

A Forum for Ideas and
Criticism in Architecture

Published for The Institute
for Architecture and Urban Studies

By Wittenborn Art Books, Inc.

October 1974

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Real and English

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The nature of building is letting dwell. Building accomplishes its nature in the raising of locations by the joining of their spaces. Only if we are capable of dwelling, only then can we build.

Martin Heidegger
Building Dwelling Thinking

It becomes increasingly clear, as the utopian hallucinations of the Enlightenment fade, that we have long been in the habit of using too many synonyms; not only in our everyday speech but also in our more specialized languages. We still fail, for example, to make any satisfactory distinction between architecture and building, despite the fact that we are, at the same time, inconscionably aware that such a distinction should be made. We know, for instance, that Mies van der Rohe was at pains throughout his life to recognize this distinction and that in his own work he asserted the mediatory realm of *Baukunst* (the “art of building”), a Teutonic term for which there is no satisfactory English equivalent. All of this would be mere etymological speculation were we not constantly being reminded of the issue by those cultural and operational discrepancies that invariably arise between the generation of built form and its reception by society. This *lapsus* is sufficient to suggest that these everyday disjunctions must have at least some of their origins in our persistent failure to make such a distinction in building practice. There, in the physical realm of the built world, we seem to be presented with dramatic proof of the paradoxical Heideggerian thesis that language, far from being the servant of man, is all too often his master. We would, for instance, invariably prefer to posit the ideal of architecture—the monument in every circumstance be it public or private, the major opus—for situations that simply demand “building” and we are commonly led to realize the

irreducibility of this fact, fatally after the event.

As with that which we would fain idealize in the projection, so with that which we would rationalize after the misconception and here we find that the ironic mystifications of *Candide* have much in common with the deception of our own more recent ideologies. Surely this was never more evident than in, say, Daniel Bell’s presumptuous announcement of the end of ideology or in Melvin Webber’s ingenious celebration of the “non-place urban realm”; that apotheosis of late liberal capitalism posited, not to say “deposited,” as the existing paradise of Los Angeles. In this last context, we are supposed (according to the received program of the ideologues) not only to recognize but further even to welcome with enthusiasm the utopian advent of this “community without propinquity,” to quote yet another appealing phrase of more than a decade ago.

The intervening lapse of time has done little to neutralize such rationalizations. The actual phrases may have passed from our lips but the mental sets largely remain and it is these that unavoidably condition us as we go about our work. Should we choose, through some inner inadequacy or protracted sense of responsibility, to eschew autonomous art or the liberating promise of the poetic intellect, then all too often, we will find ourselves conflating in the name of populism the objects of elitist culture with elaborate rationalizations of the

environment as found. In such a vein, we will seek to sublimate the frustrations of utopia with the sadness of suburbia or with the enervations of the strip; and while we will self-consciously appeal, by way of justification, to an illusory vernacular, the true nature of our Western predicament will continue to escape us. Between the Charybdis of elitism and the Scylla of populism, the full dimension of our historical dilemma will remain hidden.

Nowhere are the turns of this labyrinth more evident, as Heidegger tries to make clear, than in our language, than in our persistent use of, say, the Latin term “space” or “*spatium*” instead of “place” or the Germanic word “*Raum*”—the latter carrying with it, as it does, the explicit connotations of a clearing in which *to be*, a place in which to come into being. We have only to compare the respective Oxford English Dictionary definitions to appreciate the abstract connotations of “space” as opposed to the socially experienced nature of “place”; to confront construction *in extensio* with the act of significant containment.

This, again, would be empty speculation could we not point directly to our present all but total incapacity to create places; an incapacity that is as prevalent in our architectural schools and in the monuments of the elite, as it is in “motopia” at large. Place now appears as inimical to our received mental set, not only as architects but also as a society. In our

ubiquitous “non-place” we congratulate ourselves regularly on our pathological capacity for abstraction; on our commitment to the norms of statistical coordination; on our bondage to the transactional processes of objectification that will admit to neither the luxury nor the necessity of place. We exonerate the strip, ever fearful to admit that we might have eliminated, once and for all, the possibility of ever being anywhere. We vaunt our much prized mobility, our “rush city,” to coin Neutra’s innocent phrase, our consumption of frenetic traction, only to realize that should we stop, there are few places within which any of us might significantly choose to be. Blithely, we exchange our already tenuous hold on the public sphere for the electronic distractions of the private future. Despite this, outside the “mass” engineered somnambulism of television, we still indulge in the proliferation of roadside kitsch—in the fabricated mirage of “somewhere” made out of billboard facades and token theatrical paraphernalia—the fantasmagoria of an escape clause from the landscape of alienation. In all this, the degeneration of the language speaks for itself. Terms such as “defoliation” and “pedestrianization” enter everyday speech as categories drawn from the same processes of technological rationalization. With “newspeak” overtones, they testify to a fundamental break in our rapport with nature (including our own), they speak of a laying waste that can only find its ultimate end in ourselves.

Against this, it would seem that the apparent universal triumph of the “non-place urban realm” may only be modified through a profound consciousness of history and through a rigorous socio-political analysis of the present, seen as a continuing fulfillment of the past. We have no choice but to reformulate the dialectical constituents of the world, to determine more consciously the necessary links obtaining between *place* and *production*, between the “what” and the “how.” This reciprocation of ends and means binds us to an historical reality wherein the *tabula rasa* fantasies of the Enlightenment lose a deal of their authority. With the manifest exhaustion of non-renewable resources the technotopic myth of unlimited progress becomes somewhat discredited and, at this juncture, the *production of place* returns us by way of economic limit not to architecture but to *Baukunst* and to that which Aldo Van Eyck has already called the “timelessness of man.”

Accepting the limits of our historical circumstance and the perennial conflict of ends with means and of freedom with necessity, that which remains critical is the process by which decisive priorities are established; for in the last analysis, as Jurgen Habermas and Giancarlo De Carlo have reminded us, design goals, as the motives of our instrumentality, may only be legitimized through the activation of the public sphere—a political realm that, in its turn, is reciprocally dependent on the representational and

physical embodiment of the collective. Place, at this juncture, irrespective of its scale, takes on its archetypal aspect, its ancient attribute which is as much political as it is ontological. Its sole legitimacy stems, as it must, from the social constituency it accommodates and represents.

The minimum physical pre-condition for place is the conscious placement of an object in nature, even if that artifice be nothing more than an object in the landscape or the rearrangement of nature herself. At the same time, the mere existence of an object in and of itself guarantees nothing. The cyclical processes of modern production and consumption seem to be more than adequately matched for the exhaustion of every resource and for the laying waste to all production irrespective of the rate at which it is generated. To rationalize this so-called optimization in the name of human adaptability and progress is to ideologize the self-alienation of man. One has to recognize the dialectical opposition of place and production and not confuse the one with the other, that is, ends with means. For where *place* is essentially qualitative and in and of itself concrete and static, *production* tends to stress quantity and to be in and of itself dynamic and abstract.

Place, as an Aristotelean phenomenon, arises at a symbolic level with the conscious signification of social meaning and at a concrete level with the establishment of an articulate realm on which man or men may come into being. The receptivity and

sensitive resonance of a place—to wit its situate validity *qua* place—depends first on its stability in the everyday sense and second, on the appropriateness and richness of the socio-cultural experiences it offers.

Production, on the other hand, clearly has its own laws, which are tied into a reality that none of us can escape. But the margin of choice that always remains, demands to be fully exploited, less we arrive by default at the government of nobody, at that so-called utilitarian tyranny of technique. Since the “what” is fatally tied to the “how,” everything resides in how and to what end we choose to modify the relevant optimal sub-categories of production, not only those of the built form itself, but also those structurally productive forces that implacably shape the built environment as elements in the general economy of our relations to nature.

A state of affairs, in which on the threshold of famine large amounts of prime agricultural land are continually lost to urbanization and mining without the exercise of adequate restraint, can hardly be regarded as economic in any fundamental sense, just as the proliferation of suburban sprawl can have little significance beyond stimulating land speculation and maximizing the amortization of investment in certain lines of consumer production. Certainly the creation of place, in both an ontological and political sense, is generally ill-served by our persistent policies of *laissez-faire* dispersal, and what is true for the

essence of the *res publica* applies with equal force to the “catchment” limits of public transportation. All discourse on the built environment that does not make at least a reference to these kinds of basic contradictions, between the so-called short and long term interests in the society, tends towards a mystification of the historical circumstances in which we work.

