The story of the group of architects known as Team X is a familiar one, at least in regard to the group’s founding years in the 1950s. Core members—the young architects Aldo van Eyck, Jacob Bakema, Georges Candilis, Shadrach Woods, and Alison and Peter Smithson—met each other at the ninth meeting of CIAM (Congrès Internationaux d’Architecture Moderne) in 1953, whereupon they recognized in each other’s projects a kindred spirit that united them against the old guard of CIAM. Together as Team X, they would go on to establish a new agenda for mass housing, “Habitat for the Greater Number,” at the next CIAM meeting in 1956.1 But the story of what became of this agenda is less clear, owing, in part, to friction within the group that has contributed to a view of Team X’s output as heterogeneous, at best, and inconclusive, at worst.2 This article will challenge received notions of Team X by examining a novel theory of relations that served as the impetus behind the group’s exploratory projects.

Sigfried Giedion planted this theory of relations in the late 1940s and early 1950s, in his discussions on the synthesis of the arts and on the role of prehistory at CIAM and other venues, such as the Institute of Contemporary Art in London. It was formulated near the end of his career (Giedion was sixty-five years old when Team X was inaugurated in 1954) and marks a turning point in the Swiss historian and theorist’s academic trajectory. Giedion is often seen as an old-guard CIAM member whom Team X opposed; but contrary to common perception, he played an important, formative role in Team X’s thinking and actively supported the group until 1957, when they suddenly parted ways due to institutional politics at CIAM. Largely forgotten today, Giedion’s postwar turn constitutes a missing link in our understanding of the origins of Team X’s theoretical framework that will serve to unlock the group’s motives, methods, and convictions in their search for a new architecture, even after CIAM’s dissolution in 1959.3 Rather than revisiting well-known material, my goal is to provide a new interpretation of Team X’s legacy, constructed around missing pieces of the group’s intellectual history. It will shed new light on Giedion’s unique contribution to the reinvention of modern architecture at midcentury, a contribution that gains significance in the context of Team X.

New evidence for this argument derives from two archival sources in particular. The first is a collection of Giedion’s papers in the Archives of the Institute for the History and Theory of Architecture (gta Archives) in Zurich that elucidate the nature of Giedion’s postwar research and his early involvement with Team X members at CIAM. The second is the collection of unpublished transcripts of Team X meetings.
after CIAM, specifically, the Team X meeting at Royaumont in 1962 and the Rotterdam meeting in 1974. These transcripts, housed in the Collection Het Nieuwe Instituut in Rotterdam, represent milestones in Team X’s intellectual development. They provide important evidence for a deeper understanding of the group’s methods and goals than that offered in either the existing scholarship or in Alison Smithson’s edited account of these two gatherings in her *Team 10 Meetings* (1991).4

**Giedion and the Synthesis of the Arts**

At CIAM 6 in Bridgewater, Somerset, in 1947, Team X’s future agenda was already being formulated by Sigfried Giedion, CIAM’s secretary-general. In his introduction to the questionnaire “The Synthesis of the Arts,” Giedion proposed to change the congress’s prewar focus on rational techniques to a new subject: “Now we consciously promote another step. A step towards a rather intangible subject; aesthetic problems or, you may prefer to say, emotional expression.”5 In the German aesthetic tradition of his mentors, Heinrich Wölfflin and Wilhelm Worringer, Giedion believed that the cultural style of an epoch expressed a mode of perception that dialectically alternated throughout history between two states of mind: reason and emotion, or as he put it, “thinking and feeling.” Thus, whereas before the war, he had identified modernism with mechanization, in 1947, he now emphasized the dialectically opposing tendency of empathic emotion. As evidence of the “loss of faith in the modern age of industrialization,”6 Giedion invoked the words of the English philosopher and mathematician Alfred North Whitehead, whom he cited on the recommendation of his friend and colleague, the art critic Herbert Read:

Already twenty years ago, Alfred North Whitehead—the great scientist and far-sighted philosopher—shoved us the fallacy of the opinion that aesthetic values exist only within the personal and private sphere. It is Herbert Read who, in one of his essays, points again to Whitehead’s arguments where he has shown that this erroneous belief can be traced back to Descartes. It was Descartes who first divorced science from philosophy. After that philosophy took over the charge of the cogitating mind and science took charge of the materialistic nature. This divorce was the start of a one-sided rationalism. It split the world in two: on the one side the cogitating mind, [and] on the other … the whole sphere of emotional expressions.7

In reply to Giedion’s questionnaire, a young Aldo van Eyck (and future Team X member) penned his first CIAM report, in which, he, too, criticized CIAM for its “one-sided rationalism”: “The old struggle between imagination and commonsense ended tragically in favour of the latter. But the scales are turning: CIAM knows that the tyranny of commonsense has reached its final stage, that the same attitude which, 300 years ago, found expression in Descartes’ philosophy … is at last losing ground. … During the last 50 years or so a few, ranging from poet to architect, from biologist to astronomer, have … turned our senses to a new dimension.”8

As Giedion noted in his introduction, the broader intellectual framework for his critique of mechanism came from Whitehead, whose *Science and the Modern World* (1925) armed him with the philosophical apparatus for a new aesthetic outlook. According to Whitehead, the foundations of Western thought since the Renaissance had been rooted in the false notion that reality consisted of brute matter extended into space. But while this assumption applied to rational constructs of reality, it was a simplification that broke down “when we pass beyond the abstraction, either by a more subtle employment of our senses, or by the request for meanings and for coherence of thoughts.”9 As Whitehead argued, reality consisted not of corporeal substance, Descartes’s *extensa res*, but rather of relational processes, which he called “prehensions”: a precognitive form of apprehension (i.e., intuition), in which a reciprocity of perspectives was grasped into a unity or pattern of relations.10 For Whitehead, then, the process by which we perceive something before we are consciously aware of it, was akin to a Bergsonian event or Leibnizian monad, mirroring the manifold perspectives of an infinite universe.

Whitehead’s account of an alternative viewpoint gave Giedion a conceptual framework for rethinking modern architecture in terms of relations. But in constructing this viewpoint, his initial attempts to encourage architects to explore its implications were tentative. On 12 August 1948, Giedion delivered a talk titled “The Interrelation of the Arts” at a joint meeting with the MARS Group (the British faction of CIAM) and the newly founded Institute of Contemporary Arts (ICA) in London, directed by Read. There, he reiterated: “Our task is to overcome the methods of feeling and the methods of thinking” and “to find the interrelation between the different realms of science and art.”11 He drew parallels between the space-time perception of the modern avant-garde and Einstein’s theory of relativity, and traced this idea in art, architecture, and construction, as he had previously outlined in his *Space, Time and Architecture* (1939).12 He convened a second meeting with the MARS Group at the Victoria and Albert Museum on 31 August 1948,13 but disagreements between them emerged. The MARS Group favored the populist sentiment of the New Empiricism, a postwar movement that Giedion promptly dismissed “as the attempt to be more objective than the
Although Giedion was unsuccessful at recruiting the MARS Group, he continued to seek other venues to promote his ideas, and in so doing, his call for the synthesis of the arts as a means to negotiate the gap between “inner and outer reality” became more definite. Building on his contacts at UNESCO, he wrote to Edward (Bobby) Carter, Director of the Department of Cultural Activities, in the summer of 1949, in order to update him on CIAM events. In the following year, UNESCO invited Giedion to sit on the editorial board of its new journal, the *International Art Review*, alongside other eminent authorities, including André Malraux, Alfred Barr Jr., and Read. And at an editorial meeting on 22 August 1950, he recommended that the journal should not just catalogue the art of “101 nations” around the world, but more importantly, that it should focus on the theme of relationships: “The chief function of this Journal is not just to disseminate art, but to show the public[,] the FORCE and FUNCTION of ART, past and present. … Art is the symbolic expression of man’s emotion, the bridge between inner and outer worlds. Art is a fundamental experience. Art is no isolated phenomenon. … This Journal should promote [a] creative sensibility, not by cataloguing the activities of 101 nations. It should justify the existence of different patterns of culture. Relationship in every aspect should be the motive of the whole Journal.”

