Its cover illustrated not with a building but with a computer loom,[1] in December 1966 *Archigram* no. 7 claimed to be the issue that went "Beyond Architecture" (figure 3.1). And, Peter Cook warned in his editorial, "There may be no buildings at all in *Archigram* 8." In the event, *Archigram* no. 8 did carry a few drawings and plans of things that approximated buildings, but it was clear that brutalist concrete mass, or mass of any kind, had no part to play in the construction of the future.

In *Archigram* no. 2, Timothy Tinker had asked "Ten Questions in Search of an Answer," to which *Archigram* sought answers during its subsequent editions. "As in politics," ran one of Tinker's questions, "can we learn the lessons of the twenties and thirties and start our thinking from where they left off, not from where they began?"[2] Here Tinker appeared to correlate the rise of the stiff "White Architecture"[3] in the twenties and thirties with the rise of totalitarian systems of social organization. Confining both to history, Tinker introduced an all-encompassing notion of freedom that would finally find its terminology in the lexicon of keywords introduced by *Archigram* nos. 7 and 8, among which was *indeterminacy*.[4] *Archigram* no. 8 proffered: "Oxford Dictionary definition: INDETERMINACY: 'Not of fixed extent or character, vague, left doubtful.' Archigram usage: Of varying evaluation. Not one answer. Open-endedness."[5]

Archigram's philosophy of "indeterminacy" brought to a head a long-running, rarely mentioned conundrum of modernism. Modernism is a contradictory idea, inasmuch as the word "modern" implies something that is bang up to date and still in formation, whereas the suffix "ism" implies the opposite, a doctrine, a codified method, a style.[6] *Archigram* would ensure that the "ism" would instead stand for a continual state of becoming, the design of the ever new.

The commitment to indeterminacy addressed a horror with stasis that accompanied Archigram from the outset. The first two *Archigram* newsletters agitatedly drew

attention to the living, organic properties of the projects they showcased, then "Living City" advocated a culture of circulation and choice. With each new issue *Archigram* went further in its application of "indeterminacy" to the built environment, championing disposable buildings in its third edition and the joys of designing without gravity in its fourth. When the high water of continually evolving megastructures paraded in *Archigram* no. 5 and plug-inscapes in *Archigram* no. 6 receded, it revealed a world beyond architecture: a sublime world of pure servicing, information, networking, transience.

This chapter inspects the design tactics the Archigram group deployed to cope with indeterminacy, and begins by sketching in the cultural background to the mission. Archigram and its allies responded to a great and bewildering amalgam, a backlog of ideas that, if often imprecise or applied out of context, had nonetheless reached a critical mass: interrelated notions of extension, simultaneity, relativity, libertarianism, expendability, organicism, and cybernetics.[7]

One of the more esoteric modernist debates of the 1950s (and 1960s, when it was picked up in conceptual serial art) had asked whether a composition is ever complete. The designs of Mondrian and Mies van der Rohe implied infinite extension, it was suggested: many of Mondrian's orthogonals did not stop short of the canvas but pointed to the space outside; Mies's partitions hovered in space above potentially infinite grids, as though in temporary formation.[8] In 1951, the prominent British architect Richard Llewelyn Davies offered to release Mies from his presumed frustration by proposing an "endless architecture," a design method making use of modular elements repeated in a building to suggest imminent extension. Llewelyn Davies and John Weeks, who can be credited with bringing the word "indeterminacy" into architectural discourse, went on to apply the principle to their design for Northwick Park Hospital (1961–1974), its rhythms generated by load and function, its wings rudely finished in anticipation of addition.[9]

This additive mode of indeterminacy was intriguing but probably a little clunky for Archigram's taste. Likewise, Britain's widely admired postwar CLASP prefabrication system, used mainly for school building, was in theory infinitely extendable through the addition of construction elements, but hardly emitted the broiling energy Archigram wanted to see in architecture. Early observers of modernity, from Marx to the futurists, considered the nature of the modern world to be of "dynamism" wrought by mechanization, economic liberalization, social upheaval, and new insights into the physical world. The representation of this modernity could only be captured through *simultaneity*. In *Vision in Motion* (1947), László Moholy-Nagy was determined that an understanding of the dynamics of modernity, of "technology-in-flux," be inscribed in the design syllabus as "a conscious search for relationships—artistic, scientific, technical, as well as social" in "the flashlike act of connecting elements not obviously belonging together," believing that "if the same methodology were used generally in all fields we would have *the* key to our age—*seeing everything in relationship*."[10] The pages of *Archigram* were pervaded by a similar vitality of simultaneity.

