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Jean-Louis Cohen, *Architecture in Uniform: Designing and Building for the Second World War*. Paris: Editions Hazan, 2011 [dist. Yale Univ Press]. Pp. 448. ISBN 978-2-7541-0530-9.

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“I had participated in a war which, as we of the intimate circle should never have doubted, was aimed at world dominion. What is more, by my abilities and my energies I had prolonged that war by many months.” These words of Albert Speer begin Jean-Louis Cohen’s *Architecture in Uniform*. Speer goes on to cite his knowledge of Hitler’s intention to subjugate other nations, possess the globe, and exterminate the Jews, concluding: “Although I never actually agreed with Hitler on these questions, I had nevertheless designed the buildings and produced the weapons which served his ends” (11). As the man who went from Hitler’s chief architect to become his Minister of Armaments and War Production, he is the right keynote speaker for a book about mobilized architects. Cohen (New York Univ.) then observes that Speer was tried at Nuremberg on seating designed by Dan Kiley, who would become the most influential landscape architect in America. These opening notes notwithstanding, *Architecture in Uniform* concerns itself more with the Second World War’s impact on design than with human stories or architectural conscience.

What the book lacks in narrative texture, it makes up in richness of freshly examined territory and density of eye-boggling illustrations: draftsmen sprawl full-length, reduced to the scale of tools, atop giant drafting tables in Ford’s vast Willow Run bomber plant; in an aerial photo, a Seattle suburb complete with houses, trees, and cars is revealed to be the camouflaged roof of a Boeing bomber plant only with the help of a caption and squinting; Hugh Ferriss’s interior rendering of a huge, domed bomb shelter for New Yorkers cut into New Jersey’s Hudson River Palisades might be a science fiction film set; sunlight rakes through the ruins of a German submarine pen in a haunting 1987 photo by Anne Garde; an archival photo shows a man standing in a noisy construction office with a phone to one ear and his free hand covering the other, just another day building Auschwitz. The book is full of fascinating details as well: we learn that the Pentagon’s five sides are a vestige of an earlier-proposed site where an access road carved away a corner of its initially rectangular concept, a deformation retained and regularized when a new site was chosen and the six-million-square-foot building was, under the gun, “drawn up over a weekend” (286); that modern factory design was diverted from the glass-walled glory that inspired the Bauhaus into the grim windowless standard of today as a blackout strategy; that *Neufert Architects’ Data*, the Teutonically thorough desk reference familiar to generations of American architects, was first published in 1936 in German (as *Bauordnungslehre*) to aid Hitler’s forces; and that Salvador Dali promoted himself as a born camouflage designer with a radical theory of invisibility in the August 1942 issue of *Esquire*, arguing that “just as the camouflage of 1914 was Cubist and Picassan, so the camouflage of 1942 should be Surrealist and Dalistic” (193).

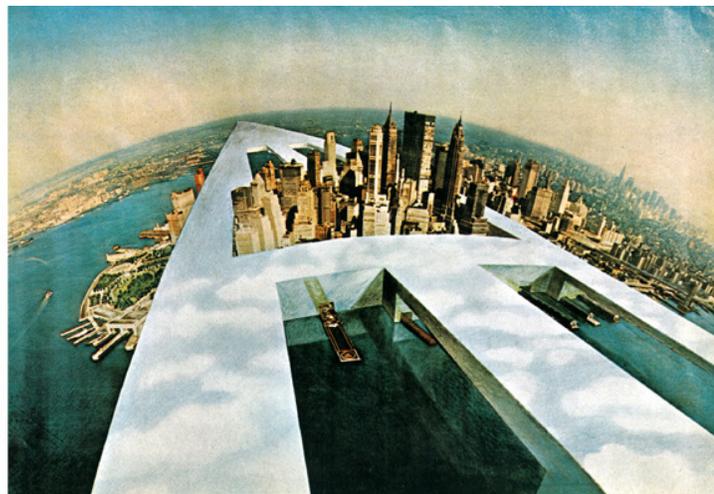
Despite its context of dramatic conflict and often deplorable motives, *Architecture in Uniform* favors scholarly comprehensiveness and objectivity over commentary. Its author portrays the overwhelming priorities of war as purging design of aesthetic choice, citing a “tendency toward uniformity [that] corresponded to Lewis Mumford’s vision of warfare as the ‘hygiene of the state’”² (14). Cohen argues that it would be, for example, “too simplistic ... to explain the differences between the angular stabilizers of the Messerschmitt Bf 109 fighter plane, as opposed to its rival, the Supermarine Spitfire,” in terms of national style (14). In raising the possibility with such specific examples, he only makes the reader want this to be an explanation all the more and to see the national styles fight it out. As Reyner Banham once heckled a noncommittal lectur-