At CIAM 6 and his meetings with the MARS Group, Giedion had argued that the aesthetic problem of emotional expression justified a new outlook. Now, with UNESCO, he proposed to extend that thesis by offering visual evidence of this outlook in art and its correlates in other fields. Significantly, this too was indebted to Whitehead, since *Science and the Modern World* traced an alternative sensibility not only in philosophical viewpoints that challenged the “abstract materialism” of Western thought but also in modern science (especially biology and quantum physics) and the English romantic movement in literature. On the romantic poets, Whitehead wrote: “Berkeley, Wordsworth and Shelley are representative of the intuitive refusal seriously to accept the abstract materialism of science.” Their theme is “nature in solido … that mysterious presence of surrounding things.”

Modern biology gave further evidence of this “nature in solido” (unlike a machine, an organism could not be separated into parts), as did quantum physics, since even an electron was a pattern of its manifold aspects in a global environment.

In an effort to extricate the new outlook from the concrete facts of human experience, Giedion similarly proposed topics for UNESCO’s art journal that would span the historical and disciplinary breadth of Whitehead’s thesis, covering topics such as “Art and Science,” “Art and Literature,” “Art and Education,” and “Art and the Continuity of Human Experience.” But much to Giedion’s dismay, UNESCO rejected his proposal on the grounds that it would not appeal to a general and nonspecialized readership. Unwilling to whittle down the theoretical content of his proposal, Giedion confided in a letter to Read: “The reason I will not compromise … is that I have picked out what I regarded as the most hopeful forces in the younger generation and am not willing to do less than we expect of them.”

Giedion confided in Read not only because he was his closest ally on the UNESCO editorial board but also because Read himself was actively promoting a similar thesis at the ICA, where he served as founding director. Indeed, under Read’s stewardship, the ICA organized exhibitions based on two of the topics Giedion had proposed for UNESCO just a few months earlier. These exhibitions were *40,000 Years of Modern Art* (December 1949 to January 1950) and *Growth and Form* (July 1951). While the first asserted the existence of a “primitive pericience toward visual and plastic creativity,” the second, organized by the artist Richard Hamilton, presented visual evidence of a new aesthetic perception in modern biological imagery. The latter, moreover, was accompanied by a symposium, “Aspects of Form,” organized by Read and the biologist Lancelot Law Whyte.

In addition, for the debut of *40,000 Years*, Read invited Giedion to present a paper titled “Art and the Continuity of Human Experience,” one of Giedion’s proposed topics for UNESCO; the essay Giedion actually delivered at the ICA on 8 January 1951 was titled “Art[,] a Fundamental Experience” (1950). This essay was Giedion’s first paper on prehistory; and it explained, in the clearest manner yet, what he meant by “the symbolic expression of man’s emotion” in the context of Whitehead’s process philosophy. Following Georges-Henri Luquet’s thesis in *Primitive Art* (1921), Giedion maintained that there was a close affinity between “prehistoric and contemporary means of artistic expression,” and to forward his argument, he compared them both to children’s art, because he considered them forms of expression that communicated not what the eye saw (a naturalistic reproduction of the world) but rather what the mind knew (a lived experience). To illustrate this difference, he contrasted the “pre-linguistic stage” of a parrot imitating sounds as mere signs and signals with the poetic power to reinvent patterns of relations and re-present the world anew. Quoting the French psychologist Théodule-Armand Ribot, he noted: “Symbolism had its golden age during the prehistoric periods. Since then it has been suppressed and weakened under the antagonistic pressure of rational thinking. The raison d’être of symbolism … lies in the human need to represent what is unrepresentable.”
This mode of re-presentation was what Giedion meant by symbolic expression: a creative act that did not reproduce reality so much as enlarge upon it. For Giedion, prehistoric art, the modern avant-garde, and children’s art made manifest the changing relationship between “inner and outer reality,” using “similar methods of presentation: transparency, superimposition, simultaneity, abstraction, representations of movement, and many others.” Transparency, movement, and the “X-ray principle” of superimposition, he wrote, were not strictly inventions of the modern avant-garde; they were phenomena of “any period” in which “the outlook [was] not restricted to a naturalistic perception of the world” (Figure 1). Consequently, Giedion sought parallels in the cultural artifacts of human experience not because he wanted the younger generation to copy the same old patterns of relations but because he believed those patterns ought to be rethought and re-presented as new symbols of what he would later call “the eternal present.”

The Translation of a Relational Idea from Art to Architecture

In acknowledgment of Giedion’s formative influence (but without mentioning him by name), Jacob Bakema noted in the Team X Primer (1961) that “in 1947 there was a new attempt by young architects in CIAM to abandon the gap between thinking and feeling.” Among these young architects were, of course, himself, as well as Van Eyck, who had written a response to Giedion’s questionnaire on the Synthesis of the Arts. Like Giedion, Van Eyck believed that a new outlook and creative sensibility were upon them, and in his CIAM 6 report, he claimed that this outlook could be detected in philosophy, science, and the modern avant-garde. He cited Hans Arp, Constantin Brancusi, Wassily Kandinsky, and Piet Mondrian, and referred to them as “the great gang” who “tore down the barrier … between outer and inner reality.” Quoting Mondrian, he wrote, “The culture of determined relations has begun.” Not surprisingly, then, Van Eyck’s playgrounds for the city of Amsterdam in the late 1940s drew inspiration from the De Stijl movement, and consisted of fields of color dynamically arranged across the site in counterpoint to the existing street and surroundings (Figure 2).

Van Eyck first met Giedion while he was a student at the ETH Zurich in the early 1940s, and as Francis Strauven has shown, he became close friends with Giedion’s wife, the art historian Carola Welcker-Giedion. In contrast, the Smithsons did not meet Giedion prior to their participation at CIAM in 1953, but as members of the Independent Group (IG) at the ICA in London, they may well have read his Mechanization Takes Command (1948). This book was on the IG’s reading list and contained elements of his ongoing critique of mechanism. For example, in his conclusion, Giedion wrote, “The evolution away from merely materialistic and mechanistic conceptions must start from the new insight into the nature of matter and organisms.” In addition, the Smithsons were intimately familiar with the ICA exhibition Growth and Form (1951), and together with artists Nigel Henderson and Eduardo Paolozzi, they organized its sequel, Parallel of Life and Art (1953). Echoing Giedion’s call for a new outlook in the arts and allied fields, they wrote in their proposal “Documents ’53,” “The second great creative period should be proclaimed by an exhibition in which the juxtapositions of phenomena from various fields would make obvious the existence of a new attitude.”

Similar to its two predecessors (40,000 Years and Growth and Form), Parallel of Life and Art canvassed a hidden world of relational processes in representations of biological organisms, prehistoric artifacts, informal settlements, natural landscapes, and animals in motion; indeed, in the very cultural artifacts Giedion had wanted the UNESCO journal to survey.
painter [Jackson] Pollock and sculptor Paolozzi for a complete image system, for an order with ... a certain tension, where every piece was correspondingly new in a new system of relationships" (Figure 3). The exhibition catalogued over 200 images, which were organized into categories, and within each category, at least one image corresponded to another category. Under “Architecture,” for example, an Aztec mask was included among pictures of buildings and monuments in cross-reference to the category “Primitive.” And under “Primitive,” an etching by Paul Klee and a child’s painting were included among prehistoric artifacts in cross-reference to “Art” (Figure 4). This detail, of course, was indebted to Giedion’s thesis on the parallels between prehistory, the modern avant-garde, and children’s art. Although Reyner Banham had missed this point in his review of the exhibition, and criticized the organizers for dwelling on the past (rather
than on the future or visionary present), another critic, Tom Hopkinson, appreciated their attempt to create a web of correspondences. “The apparent correspondence between such disparates,” he observed, “acts as a powerful stimulant to the imagination … as if one had stumbled upon a set of basic patterns for the universe.”