At the more specific level of built form, production considered solely as an economy of method has the unfortunate tendency of inhibiting rather than facilitating the creation of receptive places. A case in point is the universal tendency towards stereometric high-rise flat slab construction where economy in erection is granted absolute priority over any other morphological consideration. By a similar token, the industrialization or rationalization of building, as the unavoidable consequence of the inviability of high craft production in a mass society, should not be regarded as beneficial in itself, particularly where such methods lead, through an abstract optimization, to a manifest impoverishment of the environment. And here, in this hypothetical confrontation between the *macro-scaled environmental desirability* of urban containment and *micro-scaled environmental undesirability* of high-rise construction, we have perhaps a convenient if highly schematic example of what one might regard as *an environmental dialectic of production*, that is, a state of affairs wherein the quantitative and qualitative gains at

one level should be evaluated against the quantitative and qualitative losses at another.

The necessary relations obtaining between *place, production, and nature* implacably suggest the biological concept of the “homeostatic plateau,” wherein the energy feedback loops of an organic metabolism serve to sustain the steady state of its overall system—the “zero-growth” feedback syndrome in nature. Comparable structural models in the field of the built environment have long since been posited at varying levels of detail from N.A. Miliutin’s linear agro-industrial city to Ralph Knowles’ metabolic profiling of the built environment, as though it were a climatic and topographic extension of the landscape itself. The rooted ecological nature of such otherwise abstract models finds its reflection in the direct recycling of body-waste for the purpose of horticultural production, or in the conservation of the overall energy required for the tasks of heating and cooling. It should come as no surprise that up to now, despite the current fad for solar energy studies, short-term interests have effectively inhibited anything but the most limited application of such models and one may take it as a reflection of these interests that architectural schools have largely ceased to concern themselves with such matters.

This aloof critique of current design praxis and its pedagogical substance brings us to the question once again of the full nature of the art of building.

The present tendency to polarize the quintessence of built form as though it were of necessity one single thing appears to my mind to be nothing other than an ideological refusal to confront historical reality. The building task intrinsically resists such polarization. It remains fatally situated at that phenomenological interface between the infrastructural and superstructural realms of human production. There it ministers to the self-realization of man in nature and mediates as an essential catalyst between the three states of his existence: first, his status as an organism of primal need; second, his status as a sensate, hedonistic being; and finally, his status as a cognitive, self-affirmative consciousness. Autonomous artistic production certainly has many provinces but the task of *place creation*, in its broadest sense, is not necessarily one of them. The compensatory drive of autonomous art tends to remove it from the concrete realization of man in the world and to the extent that architecture seeks to preempt all culture it consciously divorces itself from both building and the realm of historical reality. This much Adolf Loos has already intimated by 1910, when he wrote with characteristic but understandable overstatement: “Only a very small part of architecture belongs to art: the tomb and the monument.”

Kenneth Frampton

George Wittenborn 1905-1974



George Wittenborn, 1905-1974

Kenneth Frampton

Kenneth Frampton is a Fellow of the Institute for Architecture and Urban Studies, New York, and Associate Professor at Columbia University, New York.

- 2 *The impious maintain that nonsense is normal in the Library and that the reasonable (and even humble and pure coherence) is an almost miraculous exception. They speak (I know) of the “feverish Library whose chance volumes are constantly in danger of changing into others and affirm, negate and confuse everything like a delirious divinity.”*

*Jose Luis Borges
The Library of Babel
1945*

Like many others whose destiny it was to migrate to the States in the 1930s, George Wittenborn was very much a man of his time, conscious always of the period he had lived through and of how he had been shaped, so to speak, by the vicissitudes of history. The most casual of conversations with George always led at once back to the past. The present, with which he struggled like Sisyphus, the books piling ever higher about his head, was always read by him, without nostalgia, in terms that were largely retrospective. For George the crucial past was always that period between the late 1920s and early 1940s, in which his own essentially obdurate personality had been finally formed. He was and always remained, despite his migration, a man of continental Europe—an *eulenspiegelich* figure drawn from the prime port of the Hanseatic League, Hamburg, the city in which he had been born in 1905, as heir to two generations of booksellers who had traded there under the name of Wittenborn & Söhne since 1871.

To continue in the style and pace of a traditional family textbook and stationery business was not a cut to suit the young (then Otto) Wittenborn's self-image, and following an apprenticeship in Altenau, Prussia, in what he later described as “a very aristocratic bookstore where only the military people came from the garrison there”; a store wherein he learnt the trade, “from packing to serving generals. . .,” he went, via a brief stay in Bremen, to Berlin which was to be for him, as for many others in the

twenties, the cultural matrix of its time. There, Wittenborn, working for the bookseller Carl Buchholz, became at once immersed in the avant-garde artistic milieu of the capital city; acquainted with the circles of *Der Sturm* and *Der Blaue Reiter*, and frequenting the famous Romanische Café on the Kurfürstendamm, where, in his own words, one “played either chess or discussed love affairs, art or literature.”

Literature, in any event, seems to have been George's instinctive first love. In reminiscence he was to confess to having had a youthful taste for Rilke and Hesse, while later he seems to have turned, no doubt very casually, to read the celebrated authors of the twenties—amongst them Gide, Lawrence and Ehrenburg. Apart from his personal tastes, these were the authors that later he vividly recalled as having prominently arranged, along with Chekhov and Joyce, in the Buchholz window on Kurfürstendamm—a shop window that always displayed *Das Kapital* to the left-hand side and *Mein Kampf* to the right.

This consciously provocative display, in an overheated political climate, found its reflection in the street hooliganism of the period and the forces of grass roots reaction, which had long since conspired to murder Liebknecht, Luxemburg and Rathenau, and which were equally disposed to smash the Buchholz window or to give a “liberated cosmopolitan” like Wittenborn the fortuitous beating of his life.

These experiences in the fall of 1932 were sufficient to drive Wittenborn out of Berlin, first to Leipzig where he initially toyed with the notion of printing and publishing books, and then to Paris where he joined forces with Ferdinand Ostertag in opening a bookstore near the Rue Vignon bearing the name Au Pont de l'Europe—a phrase that consciously alluded to the ideal of a united Europe. This bookstore, with its small art gallery above, brought Wittenborn into contact with the then-already famous Parisian école of Braque, Picasso and Léger, and many others from this circle who frequented the store. Some of these men, such as Jean Arp and Max Ernst, were later to become his lifelong friends. This store was also the occasion of his meeting with the young English writer and translator Joyce Phillips, whom he married in 1934. A year later, fearful once again of the rising wave of political reaction, the Wittenborns left Paris, and after a brief stay in Portugal, migrated to the States, where Wittenborn turned naturally to his vocation, working first for the international department of Brentano's, and then organizing his own mail order business out of his apartment near Columbia University.

This, for Wittenborn, was the pioneering period, when there was still a relatively small market for art books and when the only other outlets were Brentano's or Wittenborn's colleague and fellow countryman, Erhard Weyhe, whose Magdeburg "arts and crafts" shopfront still adorns Lexington Avenue above Sixtieth

Street. In the late thirties Wittenborn spent a good deal of his time travelling up and down the East Coast selling books out of the back of an old car. Soon after, however, through his friendship with the art dealer Curt Valentin, he became reunited with a former colleague and friend from his Berlin days, Heinz Schultz, with whom he was to form Wittenborn/Schultz, Inc., a firm which opened in the early forties at 38 East Fifty-seventh Street and continued to trade there under that name, until Schultz's untimely death in an air crash in 1952.

Throughout the war and its immediate aftermath Wittenborn/Schultz was the New York refuge for a displaced intelligentsia, and men such as Piet Mondrian, Max Ernst, Joan Miro, Edgar Varèse, Richard Huelsenbeck, Josef Albers, Pierre Chareau and Hans Richter frequented on a regular basis the Fifty-seventh Street store with its famous "one-wall" gallery. There they mingled with the habitués of The Club in Cedar Street; with those bibliophiles of the abstract expressionist generation—men such as Stuart Davis, Barnett Newman, Mark Rothko and Robert Motherwell. And it was, according to Wittenborn, Motherwell's incessant complaints about not being able to read German material that led to the translation and publication of a series of mostly foreign texts. These, issued as the *Documents of Modern Art* from 1947 on, ran finally to some seventeen volumes with most of the covers by Paul Rand. Included within this pioneering venture, directed by Motherwell with assistance

from Bernard Karpel, was a series of original and by then, seminal, texts by Apollinaire, Mondrian, Moholy-Nagy, Kandinsky, Arp, Ernst and Kahnweiler. To cap it all, in the heyday Wittenborn started another rather *ad hoc* series entitled *Problems of Contemporary Art* with texts by Vantongerloo, Herbert Read and Alexander Dorner; it was a venture that included the one and only issue of the magazine *Possibilities*, edited by Robert Motherwell, Harold Rosenberg, Pierre Chareau and John Cage, with other contributions not only from "insiders" but also from Joan Miro, David Smith, Mark Rothko, Richard Huelsenbeck, Edgar Varèse, and Paul Goodman. This overall pioneering effort in documentary and critical publication was suspended in the early sixties and taken over and extended at the close of the decade by the current Viking series, now issued as the *Documents of 20th Century Art*.

