architects of a new kind of space. The film breaks with the fixed perspectival view of the world. In fact, we find ourselves in a space that can be apprehended only with the aid of the high technology of telescopes, zoom lenses, airplanes, night-vision cameras and so on, and where there is no privileged point of view. It is not simply that many of the individual images that make up *Glimpses* have been taken with these instruments. More important, the relationship between the images reenacts the operation of the technologies.

The film starts with images from outer space on all the screens – stars across the sky, seven constellations, seven-star clusters, nebulae – then moves through aerial views of the city at night, starting from higher up and moving ever closer in, until city lights from the air fill the screens. Dawn breaks with aerial views of landscapes from different parts of the country: deserts, mountains, hills, seas, farms, suburban developments, urban neighborhoods. When the camera's eyes finally descend to the ground, we see close-ups of newspapers and milk bottles at doors – but still no people, only traces of their existence on earth.

It is no coincidence if the first signs of human life are centered on the house and domestic space. From the stars at night and the aerial views, the cameras zoom in to the most intimate scenes: 'people having breakfast at home, men leaving for work, kissing their wives, kissing the baby, being given lunchboxes, getting into cars, waving good-bye, children leaving for school, being given lunchboxes, saying good-bye to dog, piling into station wagons and cars, getting into school buses, baby crying.'¹⁹ As with the Eameses' later and much better-known film *Powers of Ten* (1968),²⁰ which, incidentally, reused images of the night sky already seen in *Glimpses of the USA*,²¹ the film moves from outer space to the close-up details of everyday life. As the



6 Charles (in lift) and Ray Eames, outside their office filming the picnic scene for the first version of *Powers of Ten*, 1968

working script of the film indicates, the close-ups are of 'last sips of coffee' of men before they leave for work, of 'children washing hands before dinner', of 'housewives on the phone with clerks (supermarket food shelves in b. g.)'²² and so on. In *Powers of Ten*, the movement would be shown in reverse, beginning in the domestic space of a picnic spread with a man asleep beside a woman in a park in Chicago, before moving out into the atmosphere and then back down inside the body, entering through the skin of the man's wrist and reaching down to microscopic cells and to the atomic level (fig. 6). Even if *Powers of Ten*, initially produced for the Commission on College Physics, was a more scientific, more advanced film in which space was measured in seconds, the logic of the two films (*Glimpses* and *Powers of Ten*) was

the same. Intimate domesticity was suspended within an entirely new spatial system – a system that was the product of esoteric scientific-military research but that had entered the everyday public imagination with the launching of Sputnik in 1957. Fantasies that had long circulated in science fiction had become reality. This shift from research and fantasy to tangible fact made new forms of communicating with a mass audience possible.²³ The Eameses' innovative technique did not simply present the audience with a new way of seeing things. Rather, it gave form to a new mode of perception that was already in everybody's mind.

Glimpses breaks with the linear narrative of film to bring snippets of information, an ever-changing mosaic image of American life. And yet the message of the film is linear, and eerily consistent with the official message represented by the Kitchen Debate. From the stars in the sky at the beginning of the film – which the narrative insists are the same in the Soviet Union as they are in the USA – to the people

kissing their good-nights and the forget-me-not flowers in the last image, the film emphasizes universal emotions²⁴ while at the same time unambiguously reinforcing the impression of a material abundance to be witnessed in one country. From the parking lots of factories, which the narrative describes as filled with the cars of workers, to the aerial views of suburban houses with a blue swimming pool in each yard, to the close-ups of shopping carts and supermarket shelves full of goodies and housewives cooking dinner in kitchens equipped with every imaginable appliance, the message of the film was clear: we are the same as you, but, on the material level, we have more.

Glimpses, like the 'Splitnik' house, displaced the USA-USSR debate from the arms-and-space race to the battle of the appliances. And yet the overall effect of the film is that of an extraordinarily powerful viewing technology, a hyperviewing mechanism that it is hard to envisage outside the very space program the exhibition was trying to downplay. In fact, this extreme mode of viewing goes beyond the old fantasy of the eye in the sky. If *Glimpses* simulates the operation of satellite surveillance, it exposes more than the details of life in the streets: it penetrates the most intimate spaces and reveals every secret. Domestic life itself becomes the target, the source of pride or insecurity. The Americans, made insecure by the thought of a Russian eye looking down on them, countered by exposing more than that eye could ever see (or at least by pretending to, since 'a day in the life of the USA' became an image of the good life without ghettos, poverty, domestic violence or depression).

Glimpses simply intensified an existing mode of perception. In fact, it synthesized several already existing modes that were manifest in television, space programs and military operations. As is typical of all the Eameses' work, it was the simplicity and clarity of this synthesis that made it immediately accessible to all.²⁵

II.