In their architecture, the Smithsons studied “patterns of association” in traditional cultures, and from these studies they tried to devise new patterns. In Golden Lane Housing (1952–53), for example, they transposed the English vernacular of a neighborhood street into the modern context of a high-rise apartment building, and conceived a pattern of growth that interconnected their “streets in the air” with other levels of association (the house, the district, and the city). They presented this project at CIAM 9 in 1953 (accompanied by Nigel Henderson’s photographs of children playing in the streets; Figure 5), and found that it bore a striking resemblance to another housing project, presented by ATBAT-Afrique (Georges Candilis and Shadrach Woods). ATBAT’s proposal for vertical housing was a modern interpretation of the Moroccan bidonville or shantytown. The Smithsons continued their research on vernacular patterns of association in their “Close” and “Fold” houses for several
more years, and summarized this research in their essay “The Built World” (1955; Figure 6): “Each one of us recognizes the Street, the Place, the Village Green, the Grand Boulevard, the Krall, or the Bidonville, as urban inventions, extensions of the house and components of the town, which satisfied the needs and aspirations of past generations in other places. … We must evolve an architecture from the fabric of life itself. … In a rough and ready way we have made a start—a ‘doorstep philosophy’—an ecological approach to the problem of habitat—and a new aesthetic.”

Golden Lane (the Smithsons) and Moroccan Housing (Candilis and Woods) were included in John Voelcker’s subcommittee report on Commission II at CIAM 9, along with Bakema’s proposal for the New Town of Alexander Polder in the Netherlands (with Johannes van den Broek). Giedion organized this commission (with Van Eyck), and its theme was “The Synthesis of the Plastic Arts.” Although unsigned, the main report on Commission II was presumably authored by Giedion, as it contained key points from his “Art[,] a Fundamental Experience,” including his proposal for a relational principle made manifest in what he now described as “a plastic sense, a new development of [a] rhythmic idea and an ability to appreciate the play of volumes in space.” This plastic sense applied not only to painting and sculpture but, more importantly, to the contemporary city: “We are not concerned with the place of painting and sculpture in the ‘Habitat’; rather we have concerned ourselves with the formation … of a plastic idea for the contemporary city, [and] we will attempt to extricate this from the dominant directions apparent from our study of the grilles.” As examples of this plastic sense, Giedion referred to two projects (grids) in particular: Bakema’s Alexander Polder and ATBAT’s Moroccan Housing. In reference to the former, he noted that “the rectangular pattern of roads serve[d] as a framework for [the architect’s] plastic intentions,” and in regard to the latter, he underscored “the function of aesthetics in primitive culture,” and noted that the shantytown offered evidence of a plastic and relational sensibility integrating particular conditions: ecological, social, and cosmic. He stated: “What the modern painter has shown us for 40 years [is] that the most direct means of expression are to be found in prehistoric and primitive art, [which is] now becoming an urgent need in realizing a new potential for deepening contemporary architecture. We must insist that in this manner of approach social and aesthetic imagination have become inseparable.”

Here, Giedion was clearly attempting to frame the new direction that the younger generation should take in regard to “Habitat,” the theme of the next meeting, CIAM 10, in Dubrovnik. He asserted, “Having recognized that a contemporary aesthetic language is the only valid means through which we can give architectural expression to the town it becomes essential to develop plastic means so that it may become possible to achieve a new human Habitat.”

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Figure 6 Alison and Peter Smithson, “Fold Houses,” panels for CIAM 10, 1956 (collection Het Nieuwe Instituut, archive BAKE, inv. nr. 0178).
By the time Team X officially convened at Doorn in the Netherlands in January 1954, as the organizing committee for CIAM 10, Van Eyck, Bakema, Candilis, Woods, and the Smithsons already had much in common, and together they would take ownership of the larger theme of relations introduced by Giedion. They issued their famous “Statement on Habitat” in January 1954 and declared: “Today we each recognize the existence of a new spirit. It is manifest in our revolt from mechanical concepts of order and our passionate interest in the complex relationships in life and the realities of our world.”56 It was here, of course, that Team X proposed to replace the functionalist precepts of CIAM’s prewar Athens Charter with their Scales of Association, which Peter Smithson famously illustrated in his diagram of Patrick Geddes’s “Valley Section.”57 In addition to contributing to the Doorn document, the Smithsons penned two other statements on behalf of the British faction of CIAM: “Habitat” (undated) and “The Task of CIAM in the Fifties” (June 1954).58 In the former, the Smithsons defined Habitat as “a form which crystallizes our culture pattern” in a symbol as pertinent “as the croft and the Georgian town house before it.” And in the latter, they added that a holistic approach to human associations “must look for patterns of regeneration.”59

Representing the views of CIAM’s Dutch faction, Van Eyck (with Bakema) wrote his own follow-up, in a supplement to Team X’s “Draft Framework 3” in October 1954.60 This supplement began with an epigraph by Mondrian on “the culture of determined relations,” and recounted the history of Team X out of CIAM, beginning with CIAM 6:

Already at Bridgewater a plea was made for imaginative thinking. Since then a new aesthetic consciousness has been winning ground. … It became clear to us at Hoddesdon (CIAM 8 in 1951) that … life falls through the mesh of the four functions. … The chief result of Aix (CIAM 9 in 1953) was the spontaneous recognition by several younger groups of a mutual outlook … i.e. a greater awareness of significant relations and the necessity of giving expression to these relations—this greater reality as it were—in terms of planning i.e. in terms of form.61

In the Dutch supplement, Van Eyck validated the Smithsons’ research on human associations and “the study of each Habitat … in light of its particular—unique—context,” adding that it is “in a network of relative whole things that we wish to consider.”62 But whereas the Smithsons wanted the four “levels of association” to serve as commission topics for the tenth congress, Van Eyck proposed a different format, organized around the following themes: “the greater reality of the doorstep,” “the aesthetics of number,” “growth and change,” and “the ecological approach.” Here, Van Eyck’s use of the term doorstep, introduced by the Smithsons at CIAM 9, echoed Giedion: “We must rediscover the faculty with which to distinguish between what is permanent and essential to man and what is arbitrary. … We must develop a greater awareness of significant relations, as well as the capacity to stimulate their expression through form. The new human habitat should reflect and stimulate the primary contact between man and man, between man and thing—what we call ‘The greater reality of the doorstep.”63

The Dutch supplement not only reinforced Giedion’s thesis on the continuity of human experience, it also complemented the Smithsons’ position. But as historian Annie Pedret has pointed out, the Smithsons inexplicably objected to the changes Van Eyck made to the Draft Framework for CIAM 10, and, for Pedret, this was to be a premonition of future disagreements.64 Giedion, for his part, was kept abreast of Team X’s activities by the members themselves. Peter Smithson, for example, sent Giedion their two documents “Task of CIAM” and “Habitat” in July 1954, in order to give him “the background to what I was trying to say at Paris.”65 And Van Eyck did the same with the Dutch supplement. Giedion supported Team X in their “many sharp criticisms” of CIAM and shared their view that the results of the ninth meeting’s “Commissions de Travail” were, for the most part, disappointing, with the exception of the grids presented by ATBAT (Candilis and Woods) and Bakema.66 He also encouraged them to work out their differences and to clarify their working methods.67 In a show of solidarity, Giedion carefully drew a map of Team X’s program for CIAM 10, at the top of which he wrote “Relationships,” followed by four boxes, indicating the commissions, as they were eventually agreed upon: “Cluster,” “Mobility,” “Change,” and “Between the Four Functions” (Figure 7).68

But perhaps Giedion’s boldest display of support came when he moved to dissolve CIAM at its tenth meeting in 1956, so that Team X could begin completely anew, free from the institutional baggage that CIAM had become. However, no vote took place. Thus, when Peter Smithson independently announced the end of CIAM at the Royal Institute of British Architects in May 1957, he, in fact, had no mandate for doing so.69 This brazen act shocked the CIAM Advisory Council, and in a moment of desperation, Giedion wrote to CIAM president José-Luis Sert about the legal matter of terminating CIAM to form a new group, and even offered to consult his lawyer in Zurich.70 But the damage to CIAM had already been done. Sert issued an apology and reprimanded “some members” of Team X for their blunder: for forgetting that they were no longer the opposition, but the organizing committee, with responsibilities of governance.71 And in the aftermath, the Advisory Council, including Giedion, boycotted...
the final CIAM meeting in Otterlo. Bakema, nevertheless, sent Giedion the Otterlo transcripts, as well as Van Eyck’s “Story of Another Idea,” recently published in *Forum* (September 1959). But while Giedion did not comment on the congress or on Van Eyck’s article, he implored Bakema, in a handwritten note, to explain why he had not supported him to dissolve CIAM in a legitimate vote among CIAM delegates. For if he had done so, it may have saved both Team X and himself from an embarrassing loss of face:

In Dubrovnik [1956] I stood up twice. Once in the General Assembly and once in [a] delegate meeting demanding that the name of CIAM should disappear and that the younger generation take up the activity and choose a new name so that they might stand
completely on their own. Why did you and others not support this move if, as the Otterlo papers indicate, you recognized already that CIAM was at its end? ... Again in 1957 at La Sarraz I fought that the name of CIAM should disappear only to meet the most stubborn resistance from you, as chairman, as well as from most of the other participants. ... What was the reason of your unbreakable demand that you carry on the name of CIAM, when now you [have] changed suddenly your attitude?[72]

The year that Giedion fought to save Team X from CIAM at La Sarraz was the same year that he delivered his A. W. Mellon lectures on constancy and change in early art and architecture (1957) at the National Gallery of Art in Washington, D.C.[73] These lectures were later published as *The Eternal Present* (1961), but they had begun eleven years earlier with his ICA talk, “Art[,] a Fundamental Experience.”[74] Regrettably, however, his long-held desire to pick out “the most hopeful forces in a younger generation” was to end there.[75] Bakema’s letter was the last of the correspondence between Giedion and Team X.

This, of course, is not to say that Giedion had little impact on Team X. As we have seen, his ideas in the late 1940s and early 1950s inspired the Smithsons’ *Parallel of Life and Art* and the couple’s research on patterns of association in traditional cultures, and they corresponded to Van Eyck’s concept of a relational idea in modern art. Moreover, at CIAM 9, he articulated the theoretical framework for Team X’s critique of mechanism under the rubric of “The Synthesis of the Plastic Arts,” and identified the very first projects by the younger members to have moved in this direction (Amsterdam Playgrounds, Moroccan Housing, and the Alexander Polder). That Giedion’s theories directly infiltrated Team X is further corroborated by the fact that both Van Eyck and Alison Smithson included key statements by Giedion in their respective accounts of the history of Team X out of CIAM.[76] Not by chance, he was the only member of the CIAM Advisory Council they both included.

**Toward a Mat Architecture: From Stem to Matrix**

At the very moment when Giedion severed ties with Team X, Van Eyck produced his most original statement on an architectural theory of relations that was, in principle, indebted to Giedion’s thesis in “Art[,] a Fundamental Experience.” In his talk at CIAM ’59 in Otterlo, “Is Architecture Going to Reconcile Basic Values?,” Van Eyck began by expanding on his critique of Cartesian rationalism at CIAM 6. Rational thought, he claimed, separated states of being into binary categories, when these distinctions did not correspond to our lived experience: “You can’t just split dual phenomena into polarities and alternate your loyalty from one to the other without causing despair.”[77] Like Giedion, Van Eyck believed that binary opposites (inside versus outside, the one versus the many, presence versus absence) existed not in isolation from each other, but in an ever-changing yet eternal relationship, and in the gap that mediated the distance between them.

Van Eyck called this relational idea “the greater reality of the threshold,” and in terms of his own work, it meant that architecture must consist of in-between spaces. He applied this concept to his Amsterdam Municipal Orphanage (1955–60; Figure 8), and described his method in “The Medicine of Reciprocity Tentatively Illustrated” (1961). “All spaces,” he wrote, “were subjected to a single principle, through their place, sequence and treatment, as well as through their relation to each other, [to] the whole and [to] the site-context.”[78] Thus, the main entrance was not a set of “doors two inches thick and six feet high,”[79] but an in-between space—a *counterform*—mediating interior and exterior, private and public. The orphanage, wrote Van Eyck, was “a configuration of intermediary places,” mediating inside and outside: “The walls envelop, interlock and open up consecutively. I tried to articulate the transition by means of defined in-between places which induce simultaneous awareness of what is significant on either side.”[80]

Given their common belief in an alternative viewpoint to mechanism, predicated on relations, it may come as a surprise that Alison Smithson negatively compared Van Eyck’s orphanage to the Brynmawr Rubber Factory in Wales (1946–51) by the Architects’ Co-Partnership (the two projects happened to be reviewed in the same *Architectural Design* issue).[81] And for historians such as Francis Strauven, Smithson’s criticism was both unfounded and unjust.[82] This evaluation, however, requires further examination, since Smithson did not criticize Van Eyck’s philosophical orientation but rather an aspect of his design method that, to her, contradicted their shared philosophy. Indeed, when the American architect Wendell Lovett criticized Van Eyck at CIAM ’59 for stating his personal beliefs, Smithson defended her colleague: “Aldo is not stating his individual philosophy, he is stating our philosophy—the philosophy of the group.”[83] Like the Brynmawr factory, the orphanage implemented a modular system of prefabricated concrete units, and, for Smithson, the overall effect of Van Eyck’s repeating pattern of L-shaped clusters or “appreciated units” was heavy, oppressive, and monotonous. [84]

This criticism was consistent with Alison Smithson’s critique of Piet Blom’s large housing project, which Van Eyck presented at the Team X meeting at Rayaumont in 1962. “What worries me,” she said, “is that it all goes North, East,
South, West and just keeps repeating.” The Smithsons were equally critical of projects by Georges Candilis and Shadrach Woods, specifically their plans for Bilbao, Spain (1962), and Toulouse-Le Mirail, France (1961–71; Figure 9). These projects were based on clusters of repeating units, in the form of a branching stem that the Smithsons themselves had used in their Golden Lane Housing. As with Blom’s project, they worried about the self-similar scaling of the associated units, whose extension Alison Smithson likened to the “terrible growth of fungi.” According to Peter Smithson, “Even when you build the archetypal thing [i.e., stem]—in a way, some of the things you do, the length of the building for example, are instinctive. You know you’ve got to stop, because the form falls to pieces.”

Indeed, what bothered the Smithsons was the lack of distinction between the various scales of association (house, street, district, and city). This criticism was reinforced by Christopher Alexander, whom Team X invited to...
the Royaumont meeting. By way of analogy, Alexander explained: “It is the nature of the components, the fact that they are put in the form of components, and not the stuff that those things are made of ... that make it what it is. The same thing, a very obvious example, of [diamond] and graphite ... they both [are] made of exactly the same material, but in one case the carbon atoms are arranged in [uneven] components, and you get a very hard, very shiny substance. And in the other case, they are arranged in flat components, or plates, and you get a very soft black graphite.” Similarly, the Smithsons argued that the configuration of clusters at one level of association (the street, for instance) must be constitutively different from that of another (the city), just as the chemical configuration of graphite was organizationally different from that of a diamond.88

Although the problem of a modular system of repeating units would remain an issue for Team X, by the late 1950s, the Smithsons had already abandoned their research on the stem (Golden Lane) and had turned their attention to the study of circulation networks (Berlin Hauptstadt Competition, 1957–58, and the London Roads Study, 1959), whose urban scale, they felt, could give the contemporary city a strong, symbolic identity, like the canals of Venice or the aqueducts of ancient Rome. And yet, it was not the Smithsons but Candilis and Woods who would make the decisive step from the archetypal symbol of a stem to that of a web or matrix, with their design for the Free University of Berlin (1963–73; Figures 10 and 11).90 In his seminal essay on the “Web” in Carré Bleu (1962), Woods stated, “We feel that a Web, by which word we mean to designate Stem to the next degree, may provide a way to approach the search for systems, and hence, for a true poetic discovery of architecture.” According to Woods, unlike a stem, a web or matrix was a pattern of association that facilitated “chains of relationships” and multiple connections “so that no part of it [was] in danger of isolation.” Furthermore, within this connective field, activities could be arranged in different constellations: “When we pre-determine points of maximum intensity,” Woods explained, “it means that we are freezing a present or projected state of activity and relationships.”91 In this regard, for Candilis the traditional souk of Marrakech was an important precedent, precisely because it was a flexible framework where two programmatic conditions, such as a car mechanic and a jewelry maker, could unite.92 The matrix was therefore not just a further development of the stem; it was a richer and more complex relational system, comprising multiple connections, like a rhizome.93