The late forties was without doubt the climax of Wittenborn's career for he had at this one moment realized his double ambition of being both publisher and bookseller, and his desire of running both a bookstore and gallery at the same time. This was the golden moment that was only to be broken by the sudden curtailment of his association with Schultz, who was as much a bosom friend as he was a business partner. The rest seems in many respects to have been a long journey out. The removal of the store in 1956 to Madison Avenue was in a sense a move closer to the library of Babel, to that point where the traveler

4 crossing after centuries sees, “the same volumes repeated in the same disorder . . .” that order which, for Wittenborn as for Borges, was “organically disordered.”

To even the most casual visitor in the mid-sixties, it was at once clear that the proprietor was as complex and unfathomable as the contents of his store. Wittenborn & Co. was a labyrinthine world, ever resounding faintly or loudly with a discourse of Dadaesque confusion; conversations that lapsed from French, to German, to English and back again for no evident reason save ironic effect; telephonic forays with a stone deaf external universe that always seemed to be on the verge of having or not having dialed the “wrong number”; *sotto voce* incantations, enriched with obscene invective (but sufficiently audible for the browsing customer) that ritualistically proceeded George’s arduous search for that arcane magazine or definitive work of seven years standing—a Pavlovian rite that sent the appointed members of the staff to their arbitrary battle stations like the crew of some grounded submarine. All the while this “rite” was in process, and it was for the best part of any working day, George would continue to administer like Vishnu, with more arms and heads than the average human, to the needs of more than one client at once. *Homme du théâtre par excellence*, replete with bow tie and an ever changing mask, the air of a Berlin cabaret from the *Schall und Rauch* era never quite left Wittenborn’s, and with it of course

came the essence of the art, the deliberate but casual “alienation” of the clientele. For the proprietor was, as he once confessed, an “ironist.” How else could one go on stocking the output of a complex international industry and continue to hold it for years, against the day that some cryptic soul should ask for an arbitrary fragment of an infinite repository.

Fate accords to the bookseller as to the librarian a Faustian destiny, that is, of giving one’s life to books but never reading them. For the professional bookseller, to whom bookselling is an obsession rather than a vocation, to enter once into the substance of the merchandise would be to arrive at an instant prejudicial dead end. In the event the bookseller fortunately only has the time to scan the headings, glance at the illustrations, the author and the index, and race on into the vortex of the world. Such was the destiny of Wittenborn, citizen of Hamburg, and such was his gift to the port city that crowned his career. For great cities, in the end, stand and fall by their institutions—their culture forged by those unique individuals that only they in their grandeur have the necessary cultural gravity to attract. This law applies as much to antiquarianism and fashion as it does to bookselling and haute cuisine and one cannot appraise a “capital” city without looking to those individuals and institutions that are the essence of its spiritual fabric. For a brief instant (and brevity is all that is left when death finally seals the past), Wittenborn & Co. summed up the

culture of Manhattan and none who came to this city could miss its presence for long; just as none who worked here in the visual field could fail finally to know George. For Wittenborn & Co. was always more than a bookstore. It had, in the end, all the attributes of a miniature *galleria*, a secluded *res publica* one floor up from the bustle of the city, presided over by a generous, irascible, but always ironic, *Kapellmeister*. As Rudolf Arnheim wrote shortly after Wittenborn’s death in October last year, “It was only days ago that George sent me one of his cheerfully scribbled notes, by which he made even a bill for books into a human document of good fellowship.”

Figure Credit
Photograph by Jane Frank

Peter Eisenman

In this painstaking analysis of an apparent architectural syntax, the author offers a fresh interpretation of one of the canonical works of the Brutalist movement—the Stirling and Gowan Leicester Engineering Building, completed in 1963. Responding independently to one aspect of a theme broached by Manfredo Tafuri in *Oppositions* 3, Eisenman attempts to uncover the precise manner in which Stirling has rewritten the “words” of modern architecture.

By concentrating on mass, surface and volume—to the willful exclusion of any adequate consideration of the plan and its spatial system—Eisenman demonstrates that we may well regard Leicester as a reactionary exercise in the manipulation of a received tradition; a tradition compounded as much out of the compositional sets of Cubism and Constructivism, as it is out of specific syntactical references to either the industrial past or to the rationalism of the Modern movement.

It is clear from references within the text that this analysis has been made in conscious opposition to the so-called culturalist interpretations of Stirling’s work, and there is little doubt but that this point is well taken and that such an analysis can only serve to enrich our understanding of the expressive range of form and its potential for rigorous development.

There are however a number of occasions in this text when the fatal nature of a reductionist exclusion

becomes transparent and the process is revealed whereby a self-conscious modernism, in seeking to reestablish an autonomous field for architecture, finally succeeds only in sequestering itself. Thus, despite the apparent claims of the opening paragraph, we are nowhere to be enlightened as to the way in which an iconography or, for that matter, an iconic structure may be seen as reflecting prevailing social attitudes, nor later are we to be informed as to the overall cultural context within which the various rewritings of the language of modern architecture (first Stirling’s and then Eisenman’s) have been made.

Not to put a fine point on it, the processes of mannerism (although never mentioned as such) are here blindly asserted as the sole universal procedure by which any architecture worthy of the name is to be made. All else, we are assured, directly or by implication, is the mere trivia of circumstance—the categorical opposite, we may take it, of Umberto Eco’s argument that what imparts meaning to architecture “does not belong to architecture.”

And here once again we have the crux of the issue—the deliberate self-isolating sophistries of the intelligentsia versus the cultural and economic production of the world. How can one impute, either as architect or critic, a monumental role to a building in a given society when its place in that society is so manifestly non-monumental? How may one convincingly invoke the existence of a

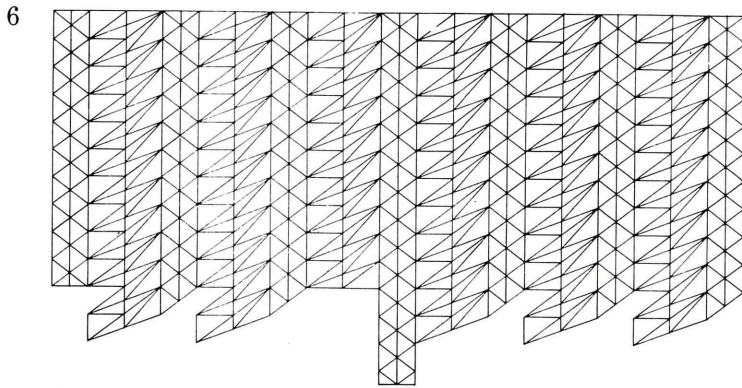
“*Gesamtmonument*” when the processual nature of the program so explicitly excludes (save for the lecture halls) any sympathetic representation of the public realm? These questions return us to the subterranean issue of production, not only to the forbidden topic exhumed from the ground by Tafuri, namely production as the implacable transformation of physical reality, but also in that other sense of determining significant, sensate relations in space, as the realm of an enacted hedonism open to all.

K.F.

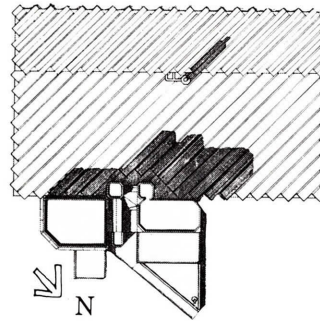
Peter Eisenman is an architect and Director of the Institute for Architecture and Urban Studies in New York City. He has taught at the University of Cambridge, Princeton University and at present at the Cooper Union. In addition to a series of single family houses which he has designed and built, he has worked on several urban design projects—one for the Manhattan waterfront which was exhibited at the Museum of Modern Art in 1967. He also collaborated in the design of a low-rise housing prototype for the New York State Urban Development Corporation.

The article was first presented in lecture form at Cooper Union in the spring of 1973 and again at Yale during the spring of 1974.