In the 1950s, the art of Jackson Pollock, Jasper Johns, and Robert Rauschenberg suggested another spontaneous, informal spirit. At Black Mountain College in North Carolina in the 1940s, Rauschenberg, the composer John Cage, and choreographer Merce Cunningham developed indeterminate structures for artistic events. In 1966, various American strands of indeterminate play coalesced as Experiments in Art and Technology, Inc. (EAT), an organization counting among its members Rauschenberg, Cage, and their sometime Black Mountain colleague Buckminster Fuller. From his new base in New York, Archigram's Warren Chalk helpfully provided EAT's full address to those readers of *Architectural Design* in 1970 wanting to produce their "own scene machine today,"[11] and in much the same way the Archigram group imagined a "scene machine" of its own: a continuous creative recomposition of architecture, a lived and playful process configured by the user.

The theoretical ambivalence of modernism, its tension between the spontaneous and the contained, had only gone generally unnoticed this long because of its skillful resolution in the actual buildings of "modern masters" like Le Corbusier, who could create the illusion that walls had dropped by providence into perfect position on the plan.[12] The practice of modern architecture was, secretly, intuitive. In May 1957, John Summerson

**3.1** *James Meller, cover of* Archigram *no. 7, December 1966:* Archigram *moves "beyond architecture," hoping to find through the continual recalculations performed by a computer loom an alternative to the permanent spatial choices recorded by buildings.*

came to the assistance of those cohorts of architects who could not attain the apparently effortless intuition of the masters, nor form a methodology from the tangle of theories and manifestos the masters left behind. In "The Case for a Theory of Modern Architecture," an address delivered to the RIBA on receipt of the Gold Medal,[13] Summerson arrived at his theory of "the Programme" so as to fulfill the conceptual void at the heart of modernism, "its lack of a communicable rationale once the masters had departed."[14] Summerson cut the Gordian knot of modernism: "Prior to 1750, the prime principle of unity in architecture was the received paradigm of ancient precedent—a classically ordained source of unity that in the twentieth century has come to be progressively displaced, as a principle or order, by the socially determined programme."[15]

Under Summerson's rubric, buildings would be formed by social requirement. Peter Cook's AA tutors, Arthur Korn and John Killick, agreed. "Our authority today sounds perhaps mundane and uninspiring" Killick confessed. "It consists of what can only be summed up in that rather flat word—the programme."[16] This procedure, however, still bore a terrible weight for the architect charged with divining the social will and translating it into built form.[17] Surely, reasoned Archigram, it would be simpler to hand the control levers of the environment straight over to society, and let people determine forms and spaces directly. Apart from which, the moment one made a commitment to an architectural program, everything was frozen—the architectural solution (the building) and the social desire that had brought it into being, which might be nothing more than a passing fad. The program was just another sort of idealism. The imperative for Archigram's generation was to create "open ends"[18] (as an editorial of *Archigram* no. 8 phrased it), an architecture that expressed its inhabitants' supposed desire for continuous change. Architecture, Cook wrote in 1970, "can be much more related to the ambiguity of life. It can be throw-away or additive; it can be ad-hoc; it can be more allied to the personality and personal situation of the people who may have to use it."[19]

This acceptance of uncertainty kept architecture in step with advanced practices elsewhere in culture. Science itself had become a less certain affair since Heisenberg's 1927 discovery of the uncertainty principle (also known as the indeterminacy principle). In physics, uncertainty was a result of the inability to simultaneously determine all the natural variables of a system. The philosopher Karl Popper imported ideas of the indeterminate from the scientific sphere into the political. Once regarded as an inconvenience to the rational functioning of society and space, human variables offered a new challenge for the progressive architect—something, indeed, of a maxim in the wake of Popper's seminal books, *The Open Society and Its Enemies* (vol. 1, 1945; vol. 2, 1966) and *The Poverty of Historicism* (1957),[20] just as Western intellectuals and artists were frantically disengaging with the excessive order of scientific Leninist Marxism (retroactively tainted by Stalinism). The attempts by the masters of political philosophy (Plato, Hegel, Marx) to find plans within human history was, Popper argued, immoral, intellectually dishonest, and counterproductive. In its place Popper proposed a pragmatism of social openness, democracy, and criticism, managed at most by medium-term social engineering.