The Free University was completed in 1973, and to mark the occasion the Smithsons called a meeting on the
theme of “the Matrix.” In their invitation, they noted: “We will attempt to write down ... why we have looked forward so long to being able to meet in the [Free University].”\(^94\) Bakema was equally enthusiastic: “The Candilis-Woods’ matriks [sic] ... gives a strong image that all this intermingling of activities could be done. The function of the architectural form system is very active.”\(^95\) But it was at the next Team X meeting in Rotterdam (1974) that the group reflected on the evolution of their thinking since their CIAM days; and there, they came to realize that the form of the Free University was, in fact, the culmination of their earlier research on an architectural theory of relations.\(^96\) As is typical of an intimate conversation among friends, the meeting began in media res, drifting between new and old projects, and revisiting, via these projects, recurring problems and abiding themes. In their discussion of Herman Hertzberger’s Centraal Beheer in Apeldoorn (1968–72), for example, Team X criticized the recently finished building for being monotonous and
“bi-dimensional.” And they even questioned the “Meccano set” technology of the building system devised by Jean Prouvé for the Free University. As Peter Smithson observed, “I find [that] the technology is too ordinary. It gets between you and the fact that it is a fresh idea.” Such criticism recalled the Smithsons’ earlier critique of the Amsterdam Orphanage, which they reiterated in Rotterdam: “The Orphanage was too alike in technology, in techniques, to the Brynmawr rubber factory and Owen Williams’ motorway. The whole structure is too cumbersome for little children and what it was
trying to do, so that we couldn’t really read the thing being a continuous community.\textsuperscript{98}

For the Smithsons, even though Team X’s search for a modular system of “growth and change” had failed, their search for a relational architecture had nevertheless led them to an invention—“a fresh idea.” As Peter Smithson observed, it is “another invention that you [Van Eyck] are after, but can’t find. Now it comes to it: that in fact … maybe you need us.”\textsuperscript{99} What Van Eyck allegedly could not find by himself was, in fact, a point of clarification regarding what they held in common. While the Smithsons continued to be baffled by Van Eyck’s configurative approach,\textsuperscript{100} they validated his plastic sense of the in-between and counterform. For example, in discussing a feature of Bakema’s Town Hall in Terneuzen (1963–72), Alison Smithson said that the nature of a wall was an “architectural aesthetic question,” and agreed with Van Eyck’s comment that the function of a wall was not to separate but to connect: the wall “is there already as a space; it’s a room in itself, and if I don’t start in the space, I can’t go into another one.”\textsuperscript{101} Similarly, Peter Smithson invoked Van Eyck’s terminology in criticizing the Bijenkorf Square in Rotterdam, next to the hotel where they were all staying:

Because of the question of its being important—it is completely intuitive—to have something about connectivity in cities. That is what we desperately miss. When you come from our hotel, walking to here—you have to cross this big space, in front of the Bijenkorf, between the Bijenkorf and the Town-hall. Well, there’s something totally uncontrolled in the circumstance. … That is, the buildings, the space between them, is in no way counterpart space to the operation of the buildings. Therefore you lose [a] sense of connectivity. Not because it is a very large space, but because the notion of the counterspace wasn’t built into the concept of the buildings themselves.\textsuperscript{102}

In differentiating their earlier investigations on modular systems of growth (cluster, stem, appreciated unit) from their ongoing explorations on a relational aesthetic and flexible matrix (patterns of association, connectivity, in between, and counterform), Alison Smithson declared that it was now possible to “do a small guide” on how to “recognise and read the new type of building.”\textsuperscript{103} In light of the Free University, she said, “you can make obvious other things, which you might even say go back to the Orphanage.” That small guide was “How to Recognise and Read Mat-Building” (1974), in which she defined the new architecture as follows (Figure 12):

Mat-building can be said to epitomise the anonymous collective; where the functions come to enrich the fabric, and the individual gains new freedoms of action through a new and shuffled order, based on interconnection, close-knit patterns of association, and possibilities for growth, diminution, and change. The way towards mat-building started blindly enough: the first Team 10 review of the field of its thought became collectively covered in the Primer (AD 12/61). The thought gradually got further bodied-out in projects, and these in the early seventies began to appear in built-form. At this point mat-building as an idea becomes recognisable.\textsuperscript{104}

Indeed, the mat architecture of the Free University was not only a matrix in the shape of an irregular grid; it was, above all, a network of counterforms and in-betweenspaces, where balconies and rooftops overlooked courtyards and other places for recreation and learning. This intricate overlapping and interweaving of space, circulation, and program in an open framework was precisely the promising quality that the Smithsons now recognized in other Team X projects, such as Van Eyck’s Pastoor van Ars church in The Hague (1964–69).\textsuperscript{105} Impressed by the interplay of spaces between the high “nave” (unconventionally used there for circulation) and the low and intimate areas for the Mass and the crypt on either side, Alison Smithson wrote that “the overlay of patterns of use” and “the disintegration of rigidity through this meshing” made the church a “nugget of mat-architecture.”\textsuperscript{106} This definition also recalled Bakema’s Alexander Polder grid for CIAM 9 (1953), which Giedion characterized at that time as a “framework for plastic intentions.”\textsuperscript{107}

Although the Smithsons often criticized Van Eyck, they also came to value their colleague’s contribution and finally acknowledged this fact in Rotterdam. In reply to Van Eyck’s rather personal confession that he often felt marginalized because his projects were small in scale when Team X tended to be about “urbanism—the big,” Alison Smithson confided: “I think that you had to always be there, just to make us feel we’ve got our feet on the ground. I think, without necessarily saying, the theme is the small urbanism. … You know, I always felt if you weren’t there, it wasn’t rightly balanced somehow” (Figure 13).\textsuperscript{108} This evaluation was further borne out in the Smithsons’ reflections on urban fabrics many years later.\textsuperscript{109} As the crowning achievement of this work, Peter Smithson singled out not the Free University, as one might expect, but Van Eyck’s Amsterdam playgrounds—a project that had grown into a remarkable network of 650 playgrounds by the mid-1970s.\textsuperscript{110} He commented: “What interests me [about this project] is the poetry of ideas, not the poetry of form only; and it is this that characterizes the Team X ideal. As far as form is concerned it means taking a risk. But, of course, one struggles to make things eloquent, if one can.”\textsuperscript{111}
How to recognise and read MAT-BUILDING

Mainstream architecture as it has developed towards the mat-building

ALISON SMITHSON

Mainstream architecture can be said to entertain the anonymous collective where the functions seem to match the fabric, and the individual gains new freedom of action through a new and shuffled order, based on interconnection, close-knit patterns of association, and possibilities for growth, demonstration, and change. The way towards mat-building started blindly enough, the first Tecno 10 review of the firm’s work became collectively covered in the Primer (AD 15/16). The thought gradually got further embedded, and then in the early seventies began to appear in built-form.