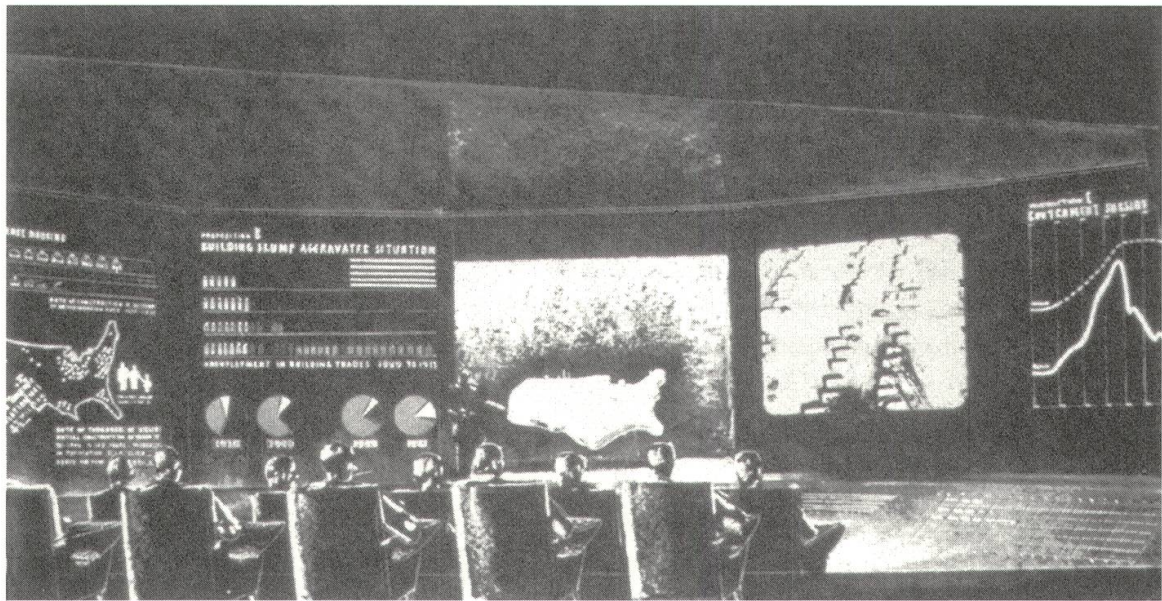
What kind of genealogy can one identify in the Eameses' development of this astonishingly successful technique?

It was not the first time they had deployed multiple screens. In fact, the Eameses were involved in one of the first multimedia presentations on record, if not the first. Again it was George Nelson who set up the commission. In 1952 he had been asked to prepare a study for the Department of Fine Arts at the University of Georgia in Athens, and he brought along Ray and Charles Eames and Alexander Girard. Instead of writing a report, they decided to collaborate on a 'show for a typical class' of fifty-five minutes. Nelson referred to it as 'Art X', while the Eameses called it 'A Rough Sketch for a Sample Lesson for a Hypothetical Course'. The subject of the

lesson was 'communications',²⁶ and the stated goals included 'the breaking down of barriers between fields of learning [...] making people a little more intuitive [...] [and] increasing communication between people and things.'²⁷ The performance included a live narrator, multiple images (both still and moving), sound (in the form of music and narration) and even 'a collection of bottled synthetic odors that were to be fed into the auditorium during the show through the air-conditioning ducts.'²⁸ Charles Eames later said, 'We used a lot of sound, sometimes carried to a very high volume so you would actually feel the vibrations.'²⁹ The idea was to produce an intense sensory environment so as to 'heighten awareness'. The effect was so convincing that apparently some people even believed they smelled things (for example, the smell of oil in the machinery) when no smell had been introduced, only a suggestion of it in an image or a sound.³⁰

It was a major production. Nelson described the team arriving in Athens 'burdened with only slightly less equipment than Ringling Brothers. This included a movie projector, three slide projectors, three screens, three or four tape recorders, cans of films, boxes of slides, and reels of magnetic tape.'³¹ The reference to the circus was not accidental. Speaking with a reporter for 'Vogue', Charles later argued that '«Sample Lesson» was a blast on all senses, a super-saturated three-ring circus. Simultaneously the students were assaulted by three sets of slides, two tape recorders, a motion picture with sound, and peripheral panels for further distraction.'³²

The circus was one of the Eameses' lifetime fascinations³³ – so much so that in the 1940s, when they were out of work and money, they were on the point of auditioning for one. They would have been clowns, but ultimately a contract to make plywood furniture allowed them to continue as designers. And from the mid-1940s on, they took hundreds and hundreds of photographs of the circus, which they used in many contexts, including *Circus* (their 180-slide, three-screen slide show accompanied by a sound track featuring circus music and other sounds recorded at the circus), presented as part of the Charles Eliot Norton Lectures at Harvard University that Charles delivered in 1970, and the film *Clown Face* (1971), a training film about 'the precise and classical art of applying make-up', made for Bill Ballantine, director of the Clown College of Ringling Brothers Barnum & Bailey Circus. The Eameses had been friends with the Ballantines since the late 1940s, when the Eameses had photographed the circus's behind-the-scenes activities during an engagement in Los Angeles.³⁴ Charles was on the board of the Ringling Brothers College and often referred to the circus as an example of what design and art should be, not self-expression but precise discipline:



7 Henry Dreyfuss, Presidential War Situation Room. Project view

'Everything in the circus is pushing the possible beyond the limit – bears do not really ride on bicycles, people do not really execute three and a half turn somersaults in the air from a board to a ball, and until recently no one dressed the way fliers do. [...] Yet within this apparent freewheeling license, we find a discipline which is almost unbelievable. [...] The circus may look like the epitome of pleasure, but the person flying on a high wire, or executing a balancing act, or being shot from a cannon must take his pleasure very, very seriously. In the same vein, the scientist, in his laboratory, is pushing the possible beyond the limit and he too must take his pleasure very seriously.'³⁵