Figure 1. Bristol Warehouse by Edward Reynolds. Architectural Association student project, 4th year, 1957. Roof plan.



1.



Throughout the history of architecture it has been possible to identify certain contemporary cultural phenomena through the examination of individual buildings. From the many building campaigns of Notre Dame in Paris to Le Corbusier's Villa Savoye at Poissy, there are examples of buildings with a level of concern for iconography which, because this concern transcends the idea of a building as either a functional container or an aesthetic object, provides a mirror for prevailing social attitudes, often more revealing than the written word.

It is more than ten years since many people were struck with the simultaneous appearance in the professional press of the Leicester University Engineering Building¹ and Paul Rudolph's Yale University Art and Architecture Building. Both were seen to be counter to the Modern movement, and since both were one-off buildings—one very European and the other very American—they could be seen as examples of a return to the nineteenth-century idea of a building as a *Gesamtkunstwerk*. However this term in itself is hardly sufficient for our purposes here, since it fails to account for the contradictory nature of these buildings with respect to the Modern movement. For while a *Gesamtkunstwerk* in the literal sense had pictorial and sculptural components, it represented a more comprehensive and more totally environmental attitude than that displayed at Yale or Leicester. It will, as I hope to demonstrate, be more to my purposes if we think of both of these buildings as "gesamtmonuments"²; first, because they are both self-referential, that is, their system of signs and gestures has its own internal structure which gives their particular forms meaning and significance and second, because they both have an extraordinarily condensed iconic impact, necessary to the very idea of a monument.

Because of the need to create an iconic charge which can be recognized and in a sense known, a monument is often forced to draw on references stemming from previous periods; thus a monument has been by definition eclectic ever since the sixteenth century. It is in this context that Leicester is most certainly a monument—an eclectic assemblage which the initiated have recognized. The lecture halls suggest Melnikov's Rusakov Club in Moscow; the roof structure over the shed space pays a certain homage to Brunel's Paddington Station;

Figure 2. Sketch, "I am a monument."
Robert Venturi.



the banded towers recall Frank Lloyd Wright's Johnson Wax Building; the battered brick bases have been compared to medieval bastions and Scottish castles; the axonometric with its gantry-like elements to Cape Kennedy and early Archigram and, with slight adjustments in the glazing pattern, to aspects of Edward Reynolds's project for a warehouse (fig.1).³ And because so much has been written and said during the intervening decade, the weight of this iconographic interpretation has almost obscured the building's particular *critical* validity; so that today it seems necessary to reexamine the evidence itself.

Any building with so conspicuous a pedigree must in due course face up to a series of comparative judgments which could be leveled at it. One of these is its "eclecticism." As with the word "monument," this term should not be taken as a term of abuse, for in a period where one is inundated with novelty for novelty's sake, it may be argued that it is this very eclecticism that may serve to consolidate and enrich the vocabulary of a tradition. And it is exactly the eclecticism of Leicester which both reveals what can be best described as a predicament of modern architecture today, and at the same time might at least be considered a valid alternative if not a necessary antidote for that predicament.

Certainly one of the most unique aspects of the Modern movement was the intensely polemical dimension of its iconography. And it is the particular nature of that polemic which has created a situation whereby the movement may be now seen as being a self-fulfilling dead end. Firstly, because the polemic was anti-academic, it required the abolition of precisely those inherent rules which ultimately must provide for the basic continuity of any vocabulary. Secondly, because the polemic invested the machine imagery of the period with ethical value. With the elimination of any academic rule and the disassociation of ethical content from machine form, any eclecticism involving a reuse of such rules or forms is divested of that polemic and thus cannot by definition be considered an aspect of the Modern movement.

Given the polemical iconography of the Modern movement, it is possible to make a monument today by drawing on these iconic references and perverting them, thus in a sense making

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the idea, monument, polemical. Such an attitude would not have been possible prior to, say, 1880. But now it is possible to take an eclectic repertoire and invert it, so that by virtue of a contradictory use of the iconic elements by which a monument is constituted in the first place, invest it with a good deal more than the intended meaning or surface significance.⁴ For example, Robert Venturi's sketch of a building with a sign "I am a monument" is at a very simple level exemplary of such an attitude. Here he reverses or distorts the traditional notion of the appropriate form for the iconic content of a monument (fig. 2).

It is within this context that the difference between the Stirling and Rudolph buildings becomes clear. Where the Art and Architecture Building is merely iconic, the Engineering Building is polemical in that its self-referential iconography is critical; its particular internal system being a commentary on other similar systems of signification. It is precisely because of this critical dimension that the Leicester University Engineering Building affords such an excellent vehicle for the examination of a more general situation, for it seems to reveal an attitude towards the Modern movement which up to now has not been evident. The thrust of the argument below will be that the Leicester Engineering Building invokes a similar critical and thus, polemical, intention as Venturi, but does so in a different and perhaps less traditional manner—by distorting the form of the iconic *structure* as opposed to perverting the form of the iconic *content*, as is the case with Venturi. It will be argued here that Stirling produced this building as a very definite though less-than-conscious reaction to the mainstream Modern movement and in particular to Le Corbusier. In his need to clear a kind of "turf" for himself, Stirling had to take on not only Le Corbusier but also the received interpretation of Le Corbusier provided by Stirling's own tutor, Colin Rowe; and he wanted to take them on, on their own ground—that is, in the vertical plane.⁵

In order to understand the depth and consequences of such a seemingly aberrant statement in light of Stirling's buildings, it might be necessary to fabricate an historical fantasy about Leicester, to speculate on another interpretation of its received history and in doing so, of the Modern movement.⁶ One

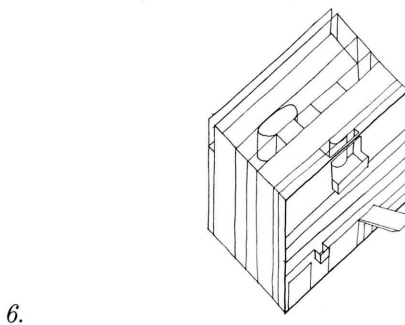
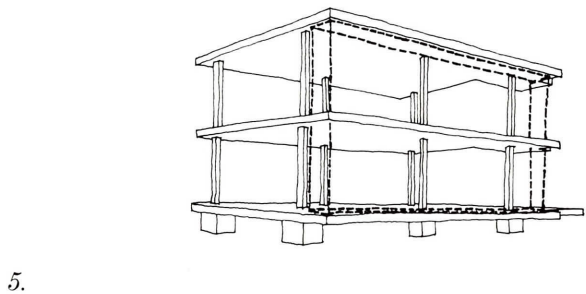
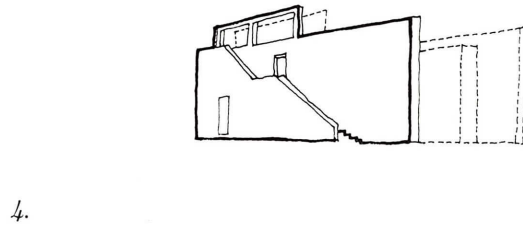
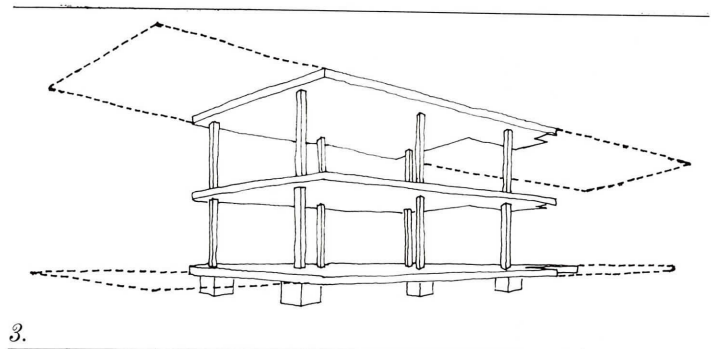
Figure 3. *Maison Dom-ino*. Le Corbusier and Pierre Jeanneret, architects, 1914. Diagram showing horizontal extension.

Figure 4. *Maison Citrohan*. Le Corbusier and Pierre Jeanneret, architects, 1920. Diagram showing vertical datum.

Figure 5. *Maison Dom-ino*. Diagram showing vertical slot.

Figure 6. *Villa Stein*, Garches. Le Corbusier and Pierre Jeanneret, architects, 1927. Diagram showing relationship of deep and shallow space.