At this point mat-building as an idea became recognizable. To be able to recognize the phenomenon at the end of this, in its first, primitive phase, calls for a specially prepared frame of mind: it deliberately not look too closely at the detailed language, for this is still developing. And some practice, to endure everything through the hermetic madness of our country, have been to know that language... (you might say so that the client did not become frightened by the appearance of the mat properly). At present the built field is rather mixed, and named examples on the whole tend to have something of the art-quits-architecture-order of the Olympian Zeus temple, all different woodtree columns. As the crazy-paving mixture that is the top surface of the platforms of the Regio Germania Mainstream mat-building became visible, however, with the completion of the PUE (Berlin Free University)

A building that contains the building of the PUE is - the Insurance Building at Kopenhamn. It is in its form, an effect of the mat-building phenomenon (the deal with the off-shoot first, and perhaps therefore with “matologies” as a formative influence from the immediate past), Kopenhamn’s knockout, bettering his own particular inheritance - the Children’s House... the Schneider roof... unfair a hardly loaded building to produce where not two, but three, can be contained in Glaç’s Conscious architecture... but was here to enter with special restrained architectural clothing, and to want to see if it part of the non-phenomenon of non-building. Conscious architecture can not only be seen to be its something else it walked into (in the mind) and compared with similar mental-walking onto, the Taylor Foundation Building NY at the Rockefeller City Hall, where, in both, quite different Central American historical-hands are being drawn on, and has in the end produced old style civic movements. It still unenticing that these architectural acting in such on the area around here, into large movements, think of the Taiwan with the egg, the Washington, and the area around here, in which there is a clear indication of the mat-building urge towards collective awareness, and long but reckless movement

Figure 12  Pages from Alison Smithson’s “How to Recognise and Read a Mat-Building” (Architectural Design, Sept. 1974).
In conclusion, Team X’s pursuit of an architectural theory of relations had begun with Sigfried Giedion, well before Team X convened at Doorn in 1954. At CIAM 6 in 1947, Giedion introduced a philosophical orientation that challenged the rational foundations of modernism. The new approach was based on an understanding of reality in terms of relational processes, as defined by Whitehead, and provided an important foothold for Team X’s own redirection of modernism at midcentury, beginning with their studies on patterns of association in traditional cultures, and their appreciation of plastic and ecological relationships. Although Giedion’s direct involvement with Team X ended abruptly in 1957 because of institutional politics, his ideas continued to inform the group’s subsequent investigations, even after the dissolution of CIAM in 1959. Through his research on the continuity of human experience, Giedion intended to influence a younger generation, and that generation turned out to be Team X.

Team X continued their search for a new architecture based on a relational principle after CIAM, but their solution did not come easily and took many years to crystallize in a new symbol: the mat building. Here, it was Candilis and Woods who made the decisive step, in replacing the archetypal idea of a stem with that of a web or matrix. This step did not represent a shift in Team X’s thinking, but was rather a further refinement of their philosophical orientation. It brought them closer to their original convictions rather than further away. As the Smithsons acknowledged, their collective work had always been about connectivity, as articulated in Van Eyck’s formulation of the in-between and counterform. This formulation led Van Eyck on a parallel path to what Alison Smithson eventually reanointed as the mat building in 1974.

That this interpretation of Team X’s legacy has not been offered by scholars to date is perhaps due to the fact that Team X’s position within a broader intellectual investigation has since been largely forgotten and possibly suppressed by Team X members themselves. And like a hidden clue that unravels a mystery, its discovery in the Giedion archive provides the missing piece in a theoretical framework that not only unites the various members but also, more importantly, helps to explain what was at stake in Team X’s legendary debates. While the Smithsons were harsh in their criticism of
their colleagues, especially of Van Eyck, their differences were not philosophical, as some scholars have assumed, but rather, methodological, and in this, only partly so. In the words of Peter Smithson: “The Team X process of submitting your idea as a project to the scrutiny of your peers ... was a strange one, for nothing would prevent your pursuit of the perfection of the idea; it was [a] testing of your determination, your doggedness.” Perhaps, then, disagreements among Team X members were testimony to their determination to give symbolic expression to an open form, to what Giedion once called the “unrepresentable” in his definition of a symbol: “The raison d’être of symbolism ... lies in the human need to represent what is unrepresentable.”

Notes
2. According to Colin Rowe, “Team 10 ... ironically failed to develop any body of theory of equivalent coherence” to the Athens Charter it originally set out to replace. See Colin Rowe and Fred Koetter, Collage City (Cambridge, Mass.: MIT Press, 1978), 41. In his important biography of Van Eyck, Strauven underscored divisions among Team X members, especially between Van Eyck and the Smithsons, and his account remains unchallenged to this day.
3. Pedret has investigated the formative years of Team X in her PhD dissertation, “CIAM and the Emergence of Team 10 Thinking, 1945–1959.” While detailed and informative, her study does not explore in depth Giedion’s influence on Team X.
4. Alison Smithson, Team 10 Meetings (New York: Rizzoli, 1991). In the existing scholarship (listed above in note 1), Strauven gives an account of the Team X meeting at Royaumont in 1962, and Risselada and Van den Heuvel provide synopses of Team X meetings from 1953 to 1977 based on documents in the Team X archives at the NAI (now the Collection Het Nieuwe Instituut).
5. Giedion manuscript, 42-SG-10-14/15, gta Archives, ETH Zurich. This text was published in Giedion, A Decade of Contemporary Architecture (Zurich: Editions Giribeserger, 1951), 40.
6. In Mechanization Takes Command, Giedion wrote, “Now, after the Second World War, it may well be that there are no people left ... who have not lost their faith in progress,” despite the fact that it had all begun “so marvelously.” See Mechanization Takes Command (1948; New York: W. W. Norton, 1975), 717.
7. Giedion manuscript, 42-SG-10-14/15.

10. Whitehead explained: “There is a reciprocity of aspects, and there are patterns of aspects. Each event corresponds to two such patterns: namely, the pattern of aspects of other events which it grasps into its own unity, and the pattern of aspects which other events severally grasp into their unities.” Whitehead, Science, 103.
13. This second meeting was reported in “Discussion on Professor S. Giedion’s Lecture,” Architect and Building News 10 (Sept. 1948), 223–24.
14. Giedion continued: “Why, [the New Empiricists] ask, make [a] window larger than necessary just to show that we can create a wall entirely of glass? Why flat roofs when they always start to leak in the spring? [?] Why eschew fantasy and decoration for which ... we long?” Giedion, “Interrelation of the Arts,” 43–T-13. For more on the MARS Group, see Mumford, CIAM Discourse on Urbanism, 180.
17. Giedion manuscript, “Art and Man,” 42-SG-60-4, gta Archives, ETH Zurich. Emphasis added. The contents of this proposal were recorded in a transcript of the editorial meeting: “Principal Points Made at the Meeting Held on the Morning of 22.8.50,” 42-SG-60-8, gta Archives, ETH Zurich.
19. Ibid., 83.
20. “Principal Points,” 42-SG-60-8. At the meeting, Giedion listed the following “RELATIONS between” the journal should explore: 1. Art and the emotional structure of different peoples; 2. Contemporary Art and the public taste; 3. Art and the Role of the Critic; 4. Art and nearness to life (Art and publicity; Art and industrial design); 5. Art and the continuity of human experience (Means of expression at different periods); 6. Art and the means of expression in Literature; 7. Art and Science (A comparative methodology); 8. Art and Education; 9. Art and the demand of the emerging generation.
21. See Giedion’s correspondences with UNESCO in 42-SG-58, gta Archives, ETH Zurich.
22. Giedion correspondence to Read, undated, 42-SG-53-41, gta Archives, ETH Zurich.
23. In a letter dated 26 September 1951, Read informed Giedion about current events, making special mention of Growth and Form: “Ideas are at present being worked out for a fuller and more varied programme in all fields. Needless to say, we have the highest hopes for the future and anticipate that before long we may be able to tell you of our plans, both long and short-term. During the summer, the Institute has succeeded in organizing some important exhibitions, such as Graham Sutherland, ‘Growth & Form’ and ‘Ten Decades.’” Read to Giedion, 26 Sept. 1951, 42-SG-55, GTA Archives, ETH Zurich.


25. On Read’s agenda for the ICA during these years, see David Thistlewood, Herbert Read: Formlessness and Form (London: Routledge & Kegan Paul, 1984), 84.


27. Folder on “Art[,] a Fundamental Experience,” 1950, Giedion Vortrag, GTA Archives, ETH Zurich. Giedion wrote a second manuscript called “Prehistoric and Contemporary Means of Artistic Expression.” Its contents were similar to “Art[,] a Fundamental Experience.” This revised version was published in the conference proceedings of the Congrès International des Sciences Préhistoriques et Protohistoriques (Zurich, 1950).