The circus, as an event that offered a multiplicity of simultaneous experiences that could not be taken in entirely by the viewer, was the Eameses' model for their design of multimedia exhibitions and the fast-cutting technique of their films and slide shows, where the objective was always to communicate the maximum amount of information in a way that was both pleasurable and effective.³⁶

But the 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 (fig. 7). It is not without irony, in that sense, that the Eameses read the organization of the circus as a form of crisis control. In a circus, Charles said, 'there is a strict hierarchy of events, and an elimination of choice under stress, so that one event can automatically follow another. [...] There is a recognized mission for everyone involved. In a crisis there can be no question as to what needs to be done.'³⁷ A number of the

Eameses' friends were involved in the secret military project of the war rooms, including Buckminster Fuller, Eero Saarinen and Henry Dreyfuss, whose unrealized design involved a wall of parallel projected images of different kinds of information.³⁸ It is not certain that the Eameses knew anything about the project during the war years, but it is very likely, given their friendship with Fuller, Saarinen and Dreyfuss, that they would have found out about it after the war. In 1970, in the context of his second Norton Lecture, Charles referred to the war room as a model for city management:

'In the management of a city, linear discourse certainly can't cope. We imagine a City Room or a World Health Room (rather like a War Room) where all the information from satellite monitors and other sources could be monitored; [Fuller's World Game is an example.] [...] The city problem involves conflicting interest and points of view. So the place where information is correlated also has to be a place where each group can try out plans for its own changing needs.'³⁹

The overall subject of the Norton Lectures was announced as 'Problems Relating to Visual Communication and the Visual Environment', and a consistent theme was the 'necessity to devise visual models for matters of practical concern where linear description isn't enough.' György Kepes's 'Language of Vision' was a constant reference point for the Eameses. The 'language of vision' was seen as a 'real threat to the discontinuity' (between the arts, between university departments, between art and everyday life and so on) that the Eameses were always combating.⁴⁰ Architecture ('a most non-discontinuous art') was seen as both the ultimate model for discontinuity and the discipline where the new technologies should be implemented.

A number of wartime research projects, including work on communications, ballistics and experimental computers, had quickly developed after the war into a fully-fledged theory of information flow, most famously with the publication of Claude Shannon's 'Mathematical Theory of Communication' in 1949, which formalized the idea of an information channel from sender to recipient whose efficiency could be measured in terms of speed and noise. This sense of information flow organized the 'Sample Lesson' performance. The Eameses said they 'were trying to cram into a short time, a class hour, the most background material possible.'⁴¹ As part of the project, they produced *A Communication Primer*, a film that presented the theory of information, explaining Shannon's famous diagram of the passage of information, and was subsequently developed in an effort to present current ideas in communication theory to architects and planners and to encourage them to use these ideas in their work. The basic idea was to integrate architecture and information flow. If the great heroes of the Renaissance were, for the Eameses, 'people concerned with ways of modeling / imaging, [...] not with self-expression or bravura. [...] Brunelleschi, but

not Michelangelo',⁴² the great architects of our time would be the ones concerned with the new forms of communication, particularly computers:

'It appeared to us that the real current problems for architects now – the problems that a Brunelleschi, say, would gravitate to – are problems of *organization of information*. For city planning, for regional planning, the first need is clear, accessible models of current states-of-affairs, drawn from a data base that only a computer can handle for you.'⁴³

The logic of information flow was further developed in the Eameses' 1955 film *House: After Five Years of Living*. The film was made entirely from thousands of color slides of their own home taken by the Eameses over the first five years of its life,⁴⁴ shown in quick succession (a technique called 'fast cutting' for which the Eameses won an Emmy Award in 1960⁴⁵) and accompanied by music composed by Elmer Bernstein. As Michael Braune wrote in 1966:

'The interesting point about this method of film making is not only that it is relatively simple to produce and that rather more information can be conveyed than when there is movement on the screen, but that it corresponds surprisingly closely with the way in which the brain normally records the images it receives. I would assume that it also corresponds rather closely with the way Eames's own thought processes tend to work. I think it symptomatic, for instance, that he is extremely interested in computers, [...] and that one of the essential characteristics of computers is their need to separate information into components before being able to assemble them into a large number of different wholes.'⁴⁶

This technique was developed even further in *Glimpses*, which is organized around a strict logic of information transmission. The role of the designer is to orchestrate a particular flow of information. The central principle is one of compression. At the end of the design meeting at the Eames House in preparation for the American exhibition in Moscow, the idea of the film emerged precisely 'as a way of compressing into a small volume the tremendous quantity of information' they wanted to present, which it would have been impossible to achieve in the eighty thousand square feet of the exhibition.⁴⁷ The space of the multiscreen film, like the space of the computer, compresses physical space. Each screen shows a different scene, but all seven at each moment deal with the same general subject – housing, transportation, jazz, and so forth. As the 'New York Times' described it, 'Perhaps fifty clover-leaf highway intersections are shown in just a few seconds. So are dozens of housing projects, bridges, skyscrapers scenes, supermarkets, universities, museums, theatres, churches, farms, laboratories and much more.'⁴⁸