8 of the most crucial documents of the Modern movement, Le Corbusier's Five Points of Architecture, clearly affected the organization of the canonical modern building of the 1930s. These points contain two apparently contradictory propositions: the free plan and the free facade. In the first instance the horizontal plane is a reference for an infinite extension of space in lateral vectors (fig. 3), and in the other, the vertical plane is a datum for layered, frontal space (fig. 4). Colin Rowe, in some unpublished notes, given as a lecture under the title "The Wall," describes the free plan postulated in the *Maison Dom-ino* as being "one of the basic data of modern architecture, . . . a memorable abstraction . . . which seems to establish the idea that space is built in horizontal layers . . . and seems to invalidate the idea of walls." Yet this seems to be not quite the case, for while *Dom-ino* placed primary emphasis on the floor, it inferred, as did the Five Points, the counter proposition of the vertical datum (fig. 5). Setting the column grid back from the edge of the horizontal plane, and providing a dominant sandwich-like characteristic to the space, also freed the vertical surface from the structural unit, and allowed it to be seen potentially as a pure conceptual referent, that is, as a plane which records or structures the formal strategies employed in deep space. No longer was the vertical section restricted by the need to support the horizontal floor slab. This separation of wall and column allowed for the space in some instances to be layered in the vertical section, and thus for a dialectic between deep and shallow space to be recorded on the frontal plane (fig. 6). If *Dom-ino* was to serve as a model of horizontal spatial layering in architecture, *Maison Citrohan* could be seen as its opposite. In the same lecture Rowe said, if *Dom-ino* was a floor style, *Citrohan* was a wall style—the principal datum being the vertical surface. Le Corbusier himself said, "with this house one turns one's back on architectural conceptions of academicizing schools as well as modern ones."⁷ Although such ideal constructs were never realized fully in built form, sufficiently powerful approximations may be found in Le Corbusier's work—in the *Villa Schwob* at La Chaux-de-Fonds, the *Villa Stein* at Garches, and the *Salvation Army Building* in Paris—to sustain Rowe's argument. Within such an interpretation it might be possible to say that one canon of the orthodox Modern movement was concerned with the latent or virtual capacity of the vertical plane to imply space, and to the extent that previous architecte-



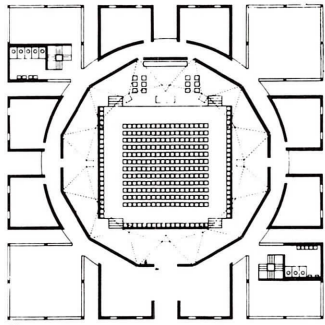


Figure 7. *First Unitarian Church, Rochester, N. Y. Louis Kahn, architect, 1959-63. Plan showing plaid grid.*

7. tures could be seen as block-like and volumetric, modern architecture proposed not only a stylistic but also a conceptual challenge to such an orthodoxy.

The reaction over the last twenty years to Le Corbusier's conception of frontal, vertically layered space, by many post-World War II architects who never fully understood its implications, has taken many forms. The basis for their critique was that they could not accept the neutrality of structure which, although patently more technologically rational, was, with the spatial flexibility provided through the introduction of the frame, an anathema to their sense of architectural integrity, formulated in terms of sectional clarity and structural consistency. It was an argument which said that there must be spatial recognition and definition of the horizontal plane, with a section defined by a real display of structure. Underlying their complaint, in many instances, was a basic distrust of any construct which could be thought of as an ideal, and their retreat was from the utopianism of this model which was thought to be a rather wistful reminder of this prewar idealism. Instead, this group was looking for what was *real*—something they could get their hands on, tough and corporeal—as opposed to the cool, Platonic abstractions of the International Style.

Much of the work of Louis Kahn, which proposes a classical alternative to a modern eclecticism, can surely be seen in this light. Kahn takes modern forms and uses them in a classical manner. His was a return to a form of Beaux Arts planning in its use of a plaid grid (fig. 7), where the interstices of the grid are taken up as circulation elements between the main spaces; the column is no longer neutral but is used to delimit space and ultimately function in a very rigid way. The development of the “pavilion-type” space articulation must be seen as the primary plan influence on the paired towers at Leicester, via the De Vore and Adler houses, the Trenton Bath Houses and the Richards Medical Research Building. In essence, Kahn proposes a condition of almost pre-modern architecture; a return to the structure as the order and definition of the spatial unit.

Beneath the many stylistic variations represented by Leicester and other buildings by Stirling is a similar

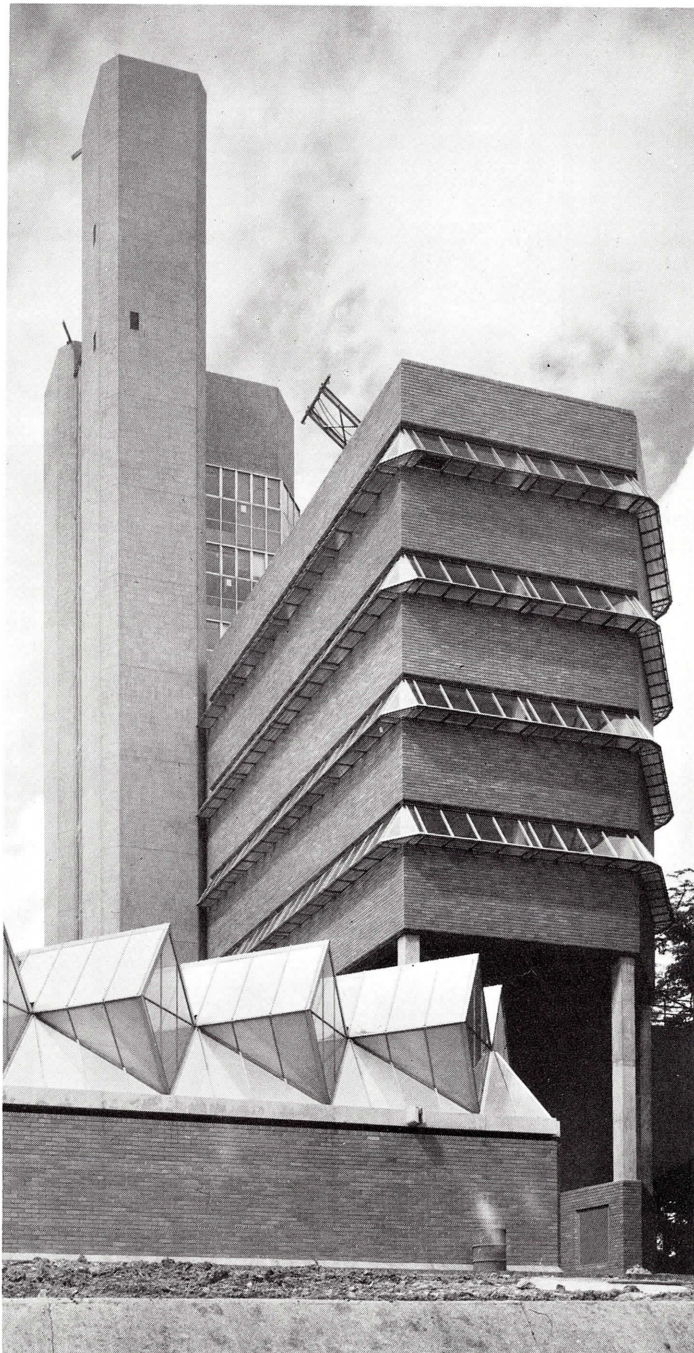
response, which may be seen initially as a return to what the free plan and the free facade challenged some forty years earlier. However, any building such as Leicester, which may at first seem to summarily dismiss two of the basic canons of modern architecture, must be carefully examined. It will be argued that Leicester implies the potential for presenting the vertical plane as a dominant spatial datum, while using a vocabulary which runs counter to the by-now-traditional dematerialized cubist aesthetic. Leicester no longer conceives of planes as datum referents, such as the white, tautly stretched surfaces of Poissy or the frontal intensity and peripheral stress of the thin layers of both Garches and the Salvation Army Building. Rather than dismiss this architecture, as might be thought on first impression, Stirling in fact provokes a head-to-head confrontation. He poses an alternative that without *literally* destroying the volumetric box in the manner, say, of a Van Doesburg, and more recently in the wall decompositions of John Hejduk, destroys it *conceptually*. Stirling does not begin from a single box, but rather from an essentially multi-volumetric composition. He erodes this conception in such a way that it produces a datum plane, as a fulcrum element that implies not the original multi-volumetric conception but rather a single box. The conception of the resultant box is neither a dematerialized object in the cubist sense nor a series of volumes in the constructivist sense. Rather the actual boxes are conceptually “destroyed,” and at the same time the virtual quality of a single box is produced by the way the object itself is eroded.⁸

Such a procedure seems to reverse Le Corbusier's notion of the implied or virtual referent, which relates objects in deep space to a frontal plane. This is revealed in Stirling's almost meticulous preoccupation with articulating a vertical surface in a building that otherwise exhibits no concern for space in the cubist sense of the word. This is not to say that Leicester was either conceived of by Stirling in the manner just described, nor is it to say that the building exists in fact in this way. It is rather to present an alternative interpretation, a way of seeing this building within another conceptual framework, which in turn may act as a means to stretch one's capacity to conceive of any architecture.