1. *Inside the Third Reich*, trans. Richard and Clara Winston (NY: Simon & Schuster, 1970) 523.

2. Mumford, “Warfare and Invention,” in *Technics and Civilization* (NY: Harcourt, Brace, 1934) 85.

ing architecture critic, “Aw c’mon, don’t be chicken!”³ (On page 224, Banham is quoted linking Britain’s Maunsell forts to theoretical projects of the sixties, the kind of association Cohen himself eschews.) As for the Spitfire, Norman Foster has noted elsewhere that its designer, Reginald Mitchell, was constantly praised for the fine lines and “aesthetic delights” of his designs. Having flown one, Foster vouches that “the sight and sound of a Spitfire still stir the heart.”⁴ Did British designers put more faith in a stirred heart than German designers? Even if Cohen will not admit into evidence the fluid sweep of the Spitfire’s outlines, what are we to make of the different sensibilities reflected in the names “Spitfire” and “Bf 109”? Cohen can hardly be faulted for keeping his material on the ground, when he has provided so much of it for others to fly.

Its exhaustive subject matter and trove of details and images reflect the book’s roots in a 2011 exhibition by the Canadian Centre for Architecture that was fifteen years in the making. Cohen structures the book by discrete design “theaters,” stating that its “analysis does not claim to provide a homogenous description, and the picture that it produces is more like a mosaic than a fresco” (16). The tesserae of this mosaic include pieces missing from the bigger picture of modern architecture, till now overlooked in the focus on prewar and postwar civilian works. Beyond the intrinsic value of opening up the design advances of World War II for exploration, the book has great worth in the dots it leaves for others to connect between the war years and our own. The chapter on camouflage could launch a book on the current phenomenon of landform buildings. The chapter on prefabrication complements MoMA’s 2008 *Home Delivery* exhibition⁵ of modular designs by Jean Prouve, Konrad Wachsmann, Walter Gropius, Buckminster Fuller, and others, demonstrating how the war encouraged and influenced those designers’ advances in the now red-hot field of prefabricated housing; the war’s Quonset hut remains the most successful prefab type of all time (mobile home aside) despite all of today’s slick successors, so obsessively featured in *Dwell* magazine. A chapter on bombing presents one of the maps marked up to help American pilots avoid artistic treasures and historic parts of European cities, astonishingly showing that the first historic preservation districts America created were on enemy territory during war. What does it say that the United States showed far less respect for its own heritage in the urban renewal of following decades? This is new material for the history of the American preservation movement.



The outline of Albert Kahn’s Dodge Chicago Plant is superimposed on Lower Manhattan in a 1943 image reproduced in *Architecture in Uniform* (283), at left. It may have inspired Superstudio’s 1969 visionary image of its *Continuous Monument* project, at right.

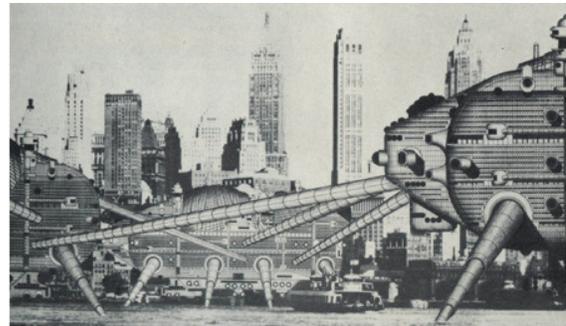
3. Personal recollection of a ca. 1980 SUNY Buffalo lecture by visiting *Boston Globe* architecture critic, Robert Campbell, who had only stated “no comment” while showing a slide of Philip Johnson’s AT&T Building.