According to the Eameses, repetition was employed for credibility. They said, 'If, for example, we were to show a freeway interchange, somebody would look at it and say, 'We have one at Smolensk and one at Minsk; we have two, they have one' – that kind of thing. So we conceived the idea of having the imagery come on in multiple

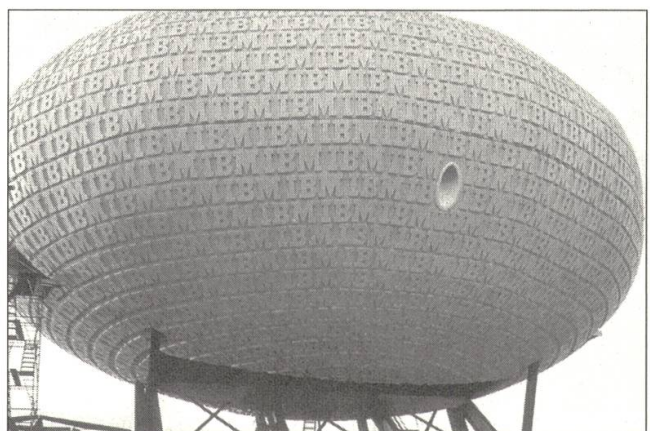
forms, as in the *Rough Sketch for a Sample Lesson*.⁴⁹ But the issue was much more than one of efficiency of communication or the polemical need to have multiple examples. The idea was, as with the 'Sample Lesson', to produce sensory overload. As the Eameses had suggested to 'Vogue', 'Sample Lesson' tried to provide many forms of 'distraction' instead of asking students to concentrate on a singular message. The audience drifted through a multimedia space that exceeded their capacity to absorb it. The Eames-Nelson team thought that the most important thing to communicate to undergraduates was a sense of what the Eameses would later call 'connections' among seemingly unrelated phenomena. Arguing that awareness of these relationships was achieved by 'high-speed techniques', Nelson and the Eameses produced an excessive input from different directions that had to be synthesized by the audience. Likewise, Charles said of *Glimpses*:

'We wanted to have a credible number of images, but not so many that they couldn't be scanned in the time allotted. At the same time, the number of images had to be large enough so that people wouldn't be exactly sure how many they have seen. We arrived at the number seven. With four images, you always knew there were four, but by the time you got up to eight images you weren't quite sure. They were very big images – the width across four of them was half the length of a football field.'⁵⁰

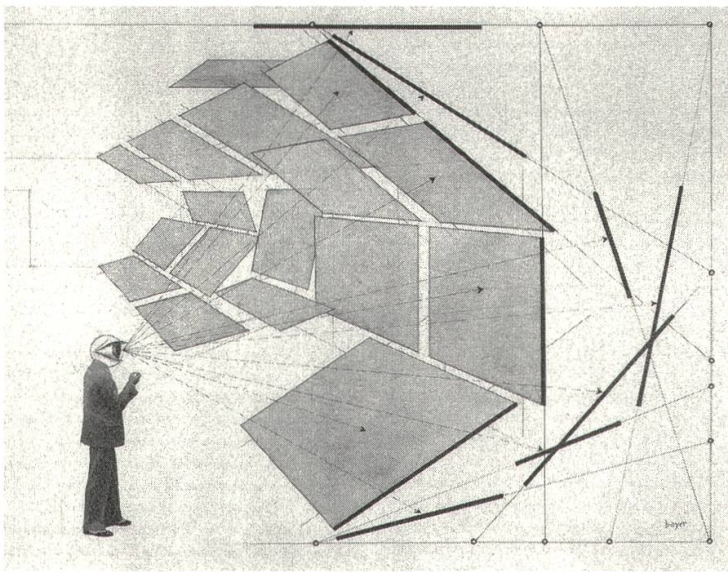
One journalist described it as 'information overload – an avalanche of related data that comes at a viewer too fast for him to cull and reject it [...] a twelve-minute blitz.' The viewer is overwhelmed. More than anything, the Eameses wanted an emotional response, produced as much by the excess of images as by their content. They said:

'At the Moscow World's Fair in 1959 – when we used seven screens over an area that was over half the length of a football field – that was just a desperate attempt to make a credible statement to a group of people in Moscow when words had almost ceased to have meaning. We were telling the story straight, and we wanted to do it in 12 minutes, with images; but we found that we couldn't really give credibility to it in a linear way. However when we could put 50 images on the screen for a certain subject in a matter of 10 seconds, we got a kind of breadth which we felt we couldn't get any other way.'⁵¹

The multiscreen technique went through one more significant development at the 1964 World's Fair in New York. In the IBM Ovoid Theater (fig. 8), designed by the Saarinen office, visitors boarded the 'people wall' and



8 Eero Saarinen and Associates, IBM Pavilion for the New York World's Fair, 1964-65. Exterior of Ovoid Theater



9 Herbert Bayer, *Diagram of the Field of Vision*, 1930

were greeted by a 'host' dressed in coat-tails who slowly dropped down from the IBM ovoid; the seated five-hundred-person audience was then lifted up hydraulically from the ground level into the dark interior of the egg, where they were surrounded by fourteen screens onto which the Eameses projected the film *Think*.⁵² To enter the theater was no longer to cross the threshold, to pass through the ceremonial space of the entrance, as in a traditional public building. To *enter* here was to be lifted in front of a multiplicity of screens. The screens

wrapped the audience in a way reminiscent of Herbert Bayer's 1930 'diagram of the field of vision', produced as a sketch for the installation of an architecture and furniture exhibition⁵³ (fig. 9). The eye could not escape the screens, and each screen was bordered by other screens. Unlike the screens in Moscow, those in the IBM building were of different sizes and shapes. But once again, the eye had to jump from image to image and could never fully catch up with all of them and their diverse contents. Fragments were presented to be linked together momentarily before the connections between them were replaced with others. The film is organized by the same logic of compression, its speed intended to be the speed of the mind.