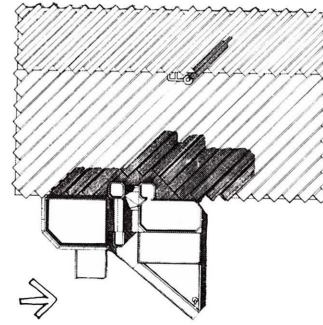
Our attention is drawn to this contrasting attitude by the way

Figure 8. Leicester University Engineering Building. James Stirling and James Gowan, architects, 1963. Laboratory tower, view from the southeast. The tower can be conceived of as a solid brick block with no frontal datum—no preferred viewpoint—it is to be seen in the round.

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8.



in which Stirling seems to be almost uninterested in an abstraction using a vertical plane. Yet, one can point to so many instances, specifically in his pairing of materials and their volumetric juxtaposition, which must be considered either curiously contradictory or almost incomprehensible if one clings to an identification of a traditional role for materials, that one is led to pursue this apparent disinterest further.

Clearly the most striking and consistent factor about Leicester is the use of glass,⁹ and in particular the opposition of opaque and transparent glazing. It keys the reading of the other elements of the building. Since the transparent glass will often seem substantial, and opaque glass as the reverse the nature and meaning of the other dominant pair of materials—brick and tile—is called into question.¹⁰

Brick, a dense solid material, is traditionally used in England to support loads, not as a surface. Thus, even when Le Corbusier, who rarely used brick, employs it at Maison Jaoul, it is used not as a surface or planar material, but rather as a structural wall, where its function is real rather than metaphorical.¹¹ At Leicester the brick and tile are presented in such a way that their respective load bearing and surface qualities, while apparently functional,¹² are actually often reversed; their *real* substance is suppressed for their *real* value as a *metaphorical* substance. But let us examine the building itself to see how Stirling challenges the conception of the vertical plane, received from the Modern movement through his *inverted* use of these two pairs of materials.

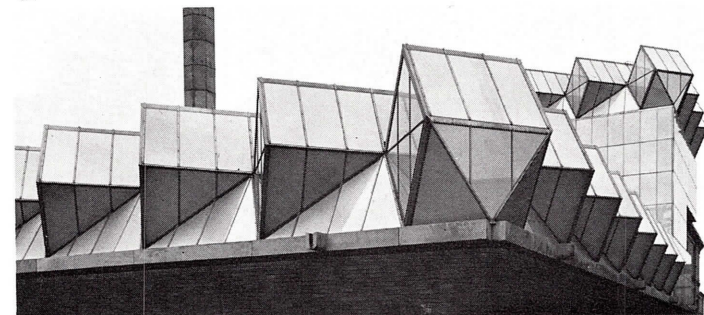
In the laboratory tower there is a very careful concern for detail which initiates this idea (fig. 8). On first appearance this tower, especially when seen against the office tower seems to be a brick block. But Stirling is not content to have the tower remain a solid volume of brick, to appear both literally and conceptually as solid. He first cuts into the solid with thin horizontal windows, thus turning the brick into Mendelsohnian bands that are still read as solid because they actually seem to be compressing the glass. But this conception is reversed, and the surface nature of this plane is restored by projecting the glass beyond the brick and treating it as a prism, making the glass seem solid, crystalline, horizontal and

Figure 9. The laboratory tower, view from the southeast showing the relationship of the columns to the edge of the brick.

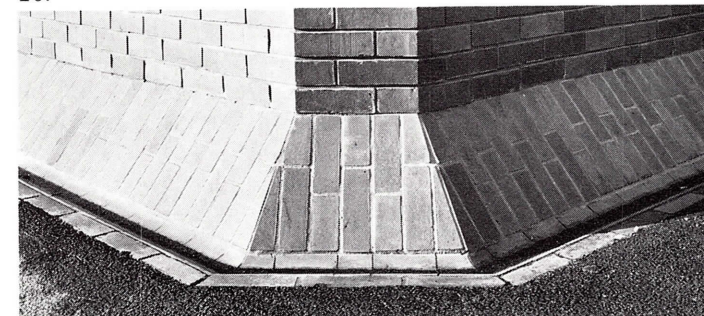
Figure 10. Low shed block, view from the south showing the mass-like brick wall at the base.



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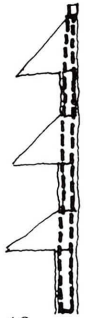
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Figure 11. Low shed block. Detail. View from the east showing the chamfered corner and the raking course at the base.

Figure 12. Laboratory tower. Diagrammatic conception of a second reversal where the brick acts as a membrane which contains and compresses the space inside.



12.

non-planar. It can be argued that now that which appears to be the most volumetric, solid, and formed, are the windows. By virtue of their projecting raked shape, they appear to have material substance as opposed to being merely a membrane or even a void—yet they are literally transparent. And as these glass prisms become the dominant elements, the brick takes on characteristics of a continuous yet partially suppressed vertical plane. Not only does the brick take on planar characteristics because of this shift, but it also becomes recessive or negative (fig. 12).¹³ So the brick, which was first seen as literally solid, positive and horizontal, can now be read as the negative segments or residue of a vertical plane, sliding behind the glass.

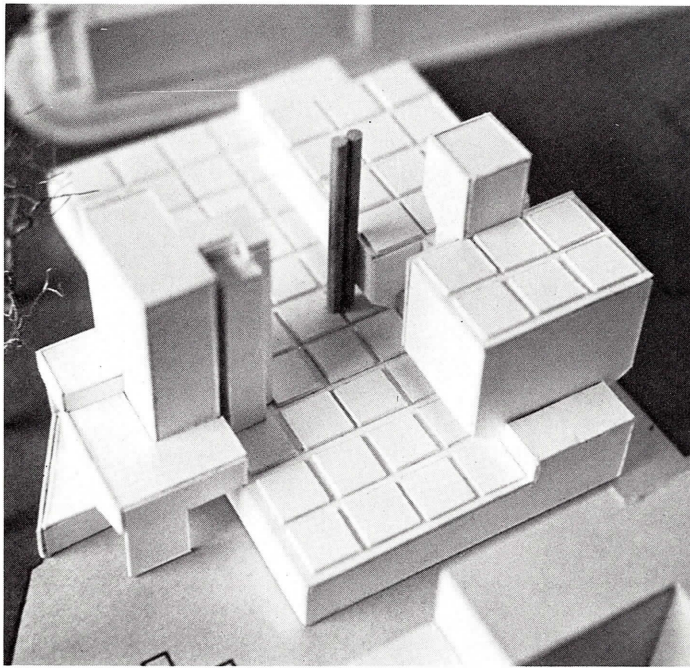
But there is a further reversal of the traditional notation. In all cases except for one—where solid meets ground—solid is rendered in brick, and when it is elevated, it is rendered as tile—the one iconically load bearing, the other obviously a surface material. The one exception when brick appears where it is not in contact with the ground is in the laboratory tower. Here is a second cue to the idea that the brick is to be seen iconically as something other than a load bearing material. The brick is reduced from its solid mass-like volumetric quality to something which is paper-thin by the fact that it is discontinuous with the ground, ending on a series of vertical columns which are suppressed within the volume of the tower (fig. 9).

This reverse notation will appear in many different forms throughout the building. For example in the low laboratory block the same reversal occurs, but through a different set of juxtapositions. In Figure 10 there is what appears to be at first a mass-like brick wall. It is chamfered at the corner (fig. 11) in a way that one associates with something solid. It also recalls the raking of the glass on the laboratory tower, which cued a solid reading and in a similar fashion will also cue the chamfered corners of the office tower.¹⁴ Instead of repeating the layered motif of glass and brick, the base element of the shed is continuous brick, articulated by a canting course at ground level. While Stirling seems to be saying that the brick in the tower is merely a skin of little depth and volume, here in the low shed the substance of brick is made obvious. But again this initial reading is reversed. We are asked to aban-

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Figure 13. Leicester University
Engineering Building. James Stirling
and James Gowan, architects, 1963.
Early study model, ca. 1959.