4 Norman Foster, “On Flying, 1997,” in *On Foster ... Foster On*, ed. David Jenkins (NY: Prestel, 2000) 688.

5. See the exhibition website – www.miwsr.com/rd/1201.htm.

Architecture in Uniform has a broader pertinence, however, in the light it sheds on modern architecture's transition from the largely formal modernism of the Bauhaus to the more practical responsiveness and flexibility demanded by the war. It also documents the birth of today's unease with huge scale in the chapter "Macro and Micro, or the Issue of Scale," which begins by quoting Ludwig Hilberseimer's 1944 essay, "Bigness and Its Effect on Life," to the effect that "everyone is greatly impressed by bigness" but warns of "the dangers of substituting quantity for quality, a value only human beings can create"⁶ (281). The essay precedes by exactly fifty years Rem Koolhaas's "Bigness or the Problem of Large,"⁷ which observes that, beyond a certain size, "the 'art' of architecture is useless" and big buildings' "impact is independent of their quality."

Cohen explores examples of bigness as variously inhuman as Auschwitz and the Pentagon. One of his most striking illustrations, first published in *The Architectural Forum* in 1943, superimposes Albert Kahn's Dodge Chicago Plant in white outline over lower Manhattan, highlighting its size by showing that it would stretch from Battery to Bowery. The image may have inspired later imaginary projects using the city as a backdrop and benchmark. In particular, the way the plant's outline disappears as it wraps behind lower Manhattan's skyscrapers recalls a much better known image: the Superstudio architectural firm's iconic 1969 model of a huge, linear *Continuous Monument* ensnaring the very same "bunch of ancient skyscrapers, preserved in memory of a time when cities were built with no single plan."⁸ Beyond the question of a direct graphic influence between these images, *Continuous Monument* expresses modern anxiety at the unnerving scale and single-mindedness of the sort of "macro" projects Cohen chronicles. Superstudio's Piero Frassinelli said *Continuous Monument* arose from his thoughts about "the brutal reasons that lie behind our industrial and urban civilizations.... I achieved city nightmares, perfect mechanisms, like the one the Nazis designed to solve the 'Jewish Problem.'"⁹ Mumford's wartime "hygiene of the state" takes on new meaning in this context and appears to live on into peacetime, with inhuman scale and central authority subjugating diversity in Superstudio's image.



At left, a photograph of a Maunsell Fort in the Thames estuary reproduced from Reyner Banham's *Megastructure* in *Architecture in Uniform* (223). Banham wrote that this fort "has been cited as a possible source for Archigram's famous 'Walking Cities' drawing [at right] that caused so much alarm among the elder establishment of Modernists." Banham noted that the Walking Cities' "location here in the East River, with the towers of Manhattan in the background, suggests a deliberate challenge to older visions of the future."¹⁰