A 'host' welcomed the audience to 'the IBM Information Machine', 'a machine designed to help me give you a lot of information in a very short time. [...] The machine brings you information in much the same way as your mind gets it – in fragments and glimpses – sometimes relating to the same idea or incident. Like making toast in the morning.'⁵⁴ Already in 1959, the design team (Nelson, the Eameses, et al.) had used exactly the same term – 'information machine' – to describe the role of Fuller's dome in Moscow, taking it from the title of a 1957 film the Eameses had prepared for the 1958 Brussels World's Fair. In addition to the multiscreens, the dome housed a huge RAMAC 305 computer, an 'electronic brain' that offered written replies to 3500 questions about life in the United States.⁵⁵ The architecture was conceived from the very start as a combination of structure, multiscreen film, and computer. Each technology created an architecture in which inside / outside, entering / leaving, meant something entirely different, and yet they all coexisted. All were

housed by the same physical structure, Fuller's dome, but each defined a different kind of space to be explored in different ways. From the 'Sample Lesson' in 1953 to IBM in 1964, the Eameses treated architecture as a multichannel information machine – and, equally, multimedia installations as a kind of architecture.

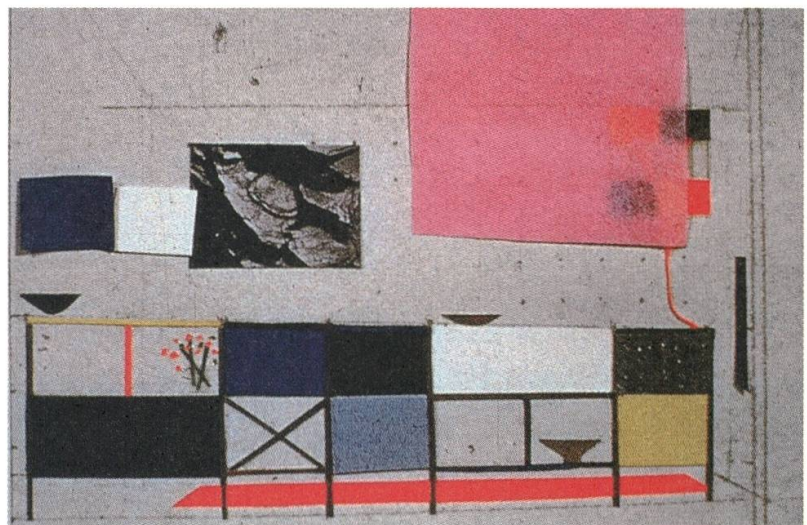
III.

All of the Eameses' designs can be understood as multiscreen performances: they provide a framework in which objects can be placed and replaced. Even the parts of their furniture can be rearranged (fig. 10). Spaces are defined as arrays of information collected and constantly changed by their users.

This is the space of the media. The space of a newspaper or an illustrated magazine is a grid in which information is arranged and rearranged as it comes in: a space the reader navigates in his or her own way, at a glance, or by fully entering a particular story. The reader, viewer, consumer, constructs the space, participating actively in the design. It is a space where continuities are made through 'cutting'. The same is true of the space of newsreels and television. The logic of the Eameses' multiscreens is simply the logic of the mass media.

It is not by chance that Charles Eames was always nostalgic for his time as a set designer for MGM in the early 1940s, continually arranging and rearranging existing props at short notice.⁵⁶ All Eames architecture can be understood as set design. The Eameses even presented themselves like Hollywood figures, as if in a movie or an advertisement, always so happy, with the ever-changing array of objects as their backdrop.

This logic of architecture as a set for staging the good life was central to the design of the Moscow exhibition. Even the famous kitchen, for example, was cut in half not only to allow viewing by visitors but, most important, to turn it into a photo op for the Kitchen Debate. Photographers and journalists knew already the night before that they had to be there, choosing their angle. Architecture was reorganized to produce a certain image. Charles



10 Ray Eames, Color sketch for Eames House storage units

had already spoken, in 1950, of our time as the era of communication. He was acutely aware that the new media were displacing the old role of architecture. And yet everything for the Eameses, in this world of communication that they were embracing so happily, was architecture: 'The chairs are architecture, the films – they have a structure, just as the front page of a newspaper has a structure. The chairs are literally like architecture in miniature [...] architecture you can get your hands on.'⁵⁷ In the notes for a letter to Italian architect Vittorio Gregotti accompanying a copy of *Powers of Ten*, they write: 'In the past fifty years the world has gradually been finding out something that architects have always known, that is, that *everything* is architecture. The problems of environment have become more and more interrelated. This is a sketch for a film that shows something of how large – and small – our environment is.'⁵⁸