28. The ICA issued an abstract of Giedion’s lecture, tracing the development of Giedion’s current thesis on the affinities between prehistoric art and the modern avant-garde from his past research. See “Abstract of a Lecture given by Dr. Sigfried Giedion at the Institute of Contemporary Arts on Monday, 8th January, 1951,” Giedion Vortrag, folder on “Art[,] a Fundamental Experience,” 1950, GTA Archives, ETH Zurich.

29. Luquet appealed to Giedion because he “innocently” discovered that the logic of representation in both primitive and children’s art has “a close affinity with modern art.” For a critical account of Luquet and the modernist construction of the “primitive,” see Rosalind Krauss, “No More Play,” The Originality of the Modern Avant-Garde and Other Modernist Myths (Cambridge, Mass.: MIT Press, 1986), 52–54.


31. Ibid., 4–5.

32. Ibid., 10–11. In this essay, Giedion’s example of transparency from prehistory was the Hall of Hieroglyphics at Pech-Merle: “The selection of this actual spot for the repeated superimpositions of paintings and figures was of course due to its sacred nature, and the figures themselves certainly have magical connotations.” In 1951, Giedion wrote to his friend Edward Carter of UNESCO, asking him for contacts in Egypt who could help him with his research: “I am now, after my research in France and Italy, understanding more and more the pivotal role Egypt played in human history. Especially as the most important link between Eastern and Western, as well as between Prehistoric and Historic development.” Giedion to Carter, 6 Feb. 1951, 42-SG-35-34, GTA Archives, ETH Zurich. Van Eyck shared Giedion’s interest in prehistory, and as Strauven noted, he visited the Lascaux cave in the summer of 1947 and the Dogon in Africa. See Strauven, Space of Relativity, 143.


34. Cf. Van Eyck’s manuscript The Child, the City and the Artist, written on a grant from the Rockefeller Foundation in 1961–62. In a section called “Right-Size,” he wrote, “Einstein, de Broglie, Planck, Bohr, Heisenberg and others have made it quite clear that, ultimately, we cannot measure what cannot be related to ourselves.” In Ligetelijn and Strauven, Aldo van Eyck: Writings, 1:91.

35. Quoted by Strauven, Shape of Relativity, 411.


38. Van Eyck’s friendship with Carola Welcker-Giedion is documented in Strauven, Shape of Relativity. Paralleling Giedion, she argued that the modern avant-garde expressed not an analytical mind or machine aesthetic, but a synthetic view of the artist’s “reacclimatization to nature and experience.” See Carola Welcker-Giedion, Modern Plastic Art: Elements of Reality, Volume I: Man and Environment (Zurich: Dr. H. Girsberger, 1937), 10.

39. As David Robbins has noted, Growth and Form “was the opening salvo in an attack upon the traditional, establishment aesthetic which Hamilton and his colleagues would launch, with ammunition provided by Sigfried Giedion, D’Arcy Wentworth Thompson, Marcel Duchamp, Alfred Korzybski, A. E. van Vogt, et al.” See Robbins, The Independent Group, 16.

40. Giedion, Mechanization, 719.


43. In his review of this exhibition, Reyner Banham dismissively wrote: “The organizers of this exhibition are obviously sensitive to many of the implications of the camera. … But we should recognize that if the camera has increased our visual riches, we are richer only in bills of credit, most of which cannot be cashed—there can be no direct visual apprehension of scenes which have passed.” See Banham’s review of Parallel of Life and Art in Architectural Review, Oct. 1953, 260.


46. Other members of ATBAT (Atelier des Bâtisseurs) included Victor Bodiansky, Michel Ecochard, and Henry Piot. The group presented their Seminars and Nid d’Abelles housing projects for the Carrières-Centrales district of Casablanca.


49. John Voelcker, “Commission II. Aesthetics. Report given to the MARS Group after the Congress,” folder 5, A. and P. Smithson, Team X Archives, Collection Het Nieuwe Instituut, Rotterdam. Like the Smithsons, Voelcker belonged to both the Independent Group and the MARS Group, which itself was split between older and younger members, along ideological
lines. In Team 10 Meetings, Alison Smithson noted that in 1953, the situation with the MARS Group was “already moribund” (11). In addition to Golden Lane (Smithson), Moroccan Housing (ATBAT), and Alexander Polder (Bakema), Voelcker included Le Corbusier's Chandigarh, the Unité d'Habitation, and an extension to a German University (architect not named). But it is clear from Voelcker's report that the two most important projects reviewed by Commission II were the Alexander Polder and the Moroccan Housing projects. Like Giedion, Voelcker also considered Van Eyck's playgrounds to be of seminal importance. See John Voelcker, “Polder and Playground, Holland 1954,” Architects' Year Book 6 (1955), 89–94.


51. Ibid.


53. “Commission II: Synthesis,” 1. The commission report states: “Now, as the grilles again confirm, this Cartesian system may be used in certain circumstances but in a new manner. Usually the architect has in his mind or in actual fact a large tract of land, a quarter, a whole town, where the rectangular pattern of roads serve as a framework for his plastic intentions. Beyond this he is free, every dimension is available. Today there are numerous ways in which the architect may approach the ecological situations with which he is faced.”

54. “Commission II: Synthesis,” 2. “40 Years” is a reference to the ICA exhibition 40 Years of Modern Art, organized by Read in 1947.


56. Team X issued several documents in preparation of CIAM 10 in 1956. This quote comes from “Draft Framework 6, Instructions to Groups,” Team X folder, Sert Archive, Frances Loeb Library, Graduate School of Design, Harvard University.


58. In addition to the organizing committee of the tenth CIAM meeting, there were also subcommittees, representing national affiliations. See Pedret, “CIAM and the Emergence of Team 10 Thinking, 1945–1959,” 158.

59. Alison Smithson and Peter Smithson, “Habitat,” 42-SG-77-22, gta Archives, ETH Zurich. The Smithsons sent “Task of CIAM” and “Habitat” to Giedion on 9 July 1954, following an interim meeting in Paris, where Giedion urged Team X to clarify their working methods; see 42-SG-77-19, gta Archives, ETH Zurich. Pedret has noted that the “Task of CIAM” was appended to another document: Denis Lasdun’s “Statement by CIAM 10 Sub-Committee,” 16 June 1954. See Pedret, “CIAM and the Emergence of Team 10 Thinking, 1945–1959,” 169n76.

60. Both Van Eyck and Bakema were representatives of the Dutch CIAM group, De 8 en Ophouw. At CIAM 8 in 1951, Bakema wrote an essay on the urban core, which he defined in terms of “the relation between men and things,” following Giedion’s ideas. The essay was published in the conference proceedings, CIAM 8: The Heart of the City.


63. Ibid., 42-SG-47-4. In the section on “the greater reality of the doors—step,” Van Eyck also specified what those relations should consist of in terms of the design of a dwelling. These specifications were as follows: “1) The dwelling as such, the homestead of the family constituting the smallest collective entity; 2) The relation between the dwelling and its exterior space—individual and collective; 3) The relation the dwellings within a larger housing unit; 4) The relation between these larger housing units; 5) The degree of integration within the housing sector, housing group or larger housing unit, of the other major urban functions; 6) The degree of differentiation of the different basic types of dwelling within a larger housing unit, within a group of such housing units, within a housing sector; 1–6) always in terms of design.”

64. According to Pedret, “CIAM and the Emergence of Team 10 Thinking, 1945–1959,” 181: “The English overreacted. Their accusation of procedural improprieties was ill-founded, and in their outrage they failed to recognize that the Dutch Supplement/Oct. 24 document was in fact based on the discussions they had had as an international group since Doorn— it simply broadened the scope of their intentions.”

65. Alison Smithson and Peter Smithson to Giedion, 9 July 1954, 42-SG-77-19, ETH Zurich.


67. Giedion, “Reorganization of CIAM, Sept. 1957,” 42-JLS-30–6, gta Archives, ETH Zurich. Giedion also supported Team X in their decision to postpone their proposal for a working method until after the tenth CIAM congress and to limit the congress to a small number of participants.