6. In *The New Regional Pattern: Industries and Gardens, Workshops and Farms* (Chicago: Paul Theobald, 1949) 130.

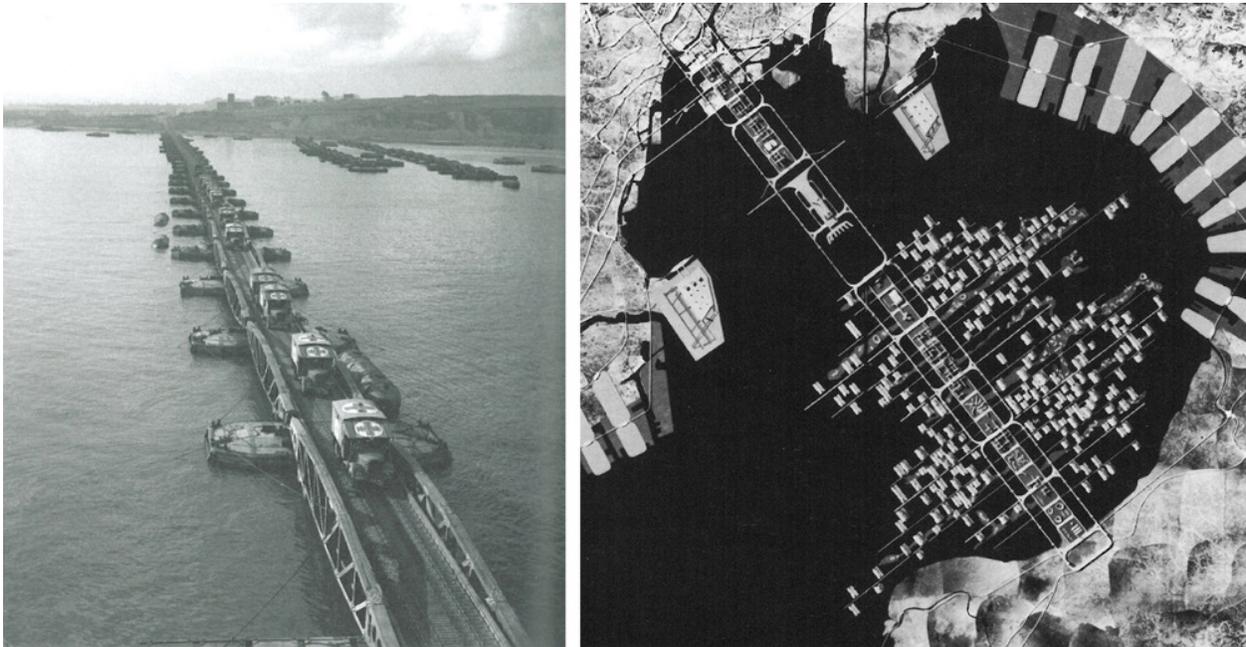
7. The 1994 essay is included in Rem Koolhaas and Bruce Mau, *S, M, L, XL*, ed. Jennifer Sigler (NY: Monacelli Pr, 1995) 500-502.

8. An apparent group statement quoted in Peter Lang and William Menking, *Superstudio: Life without Objects* (NY: Skira, 2003) 122.

9. "Journey to the End of Architecture," in *Superstudio*, 80.

10. Text and illustration from *Megastructure: Urban Futures of the Recent Past* (NY: Harper and Row, 1976) [hereafter, *Megastructure*] 29, 85.

Such sixties architectural visions were a delayed reaction to World War II. That the upheaval of the war only hit home in the sixties helps explain the decade's outsized cultural impact. (The thawed-out Austin Powers certainly is not alone in feeling it was the last decade when anything revolutionary happened.) The war's influence may have been postponed by the lag in introducing its technological advances to the mainstream, or the slow recovery of many participants—Britain rationed food well into the fifties—or the maturing of those who experienced it in youth. Banham remarks in *Megastructure* that the Maunsell Forts were known to some in the architecturally influential Archigram group while they were still children. His 1976 book makes a fruitful companion to *Architecture in Uniform*. Although he considers the megastructure movement a played-out sixties phenomenon, he finds that its nerve continues to “seem intriguing, perhaps even exhilarating.”¹¹ This remains true. Sixties architecture movements continue to fascinate, providing much of the DNA for today's cutting edge architecture. Banham detects antecedents of megastructures in Hans Hollein's 1964 montages of aircraft carriers landlocked in rolling pastures. An icon of the war, the carrier is a found—and original—megastructure, “the container of a complete and self-contained human community,”¹² airport included. Did such wartime design heroics lead Banham to think megastructuralism was “as natural in the mid-sixties as it must seem astounding today?”¹³



At left, a Mulberry artificial harbor at Normandy in a 1944 photograph from *Architecture in Uniform* (274), and, at right, Kenzo Tange's 1960 Tokyo Bay project.¹⁴

Metabolist architect Fumihiko Maki coined the term “megastructure” in 1964, defining it as “a large frame in which all the functions of a city or part of a city are housed.”¹⁵ This could be the mission statement of Rem Koolhaas, our leading architectural theorist and, given the many talented firms he has spawned, most influential practitioner. Tellingly, Koolhaas's latest book¹⁶ is an oral history of Metabolism, a Japanese

11. *Megastructure*, 11.

12. *Megastructure*, 21-22.

13. *Megastructure*, 11.

14. Kenzo Tange, *Architecture and Urban Design*, ed. Udo Kultermann (NY: Praeger, 1970) 149.

15. *Investigations in Collective Form* (St. Louis: Washington Univ, 1964) 8.