In every sense, Eames architecture is all about the space of information. Perhaps we can talk no longer about 'space' but, rather, about 'structure' or, more precisely, about time. Structure, for the Eameses, was organization in time. The details that were central to Mies van der Rohe's architecture were replaced by 'connections'. As Charles said in a film about a storage system he and Ray had designed: 'The details are not details. They make the product. The connections, the connections, the connections.'⁵⁹ But, as Ralph Caplan pointed out, the connections in their work were not only between such 'disparate materials as wood and steel' or between 'seemingly alien disciplines' like physics and the circus but also between ideas. Their technique of information overload, used in films and multimedia presentations as well as in their trademark 'information wall' in exhibitions, was used not to 'overtax the viewer's brain' but precisely to offer a 'broad menu of options' and to create an 'impulse to make connections.'⁶⁰

For the Eameses, structure was not linear. They often reflected on the impossibility of linear discourse. The structure of their exhibitions has been compared to that of a scholarly paper, loaded with footnotes, where 'the highest level of participation consists in getting fascinated by the pieces and connecting them for oneself.'⁶¹ Seemingly static structures like the frames of their buildings or of their plywood cabinets were but frameworks for positioning ever-changing objects. And the frame itself was, anyway, meant to be changed all the time. These changes, this fluctuating movement, could never be pinned down.

Mies van der Rohe's exhibition of his work at the Museum of Modern Art in 1947 was significant, according to the Eameses, not because of the individual objects on display but because of the organizational system way the architect had devised to present them,⁶² which communicated, in their view, the idea of Mies's architecture

better than any single model, drawing, or photograph could. When Charles published his photographs of the exhibition in 'Arts & Architecture', he wrote: 'The significant thing seems to be the way in which he [Mies] has taken documents of his architecture and furniture and used them as elements in creating a space that says, 'this is what it's all about.'⁶³ The multiscreen presentations, the exhibition technique and the Eameses' films are likewise significant not because of the individual factoids they offer or even the story they tell but because of the way the factoids are used as elements in creating a space that says, 'This is what the space of information is all about.'

Like all architects, the Eameses controlled the space they produced. The most important factor was to regulate the flow of information. They prepared extremely detailed technical instructions for the running of even their simplest three-screen slide show.⁶⁴ Performances were carefully planned to appear as effortless as a circus act. Timing and the elimination of 'noise' were the major considerations. Their office produced masses of documents, even drawings showing the rise and fall of intensity through the course of a film, literally defining the space they wanted to produce or, more precisely, the existing space of the media that they wanted to intensify. With *Glimpses*, the Eameses retained complete control over their work by turning up in Moscow only forty-eight hours before the opening, as Peter Blake recalls it, 'dressed like a boy scout and a girl scout', clutching the reels of the film.⁶⁵ A photograph shows the smiling couple descending from the plane, reels in Charles's hands, posing for the camera (fig. 11). As he later put it, 'Theoretically, it was a statement made by our State Department, and yet we did it entirely here and it was never seen by anyone from our government until they saw it in Moscow. [...] If you ask for criticism, you get it. If you don't, there is a chance everyone will be too busy to worry about it.'⁶⁶

The experience for the audience in Moscow was almost overwhelming. Journalists speak of too many images, too much information, too fast. For the MTV and the Internet generation



11 Charles and Ray Eames arriving in Moscow for the installation of the American National Exhibition

watching the film today, it would not be fast enough, and yet we do not seem to have come that far either. The logic of the Internet was already spelled out in the Eameses' multiscreen projects. Coming out of the war mentality, the Eameses' innovations in the world of communication, their exhibitions, films, and multiscreen performances transformed the status of architecture. Their highly controlled flows of simultaneous images provided a space, an enclosure – the kind of space we now occupy continuously without thinking.