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13.

don our predisposition to look for metaphoric imagery—to forgo an assessment or a comparison to the battlements of a medieval bastion. Instead, the entire proposition of the bearing nature of the wall is undercut by a deep and continuous horizontal slot which separates the brick mass from the concrete beam and the roof superstructure, which it is supposedly supporting. Again the slot is not so much a stylistic gesture as an iconic cueing device. Once the gap in the continuity from brick to concrete is accepted, when the concept of mass, i.e. as support, which is cued by the brick volume, the chamfered corner, and the canted base is undercut, the brick is no longer seen as mass-like and supporting; one must revert to a previous cue, recalling the brick in the tower, to brick as a surface skin, and thus conceptually as a plane.

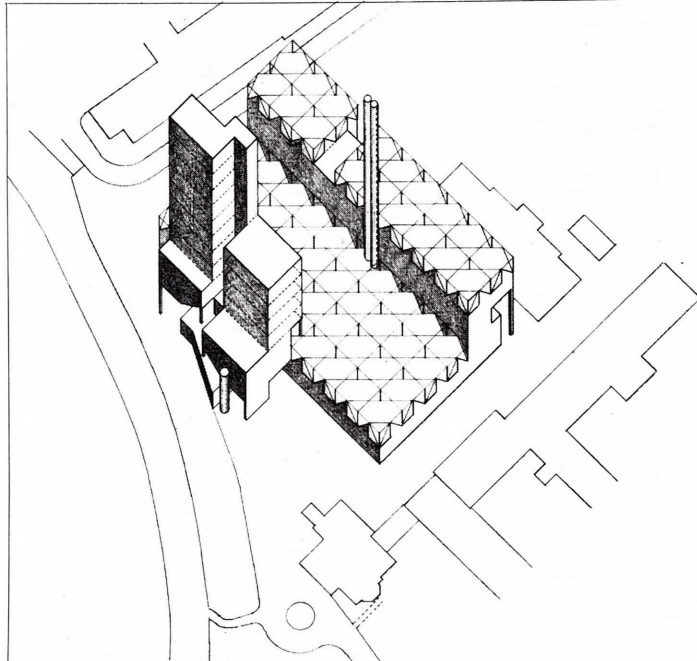
The idea of brick as skin is reinforced by the reading given by the roof system over the shed. It is glazed and greenhouse-like, but instead of being planar and transparent as the traditional glass enclosure of such structures, the glass is treated in a prismatic, volumetric and opaque manner. The first reading is of a series of mass-like crystalline solids. The intention to have the glass read as the most volumetric and most solid element can be seen in the way the lateral edge of the skylights is developed from the early studies.

In the model of an early scheme there is no diagonal gridding (fig. 13). In a subsequent drawing there is diagonal gridding in the skylight truss system (fig. 14), but two cases which will be seen to change later—the second story overhang on the shed space and the lateral edge of the skylights—are still brought into the orthogonal plane; in the former case, by a column which continues the line of the upper, overhanging plane to the ground; and in the latter case, by shearing the diagonal of the skylights at the facade. One must also note the plane supporting the lower tower which reinforces the still-dominant cubist conception of frontal, layered space. In the axonometric drawing (fig. 15) and the perspective sketch (fig. 16), the vertical columnar and planar supports are gone. Instead there is a cantilevered strut supporting the upper portion of the shed, introducing a diagonal in a facade which is now no longer layered vertically. And the plane supporting the tower has turned into a horizontal podium element with two cross walls now supporting the tower. Still the skylight

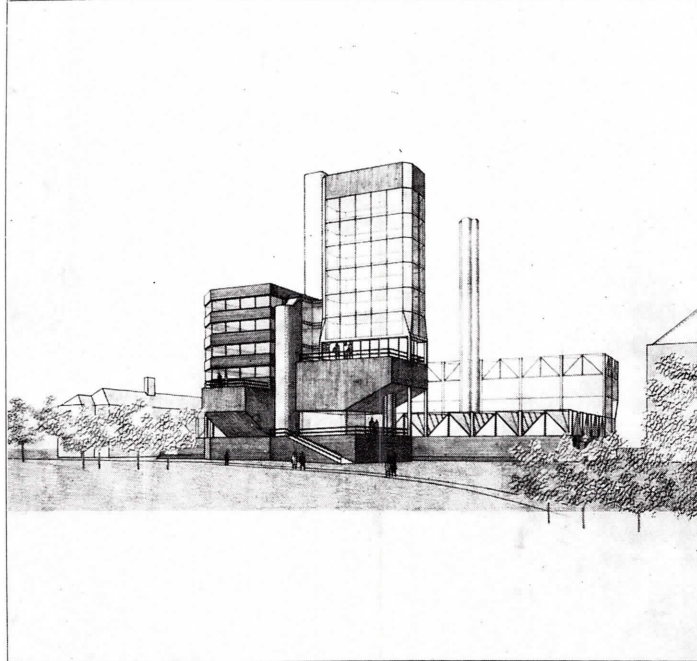
Figure 14. Axonometric drawing showing an early stage of design, ca. 1959-1960.

Figure 15. Axonometric drawing showing a later stage of design, ca. 1960. Note the relationship of the plane of the wall which engages the volume of the skylights in a more traditional "sawtooth" fashion.

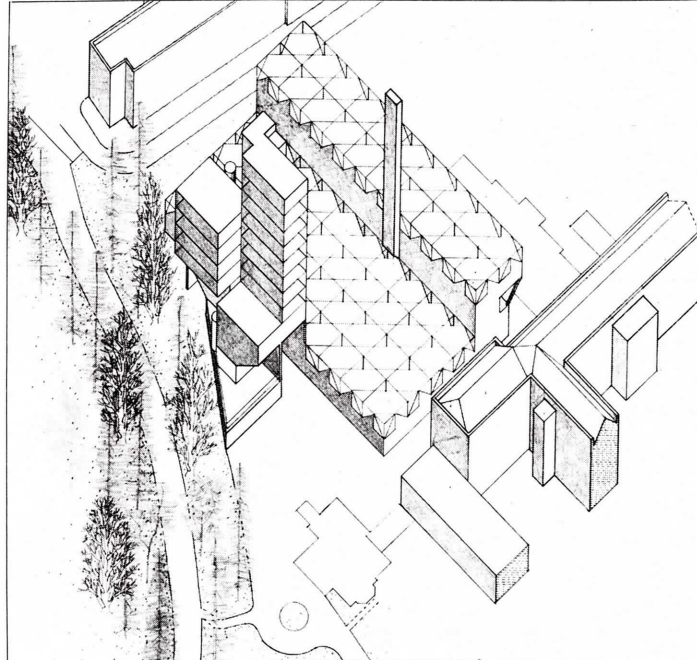
Figure 16. Perspective drawing dated 9 May 1960. This drawing places the date of the two axonometrics (figs. 14,15) at an earlier time because of the further development of the shed roof glazing. While it is still flush to the plane of the facade it is now detached from the solid base system.



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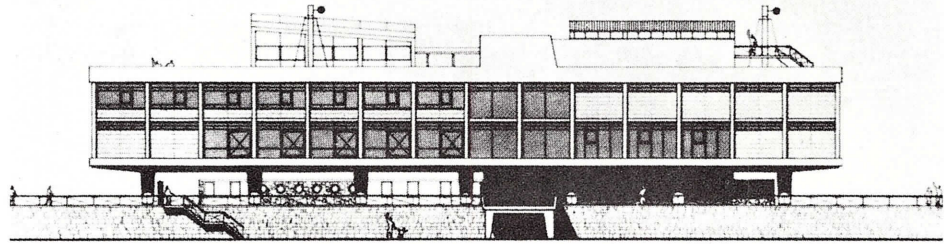
Figure 17. A community center by James Stirling. Liverpool University School of Architecture, Thesis, 1950. Facade drawing.

Figure 18. Sheffield University competition. James Stirling, architect, 1953. Facade drawing.