68. Giedion’s diagram of Team X’s program for CIAM 10, 42-SG-47-222, gta Archives, ETH Zurich.

69. Peter Smithson’s announcement at RIBA is documented by Pedret, “CIAM and the Emergence of Team 10 Thinking, 1945–1959,” 219.


71. Sert, Gropius, Giedion, and Tyrwhitt to members of the CIAM Reorganization Committee, CIAM Council and CIRPAC, May 1957, 42-JLS-33-36, gta Archives, ETH Zurich. The Advisory Council issued this apology: “Until these proposals have been accepted by CIRPAC, no official statement on this matter should be forthcoming from any member. … The majority of the members of the Reorganization Committee, elected at Dubrovnik, were drawn from this Team X, but it seems that some of them have perhaps forgotten that attitudes suitable to members of the opposition cannot always be maintained when they have taken over the responsibilities of the government.”

72. Giedion to Bakema, undated, 42-JT-2T-224, gta Archives, ETH Zurich.

73. Giedion’s A. W. Mellon lectures at the National Gallery of Art in Washington, D.C., were published as the first volume of The Eternal Present: The Beginnings of Art (New York: Bollingen Foundation, 1961). The first chapter of this book is titled “Art[,] a Fundamental Experience.”

74. Giedion noted that “Art[,] a Fundamental Experience” was his first draft on prehistory. See his handwritten note on “Abstract of a Lecture given by Dr. Sigfried Giedion at the Institute of Contemporary Arts on Monday, 8th January, 1951,” Giedion Vortrag, folder on “Art[,] a Fundamental Experience,” 1950, gta Archives, ETH Zurich.

75. Giedion to Read, undated, 42-SG-35–41, gta Archives, ETH Zurich.
These texts are as follows: “Historical Background of the Core, Hoddesdon,” in Aldo van Eyck, “The Story of Another Idea,” Forum 7 (1959), 206–7; and “Rough Translation of Giedion’s Procez-Verbal de la Réunion à La Sarraz,” 7–11 Sept. 1955, in Smithson, Team X Out of CLAM, 52–53.


See Architectural Design 5 (May 1960). In his review of the orphanage, J. Weeks wrote: “The building is constructed out of two sizes of modules, a smaller size for the residences, and a larger size for community spaces. The modules consist of four round columns at the corners with a domed roof of pre-cast concrete on top.”


Team X Meetings, 79. As documented by Strauven, Alison Smithson ungraciously called Piet Blom’s project “fascist,” because she thought the repeating clusters resembled a swastika. Peter Smithson then accused Van Eyck of “misleading the boy.” Strauven, Shape of Relativity, 398–404.

Transcript of the Team X meeting at Abbaye Royaumont, 1962, folder 22, 368, A. and P. Smithson, Team X Archives, Collection Het Nieuwe Instituut, Rotterdam.

Transcript of the meeting at Royaumont, folder 22, 373. Emphasis added. The issue of growth and change was taken up again at the Team X meeting in Toulouse, Apr. 1970: “The completion of a substantial part of Toulouse-Le Mirail seems to be a suitable moment for an assessment of the effectiveness and the limitations of Team X’s ideas as realized and used. We suggest that the meeting might revolve around the theme of repetition: e.g., how is it that just when we can most easily make things in large numbers we have lost the secret of repetition as a formal technique?” Team X, “Theme for Proposed Meeting,” Apr. 1970, folder 26, 2, A. and P. Smithson, Team X Archives, Collection Het Nieuwe Instituut, Rotterdam.

Christopher Alexander, transcript of the Team X meeting at Royaumont, folder 22, 140, A. and P. Smithson, Team X Archives, Collection Het Nieuwe Instituut, Rotterdam.

As the Smithsons explained, “Because the ‘appreciated unit’ is felt that it must be different for Village, Town and City, its whole organization must be different, it must be a new idea. It is impossible to build up a large community from ‘appreciated units,’ which are valid only for a small community (e.g. houses round a square). This does not completely invalidate them as components but only as ‘appreciated units.’” Le Corbusier has frequently pointed out the continuing validity of the scale of [Place] Royale[ ] … within the context of Paris. We have to invent these ‘appreciated units.’ This is the problem of habitat, and it can only be solved by the architect-urbanist.” Team X, “Summary of Conclusions at La Sarraz, Sept. 1955,” in Smithson, Team X Out of CLAM, 51.

For more on Candilis and Woods, see Avermaete, Another Modern, 202.


Transcript of the meeting at Rotterdam, “Gesprek in de winkel op dinsdag, deel 2,” Smithson’s Team X Archives, folder 29, 3, Collection Het Nieuwe Instituut, Rotterdam.

This definition influenced the Smithsons’ understanding of urban complexity, which Alison later defined as follows: “A city can teach about complexity. No issue is isolated. … [T]he issues are as a series of dots on a programme that offers a field of possibilities yet at the same time a spin-off of consequences.” See Alison Smithson, lecture in Edinburgh, 1991, Smithson’s Team X Archives, folder 35, Collection Het Nieuwe Instituut, Rotterdam. The Royaumont meeting and Woods’s essay on the “Web” were clearly the inspiration behind Christopher Alexander’s “A City Is Not a Tree,” Architectural Forum 122, no. 1 (Apr. 1965), 58–62 (part I), and 122, no. 2 (May 1965), 58–62 (part II).


At this point, Team X had been together for twenty years, and their reflective mood was prompted, in part, by the recent passing of their colleague Shadrach Woods in 1973.

Transcript of the meeting at Rotterdam, 47. Emphasis added.

Ibid., 45.

Ibid., 23.

The Smithsons, in turn, may have been too harsh in their criticisms of Van Eyck. Peter Smithson, for example, said, “I don’t think that the reconciling of what appears to be apparently irreconcilables is a permanent occupation of architecture.” However, this understanding was quite different from what Giedion meant: not that opposites can be reconciled or abolished, but rather that they are dialectically related. See Peter Smithson, transcript of the meeting at Rotterdam, 24.

Ibid., 3.

Ibid., 23; emphasis added.

Transcript of the meeting at Rotterdam, 19.


Team X visited the Pastoor van Ars church by Van Eyck during their meeting in Rotterdam.

Alison Smithson, “How to Recognise and Read a Mat-Building,” 573–90.


Alison Smithson, transcript of the Team X meeting at Rotterdam, Apr. 1974, folder 29, 20, A. and P. Smithson, Team X Archives, Collection Het Nieuwe Instituut, Rotterdam.

“Team X’s work,” Peter Smithson said, “is about fabrics; interventions in old fabrics, the making of new fabrics; repairs, patches, the weaving of extensions on to old and new fabrics.” Peter Smithson lecture in Ankara, Dec. 1990, folder 37, 4–5, A. and P. Smithson, Team X Archives, Collection Het Nieuwe Instituut, Rotterdam.

111. Peter Smithson, notes for a lecture at the University of Pennsylvania, undated (possibly early 1990s), folder 35, 1, A. and P. Smithson, Team X Archives, Collection Het Nieuwe Instituut, Rotterdam. His notes contain the following quote from Aldo van Eyck in *L'Architecture d'Aujourd'hui*, Jan./Feb. 1975, 18: “Since 1947 approximately 650 places for the child were executed to my designs in left-over places or places overlooked. Together they form a new network of focal points covering the city from end to end.”

112. Although Team X was indebted to Giedion’s ideas, they rarely mentioned him by name.

113. Strauven, in particular, has underscored the rift between Van Eyck and the Smithsons. For Strauven, Van Eyck’s design philosophy “has consequences that fall entirely outside the framework of Team X thinking: the return to the elementary, the reflection on archetypical relational patterns in archaic and traditional cultures, a non-hierarchical and non-deterministic way of thinking, and in particular the three themes that had once been barred from the ‘Instructions’ for CIAM 10—the ‘shape of the in-between,’ time as a factor in town planning and design for the larger number.” Strauven, *Shape of Relativity*, 345.