- 1 Elaine Tyler May, *Homeward Bound: American Families in the Cold War Era*, New York: Basic Books, 1988, p. 16. See also Karal Ann Marling, *As Seen on TV: The Visual Culture of Everyday Life in the 1950s*, Cambridge, MA: Harvard University Press, 1994.
- 2 Quoted by May 1988 (see note 1), p. 17. For transcripts of the debate see 'The Two Worlds: A Day-Long Debate', *New York Times*, July 15, 1959, pp. 1–3; 'When Nixon Took on Khrushchev', a report of the meeting, and the text of Nixon's address at the opening of the American National Exhibition in Moscow on July 24, 1959, in 'Setting Russia Straight On Facts about U.S.', *U.S. News and World Report*, August 3, 1959, pp. 36–9, pp. 70–2; 'Encounter', *Newsweek*, August 3, 1959, pp. 15–19; and 'Better to See Once', *Time*, August 3, 1959, pp. 12–14.
- 3 *Life*, August 10, 1959.
- 4 Khrushchev: 'You Americans expect that the Soviet people will be amazed. It is not so. We have all these things in our new apartments.' Nixon: 'We do not claim to astonish the Soviet people'. *U.S. News and World Report* 1959 (see note 2), pp. 36–7.
- 5 Quoted in Alan L. Otten, 'Russians Eagerly Tour U.S. Exhibit Despite Cool Official Attitude', *Wall Street Journal*, July 28, 1959, p. 16.
- 6 Ibid.
- 7 Max Frankel, 'Dust from Floor Plagues U.S. Fair', *New York Times*, July 28, 1959, p. 12.
- 8 John Neuhart / Marilyn Neuhart / Ray Eames, *Eames Design: The Work of the Office of Charles and Ray Eames*, New York: Harry N. Abrams, 1989, pp. 238–41. See also Hélène Lipstadt, 'Natural Overlap: Charles and Ray Eames and the Federal Government', in Donald Albrecht, ed., *The Work of Charles and Ray Eames: A Legacy of Invention*, New York: Harry N. Abrams, 1997, pp. 160–6.
- 9 The Work of Charles and Ray Eames, Manuscript Division, Library of Congress, Washington, DC; here: box 202.
- 10 Stanley Abercrombie, *George Nelson: The Design of Modern Design*, Cambridge, MA: MIT Press, 1995, p. 163.
- 11 Ibid., p. 164.
- 12 Max Frankel, 'Image of America at Issue in Soviet', *New York Times*, August 23, 1959. 'Circarama' had already been shown at the 1958 World's Fair in Brussels.
- 13 Abercrombie 1995 (see note 10), p. 167.
- 14 'The seven-screen quickie is intended as a general introduction to the fair. According to the votes of Russians, however, it is the most popular exhibit after the automobiles and the color television.' Frankel 1959 (see note 12).
- 15 'Watching the thousands of colorful glimpses of the U.S. and its people, the Russians were entranced, and the slides are the smash hit of the fair.' 'The U.S. in Moscow: Russia Comes to the Fair', *Time*, August 3, 1959, p. 14.
- 16 'And Mr. Khrushchev watched unsmilingly as the real bomb-shell exploded – a huge exhibit of typical American scenes flashed on seven huge ceiling screens. Each screen shows a different scene but all seven at each moment are on the same general subject – housing, transportation, jazz and so forth. U.S. officials believe this is the real pile-driver of the fair, and the premier's phlegmatic attitude – not even smiling when seven huge Marilyn Monroes dashed on the screen or when Mr.

- Nixon pointed out golfing scenes – showed his unhappiness with the display.’ Otten 1959 (see note 5).
- 17 Frankel 1959 (see note 7).
- 18 Pat Kirkham, *Charles and Ray Eames: Designers of the Twentieth Century*, Cambridge, MA: MIT Press, 1995, p. 324. From an interview with Wilder by Kirkham in 1993.
- 19 Charles and Ray Eames, *Glimpses of the USA*, working script, The Work of Charles and Ray Eames (see note 9).
- 20 *Powers of Ten* was based on a 1957 book by Kees Boeke, *Cosmic View: The Universe in Forty Jumps*. The film was produced for the Commission on College Physics. An updated and more developed version was produced in 1977. In the second version the starting point is still a picnic scene but it takes place in a park bordering Lake Michigan in Chicago. See Neuhart / Neuhart / Eames 1989 (see note 8) pp. 336–7 and pp. 440–1.
- 21 See handwritten notes on the manuscript of the first version of *Powers of Ten*, The Work of Charles and Ray Eames (see note 9), box 207. The film is still referred to as *Cosmic View*.
- 22 *Glimpses* (see note 19).
- 23 In 1970, in the context of Charles Eames’s third Charles Eliot Norton Lecture at Harvard University, where he once again insisted on the need to incorporate media into the classroom, he still spoke of changing forms of communications with reference to Sputnik: ‘In post-Sputnik panic, a great demand for taping science lectures; when they were shown on television, distribution cost ended up as 100:1 of production cost; no way to run a railroad.’ The Work of Charles and Ray Eames (see note 9), box 217, folder 10.
- 24 Apparently even the forget-me-nots were understood in precisely the intended way, as symbols of friendship and loyalty. According to the Eameses, the audience could be heard saying ‘nezabutki’, ‘forget-me-not’, as the flowers appeared on the screen as the last image of the film. Neuhart / Neuhart / Eames 1989 (see note 8), p. 241.
- 25 For example, *Powers of Ten* was a ‘sketch film’ to be presented at an ‘assembly of one thousand of America’s top physicists’, but the Eameses decided that it should ‘appeal to a ten-year-old as well as a physicist.’ Paul Schrader, ‘Poetry of Ideas: The Films of Charles Eames’, *Film Quarterly* 23, no. 3 (Spring 1970), p. 10.
- 26 ‘Grist for Atlanta paper version’, manuscript, The Work of Charles and Ray Eames (see note 9), box 217, folder 15.
- 27 Neuhart / Neuhart / Eames 1989 (see note 8), p. 177.
- 28 George Nelson, ‘The Georgia Experiment: An Industrial Approach to Problems of Education’, manuscript, October 1954, quoted in Abercrombie 1995 (see note 10), p. 145.
- 29 Owen Gingerich, ‘A Conversation with Charles Eames’, *American Scholar* 46, no. 3 (Summer 1977), p. 331.
- 30 Ibid.
- 31 Nelson 1954 (see note 28).
- 32 Allene Talmey, ‘Eames’, *Vogue*, August 15, 1959, p. 144.
- 33 Beatriz Colomina, ‘Reflections on the Eames House’ in Albrecht 1997 (see note 8), p. 128.
- 34 Neuhart / Neuhart / Eames 1989 (see note 8), p. 373; Bill Ballantine, *Clown Alley*, Boston: Little, Brown, 1982.
- 35 Charles Eames, ‘Language of Vision: The Nuts and Bolts’, *Bulletin of the American Academy of Arts and Sciences*, October 1974, pp. 17–18.
- 36 Neuhart / Neuhart / Eames 1989 (see note 8), p. 91.
- 37 Eames 1974 (see note 35), pp. 17–18. See also the typescript of the actual lecture, The Work of Charles and Ray Eames (see note 9), box 217, folder 12.
- 38 Barry Katz, ‘The Arts of War: “Visual Presentation” and National Intelligence’, *Design Issues* 12, no. 2 (Summer 1996), pp. 3–21. I am grateful to Dennis Doordan for pointing out this article to me.
- 39 Partial transcript of Norton Lectures The Work of Charles and Ray Eames (see note 9), box 217, folder 10; square brackets appear in the original.
- 40 See, for example, Charles Eames, ‘On Reducing Discontinuity’ (talk given at the American Academy of Arts and Sciences, 1976), manuscript, The Work of Charles and Ray Eames (see note 9), box 217, folder 17: ‘My wife and I had made a commitment to disregard the sacred enclosure around a special set of