As Archigram put it in 1966, "buildings with no capacity to change can only become slums or ancient monuments."[21] Programmatic modernism seemed ever less suitable to postwar liberal democracies,[22] and its abandonment helped to rupture CIAM, the guiding body of modern architecture until the 1950s. Thanks in particular to the work of the Smithsons and their colleagues in Team 10, modernists were forced to consider, however superficially, how human communities might *actually* function, rather than how they *should* function. Cook's sometime tutor John Voelcker concisely summarized the issue in Team 10's Draft Framework for CIAM in 1956, contrasting the 1920s thinking of Bauhaus director Walter Gropius with the 1950s thinking of Team 10's Jacob Bakema: "To oversimplify, the idea of 'social responsibility' (Gropius) was directive, 'Moral Function' (Bakema) is libertarian in that the onus placed on the architect is to seek out the existing structure of the community and to allow this structure to develop in positive directions. Induction instead of deduction."[23]

In fact modern architects had long harbored a latent libertarianism in their designs. Sir Andrew Derbyshire, recalling his experiences as a mature architectural student at the AA in the

1950s, candidly admits, "we were very interested in anarchism, which was a bit of a contradiction, I know"—this from one of the leaders of a "second generation" of modernists who had striven to make of modernism a rulebook and who had believed passionately in the benevolent power of planning to reconstruct people's lives.[24] Relative permissiveness was further inspired by existentialism, that most pungent of intellectual movements in the immediate postwar period, which brought with it the insistence that life is negotiated, not preprogrammed. This was partly translated into demands for spaces that allowed for human *encounter* as well as segregation of function,[25] concerns that were elevated to the status of a full politics by Henri Lefebvre, the situationists, and Herbert Marcuse in their war with the cheerless, exploitative rationalization of everyday life. No less influential was the "common-sensical" tone of Jane Jacobs's *The Death and Life of Great American Cities*, her defiant 1961 celebration of the messy pluralism of the American city "as found," unsullied by master plans.[26]

After Jacobs, Archigram (at the "Living City" exhibition) conceived of the environment being determined by the competition between lifestyles, accommodating unruly consumerist appetites and subcultures. In the 1920s, the white austerity of modern architecture promised economy in an age of scarcity; and by the 1950s, modernist economies of scale were finally being realized in the white and gray system-built estates and blocks, just as rationing was being lifted[27] and the West was emerging into the colorful world of plenty. An architecture of strictly finite means was being provided, it seemed to Archigram, to an economy with no apparent limits. It made no sense. "You can roll out steel—any length," wrote David Greene in *Archigram* no. 1, sounding like an advocate of Llewelyn Davies's "endless architecture" until he came to less conventional building materials: "you can blow up a balloon—any size" (the plastic-and-aluminum U.S. satellite balloon Echo 1, launched in August 1960, had a cool one-hundred-foot diameter), "you can mould plastic—any shape . . . you can roll out paper—any length."[28]

Two economics of indeterminacy became apparent in the fifties and sixties, one judicious, the other playful. Buckminster Fuller's indeterminate architectural "kit-of-parts" (such as his geodesic dome system) redistributed the world's finite building resources more equitably, whereas certain *followers* of Fuller like Archigram (which showed the geodesic dome airborne on the cover of its third, "Expendability" issue; see figure 1.29)[29] urged redistribution through a feeding frenzy of plenty, individuals playfully demanding ever more from their community stores. Prophets of scarcity and plenty alike were prompted by deprivation, Buckminster Fuller's in Depression-era America,[30] Archigram's in postwar austerity. Yet the argument given in *Archigram* no. 3 was that expendability offered the only realistic cue for the future of modern architecture, a departure from the "doing the most with the least" crusade about to be relaunched by Fuller's World Design Science Decade, but in accordance with trends elsewhere in the Western economy.[31]

> *Almost without realising it, we have absorbed into our lives the first generation of expendables . . . foodbags, paper tissues, polythene wrappers, ballpens, E.P.'s . . . also with us are the items that are bigger and last longer, but are NEVERTHELESS planned for obsolescence . . . the motor car . . . and its unit-built garage. Now the second generation is upon us . . . the London County Council is putting up limited-life-span houses. THROUGH AND THROUGH every level of society and with every level of commodity, the unchanging scene is being replaced by the increase in change of our user-habits—and thereby, eventually, our user-habitats. . . . We must recognise this as a healthy and altogether positive sign. It is the product of a sophisticated consumer society, rather than a stagnant (and in the end, declining) society.*[32]