16. (With Hans Ulrich Obrist), *Project Japan: Metabolism Talks* (Cologne: Taschen, 2011).

school of megastructuralism. The movement viewed fixed forms and functions as obsolete and responded to a dynamic new world with flexible and expandable structures “capable of undergoing metabolic changes,” according to Metabolist architect Kiyonori Kikutake.¹⁷

Metabolism’s most famous design was Kenzo Tange’s proposal for a spine of linked freeways across Tokyo Bay, flanked by public buildings and extendible modular housing terraces. Cohen identifies a striking precedent for this and other over-water megastructures in a photo of a convoy of ambulances crossing the modular floating roadway of a Mulberry artificial harbor at Normandy. In what could be a parable from the gospel of Metabolism, he describes the triumph of “the largest prefabricated works of all time, the two Mulberry harbours that ensured the success of the allied landing in Normandy in 1944” (273). Designed by British engineers, these were built from segments that were towed across the Channel and quickly assembled into breakwaters and bridges: “The most remarkable features of this system were its flexibility and its capacity to adjust to the motion of the sea” (273). He writes that the idea was developed by physicist J.D. Bernal, but it is usually attributed to Winston Churchill. In May 1942, the prime minister sent a note to Lord Mountbatten: “Piers for use on the beaches. They must float up and down on the tide. The anchor problem must be mastered. Let me have the best solution worked out.” His sign-off deftly preempted skeptics: “The difficulties will argue for themselves” (273). Regardless of the idea’s origin, Churchill knew to push for it and clearly trumps Hitler, shown earlier in the book (227) sketching an anti-aircraft bunker. Cohen writes that the Mulberry harbors enabled: “the landing to take place where the Germans least expected it, on relatively flat beaches that were the least defended. Albert Speer was to state in his memoirs that the [Germans’] Atlantic Wall consumed 13 million cubic meters of concrete and 1.2 million tons of steel, only to be bypassed and be rendered irrelevant ‘by a single brilliant technical idea’” (275).

Responsive, provisional, modular design vanquishes traditional static monumentality; while *Architecture in Uniform* is nominally about the military mobilization of architects seventy years ago, it is a forceful, current manifesto for a responsively mobile architecture. The twentieth century saw New York’s Pennsylvania Station, a monument built for the ages, outstripped by technology and demolished after only fifty-three years. As Koolhaas has pointed out, today’s typical large building is born obsolete, its program of needs having already changed in the years between groundbreaking and ribbon-cutting. Cohen shows that the war served as proving ground for the alternative of vitality through flexibility, later embraced by the Metabolists and now an article of faith in architecture’s religion of sustainability.

Cohen’s description of Britain’s Bailey Bridge system also foreshadows architectural visions of the sixties that still inspire. The bridge system’s modular kit of steel panels could be assembled by unskilled hands with simple pin connectors into “an almost unlimited number of configurations,” including pontoons, jetties, and bridge spans up to 150 meters. Over fifteen hundred such structures were built in Europe alone, Cohen writes, self-assembled by marching armies into an array of forms responding to come-what-may. But he carries their implications no further forward than to say, “This was one of the first practical illustrations of the principals of so-called ‘open’ prefabrication, which would be so widely promoted during the 1960s and 1970s” (271). A not much bigger leap might be made to the erector-set sensibility of the Archigram group’s fantasy Plug-In City, which integrated cranes to reposition its modular components, allowing the whole to constantly reshape itself in response to changing needs. While Archigram’s Walking City borrowed the look of the war’s static Maunsell Forts, its vision of an entire metropolis moving across varied terrain and waters has its closest real precedent in the armies that traversed Europe on Bailey Bridges. The *Archigram* publication’s comic book format disguises its serious impact. The group behind it has been called “architecture’s Beatles.”

The Pritzker Prize winner for 2005, Thom Mayne, lists the Archigram group first when asked to cite his influences. Its inspiration is evident in the deliberate appearance of incompleteness in the designs of Mayne’s firm Morphosis. Archigram’s rendering of a scheme for Monaco’s Ministry of State, covered by a thin crust of rolling landscape, is in a direct line between landscape-camouflaged factories illustrated in *Architecture*

17. Quoted without citation by William J.R. Curtis, *Modern Architecture since 1900*, 3rd ed. (London: Phaidon, 1996) 510n.

in *Uniform* and Mayne's 2011 Giant Interactive Group Headquarters in Shanghai, a "landscaper" largely covered by undulating green roofs. The Second World War's strategic denial of architectural presence lives on in many such projects today as a preferred strategy of taking cover under landscape to counter monumentality and defer to nature.