- phenomena called art; in our view preoccupation with respecting that boundary leads to an unfortunate and unwarranted limitation on the aesthetic experience.'
- 41 Gingerich 1977 (see note 29), p. 332.
 - 42 Notes for second Norton lecture, *The Work of Charles and Ray Eames* (see note 9), box 217, folder 10; Eames is referring here to 'Professor Lawrence Hill's Renaissance'.
 - 43 "'Communications Primer" was a recommendation to architects to recognize the need for more complex information [...] for new kinds of *models* of information.' Eames, 'Grist for Atlanta', manuscript, *The Work of Charles and Ray Eames* (see note 9), box 217, folder 15.
 - 44 Colomina 1997 (see note 33), *passim*.
 - 45 Charles and Ray Eames won an Emmy Award for graphics for their rapid cutting experiments on *The Fabulous Fifties*, a television program broadcast on January 22, 1960, on the CBS network. It included six film segments made by the Eames Office. Schrader 1970 (see note 25), p. 3.
 - 46 Michael Braune, 'The Wit of Technology', *Architectural Design*, September 1966, p. 452.
 - 47 See Abercrombie 1995 (see note 10), pp. 163–4.
 - 48 Frankel 1959 (see note 12).
 - 49 Gingerich 1977 (see note 29), pp. 332–3.
 - 50 *Ibid.*, p. 333.
 - 51 Digby Diehl, 'West Q&A: Charles Eames', transcript, *The Work of Charles and Ray Eames* (see note 9), box 24, folder 4–5. Published as 'Q&A: Charles Eames', *Los Angeles Times WEST Magazine*, October 8, 1972, reprinted in Digby Diehl, *Supertalk*, New York: Doubleday, 1974.
 - 52 Mina Hamilton, 'Films at the Fair II', *Industrial Design*, May 1964, pp. 37–41.
 - 53 Arthur A. Cohen, *Herbert Bayer: The Complete Work*, Cambridge, MA: MIT Press, 1994, p. 292. Mary Anne Staniszewski, *The Power of Display: A History of Exhibition Installations at the Museum of Modern Art*, Cambridge, MA: MIT Press, 1998, pp. 25–8.
 - 54 Script of the IBM film *View from the People Wall* for the Ovoid Theater, New York World's Fair, 1964, *The Work of Charles and Ray Eames* (see note 9).
 - 55 'U.S. Gives Soviet Glittering Show', *New York Times*, July 25, 1959.
 - 56 Colomina 1997 (see note 33), p. 129.
 - 57 Gingerich 1977 (see note 29), p. 327.
 - 58 'Powers of Ten – Gregotti', handwritten notes, *The Work of Charles and Ray Eames* (see note 9), box 217, folder 11.
 - 59 Charles Eames, in a film about a storage system the Eameses had designed, quoted in Ralph Caplan, 'Making Connections: The Work of Charles and Ray Eames', *Connections: The Work of Charles and Ray Eames*, catalogue of an exhibition at the Frederick S. Wight Gallery, University of California, Los Angeles, December 7, 1976 – February 6, 1977, p. 15.
 - 60 *Ibid.*, p. 43.
 - 61 *Ibid.*, p. 45.
 - 62 Colomina 1997 (see note 33), p. 146.
 - 63 Charles Eames, 'Mies van der Rohe' (photographs by Charles Eames taken at the MoMA exhibition), *Arts & Architecture*, December 1947, p. 27.
 - 64 'To show a 3-Screen slide show', manuscript detailing the necessary preparations for an 'Eames 3 screen 6 projectors slide show' with 'sound' and 'picture operation procedure', illustrated with multiple drawings, 14 pp., *The Work of Charles and Ray Eames* (see note 9), box 211, folder 10.
 - 65 Peter Blake, in *An Eames Celebration: The Several Worlds of Charles and Ray Eames*, WNET Television, New York, February 3, 1975, quoted in Kirkham 1995 (see note 18), p. 320.
 - 66 Eames in Gingerich 1977 (see note 29), p. 333.