Expendability was analogous to the healthy life-and-death cycle of the natural organism. Organicism had long lurked as the repressed alternative to the mechanistic, rationalistic discourse dominating modernism,[33] and was championed in the first edition of *Archigram*. Organicism was the byword for managing an architecture-in-change, offering the best of both worlds—"natural" order and "natural" laissez-faire.[34] In this way, proponents of the organic felt, architecture would emulate the continually evolving and growing human communities it served.[35] Organic architecture related parts to the whole—the nut and bolt to

the structure, the neighborhood to the city, the individual to the collective. By 1970, Peter Cook felt that buildings and planning would benefit from an animal integration—connected and jointed like vertebrae, flesh, organs, skin, and digestion.[36] In the wake of interest in cybernetics, famously defined in 1947 as the comparative scientific study of "control and communication in the animal and the machine,"[37] Cook may have been speaking more than metaphorically. If it was true that the principles of control are common to both inorganic and organic systems, inorganic architecture could operate as an extension of its organic users, each man and woman in turn a nerve ending in the social body.[38]

How else, other than through computer-based cybernetic technology, could the desires of every citizen be respected, tracked, and met? Archigram's "scene machine" would be advocated not as an indulgence to the democratic, consumer economy, but a necessity. The architect, MIT's Nicholas Negroponte claimed in 1970 (quoting another advocate of machine management), "is forced to proceed in this way . . . because watching each sparrow is too troublesome for any but God."[39] The game of architecture could begin: "architecture," Negroponte added, "unlike a game of checkers with fixed rules and a fixed number of pieces, and much like a joke, determined by context, is the croquet game in *Alice in Wonderland*, where the Queen of Hearts (society, technology, economics) keeps changing the rules."[40] Game theory offered a way of theoretically accommodating the desires of more than one "player" in a system. (At "Living City," Archigram compared urban life to a game subjected to chance; see figure 2.16.)[41]

All this assumed that players were operating strategically and rationally, a theoretical shortcoming compounded by the practical problem of primitive predictive computational technology. In other words, the "emergent situations" arising from human foibles looked set to be a persistent problem.[42] Undeterred, Archigram architects were resolved to make architecture sympathetic to emergent situations: while all sorts of sciences and rationales could be corralled to validate Archigram's case for indeterminate architecture, the details rarely detained their pursuit of impromptu pleasures. As Chalk once put it, "the knowledgeable and apparent sincerity of the glum venture into systems and methods dispels the gleeful enjoyment one can have with meaningless conversations, irrational gestures, jokes and giggles."[43]

Archigram could hear how players improvised within a system when listening to jazz music's transformation of themes. Slipping onto the record turntable the ventures into "free jazz" of the sort featured in "Living City," Archigram could marvel at the extreme meltdown of themes, genres, and musical techniques.[44] Chalk took the title of his open letter to David Greene, "Ghosts," published in *Archigram* no. 7, from the most played number of radical jazz saxophonist Albert Ayler (figure 3.2).[45] Ayler's music sounded chaotic, *was* nearly chaotic, but it was not chaotic; it was music, it was bliss. Architecture might achieve something similar.

### FROM THE MEGASTRUCTURE TO THE KIT-OF-PARTS

In his *Come-Go* collage for "Living City," Peter Cook pasted a photograph of a typical American city street lined with vaguely International Style blocks (figure 2.11). "This sort of environment can never be the answer," he wrote, arrows pointing to the blocks. "And it isn't even good technology."[46] Yet the International Style represented modern architecture. If Archigram was to have any credibility, it would have to present the public with another sort of modernism, one as plausible in its rationale as the International Style, and preferably one validated with as impressive a historical lineage. As a counterpoint to mainstream modernist monumentality, Archigram and its allies pieced together an architecture of indeterminacy from some of the more peripheral practices of modern architecture.

Architects should not be building neat partitions, Archigram reasoned, but joining up space and freeing motion. "FLOW?" asked Greene impatiently in *Archigram* no. 1, "water flows or doesn't or does/flow or not flows."[47] Tony Garnier ensured a clean flow of goods and bodies around his classic Cité Industrielle (1917), *Archigram* no. 5 reported, and the best postwar experimental work, like the Smithsons' Sheffield University project (figure 1.16) and Walter Pichler's city study (which had recently arrived from Austria), did the same.[48] The linear city