Archigram was also a key influence on the Pompidou Centre, the seminal work of High Tech Architecture. Like most of this school's practitioners, its co-designer Richard Rogers is British. (The prominent cleaning davits atop his Lloyds of London Building are surely a nod to the cranes of Archigram's Plug-in City.) Reading Cohen's accounts of such modular, mobile, and flexible British designs as the Mulberry Harbors and Bailey Bridges casts this lineage in a new light. Why *wouldn't* children who had seen technology win a war grow into architects who embraced it as the best hope for the future?

In 1961, David Greene proclaimed in the first issue of *Archigram* "we have chosen to bypass the decaying Bauhaus image which is an insult to functionalism."¹⁸ In the 1967 issue, Warren Chalk looked to the war years for a better model, seeing

a great inventive leap made out of necessity for survival, advancing technology and mass-production techniques and demonstrating man's ingenuity, courage, effort and investment under the stress and pressure of war. The idealism was to fade but not the technology: the laminated timber or geodesic framework of an aircraft, the welded tubular construction of a bridge, and the air-structure of a barrage balloon. During the final stages of World War II several prefabricated house types emerged as part of the 'clip-on'/plug-in' heritage. Given the official blessing of Winston Churchill, they were produced in quantity for the temporary housing programme. However, soon the market was flooded with prefabricated systems, destroying the very basis of mass-production, and this, together with the stigma attached to the word 'Prefab' proved fatal.¹⁹

The "clip-on'/plug-in' heritage" refers to Archigram's vision of prefab house modules that could be plugged into service infrastructures, readily relocated, and even traded in like cars for newer models. This passage goes far to explain why we still live in the world where Bruce Mau could comment that "If automotive design were advancing at the rate of architecture, our cars would still be made of wood."²⁰ Cohen carefully examines the war's prefabricated housing types and their varying degrees of postwar success, but he does not so fully account for their ultimate failure as Archigram does in one sentence. "Prefab" has since lost, even reversed, its stigma, but the proliferation of systems makes standardized mass production a challenge.

Planned adaptation of designs to peacetime conditions is a leitmotif of *Architecture in Uniform*, encompassing even Germany's urban anti-aircraft bunkers (of Hitler's aforementioned sketch), each designed both in a raw concrete wartime version and with the finished surfacing it would later wear for new peacetime uses. None of the book's topics suggests greater potential for postwar adaptation than the industrialization of housing. Nonetheless, the war's impact on housing was most felt in America by the stick-built construction efficiencies Bill and Alfred Levitt brought from their experience as Seabees to the building of Levittown, America's face-changing first suburb. Cohen notes that, in the postwar years, the number of factory-produced homes in the United States was "ridiculously small, and Gropius had some reason to report on the 'failure of prefabrication,' to which he had devoted so much energy" (399). Meanwhile, "the American press referred to 'Mr. Churchill's Prefab' with a tinge of jealousy, and asked itself 'Is the Ministry of Works a forerunner of the industrialized house that may come from US war plants now turning out steel ships and tanks?'" (399). These were the 130,000 houses of four types produced by the Temporary Housing Programme, which, through Archigram, fostered the aesthetic of the Pompidou Centre, launching a signature style for Britain and a High Tech school that boasts practitioners like Renzo Piano, Richard Rogers, Norman Foster, and Nicholas Grimshaw. The work of these architects has held up remarkably well over forty years,

18. Rpt. *Archigram*, ed. Peter Cook (NY: Princeton Arch Pr, 1999) 8.

19. *Ibid.* 72.

20. Interview with Deborah Solomon, "Designs for Living," *NY Times Magazine* (26 July 2004).

especially compared to their contemporaries' efforts in the less technologically inspired styles of postmodernism and deconstructivism.

Jean-Louis Cohen proves that World War II was as much a crucible for today's best architecture as the Bauhaus was for early modernism. There are plenty of books about the Bauhaus; so far, there is only one *Architecture in Uniform*.