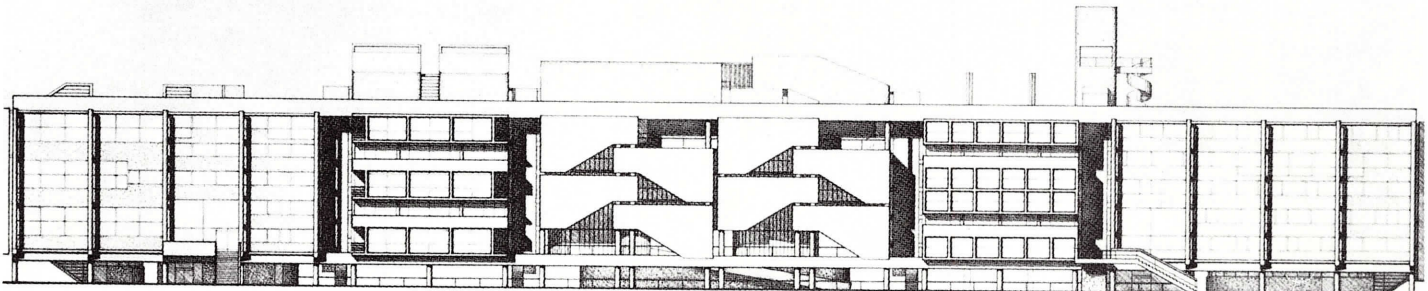
Figure 19. Leicester University

Engineering Building. James Stirling and James Gowan, architects, 1963. Roof plan of an early scheme. Note comparison to the E. Reynolds roof plan (fig. 1).

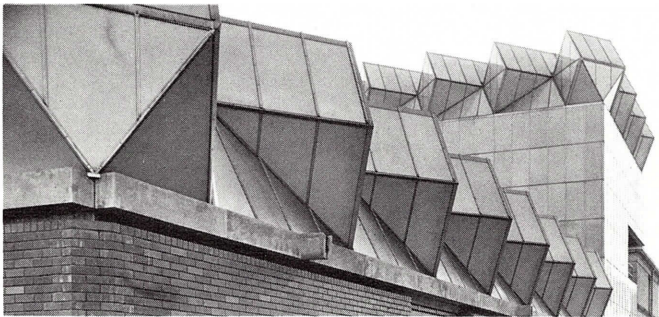
Figure 20. Low shed block, view from south. Here the slot is seen to separate the brick base from the skylight superstructure.



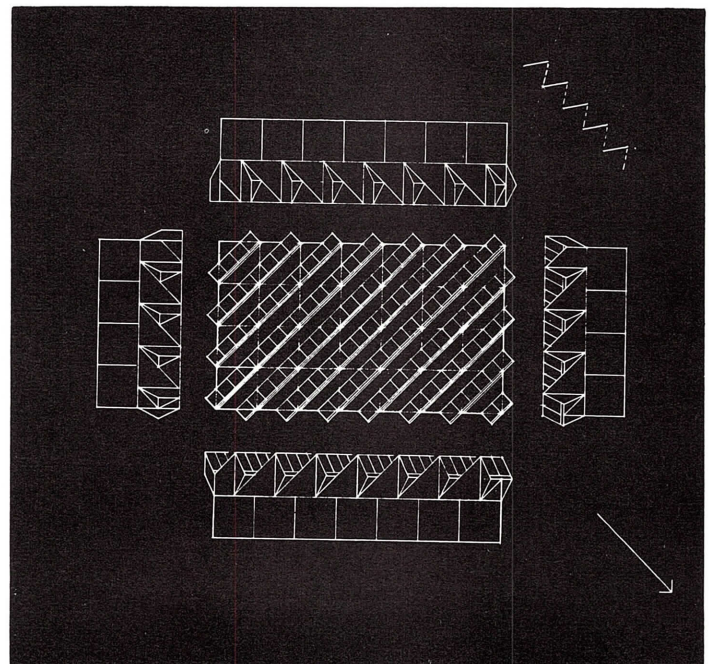
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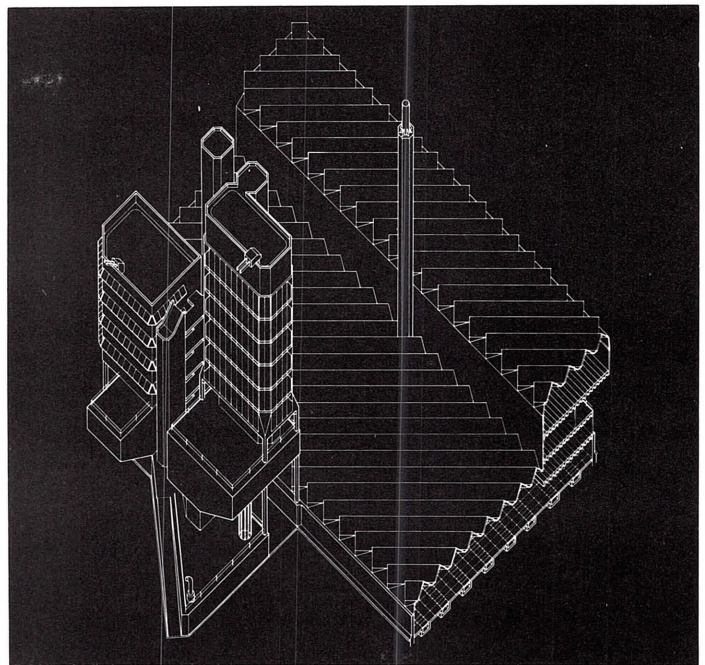


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Figure 21. Axonometric drawing showing volumetric development of the skylights.

roof elements are cut flush to the facade, giving in the perspective sketch a reminder of the incipient diagonals which appear in Stirling's thesis in the form of cross bracing (fig. 17), and in his Sheffield University competition drawing in the form of lecture theaters (fig. 18). However, the lecture theater volumes at Sheffield are not expressed as projecting from the facade but rather are contained and compressed by the virtual nature of an implied vertical surface. It is interesting to note that this is conceptually similar to the original disposition of the lecture theaters at Leicester (fig. 14). In his early study both volumes turn their diagonal thrust inward, contained again by a vertical surface. In the perspective drawing (fig. 16), the volumetric nature of the skylights is still caged in a vertical plane. It is only in the plan (fig. 19) and in the axonometric (fig. 21) that the skylights become volumetric and break out of the vertical plane. This volumetric projection will be seen to be crucial to the concept of the vertical plane as a fulcrum which will be developed below. The volumetric development of glass further reduces the brick planes to non-volumetric applique forms even though their surfaces are not rendered in tile. Through this reduction an implied vertical plane is established. When the notion of bearing—and thus volume—is undercut by the literal slot (fig. 20), the concept of an abstract plane as opposed to a literal volume is introduced. Thus one has induced in brick volumes a conceptual vertical datum which was previously only made apparent in Le Corbusier's white surfaces.

There is a third interpretation of the vertical plane presented through a dialectic of materials which can be seen in the office tower. Our received idea of a glass box from the orthodox Modern movement is of a transparent surface containing a positive spatial void which is in turn pressuring the surface, causing it to be seen as a membrane. However, studying the office tower indicates that no such traditional enclosure of space is intended. There is no space in the conceptual sense. The office tower can be conceived of as a solid chunk of glass—a conceptual solid.¹⁵ In this sense it is possible to see this tower as having existed in some pre-physical or conceptual state as a primitive crystalline solid; a glass cube which was eroded and chipped away to reveal its present configuration—which is merely some fragmentary or partial state in its evolution in time. And because the glass is placed outside



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Figure 22. Leicester University Engineering Building. James Stirling and James Gowan, architects, 1963. Diagram showing an alternative conception of the office tower with horizontal banding similar to the laboratory tower.

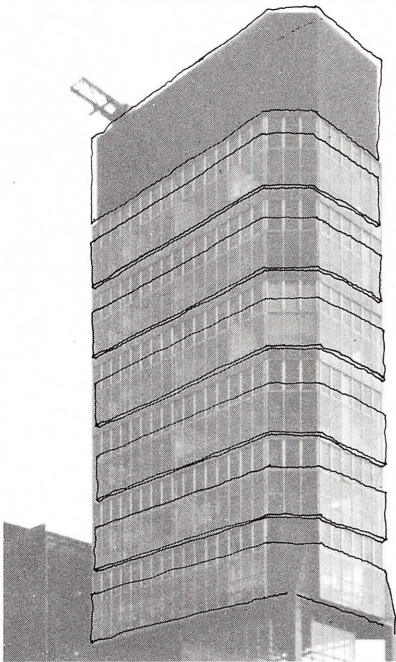
Figure 23. Diagram showing the glass in the office tower set back from the face of the tile cornice.

Figure 25. Office tower from the northwest. The transparent glazing is here reading as a solid.

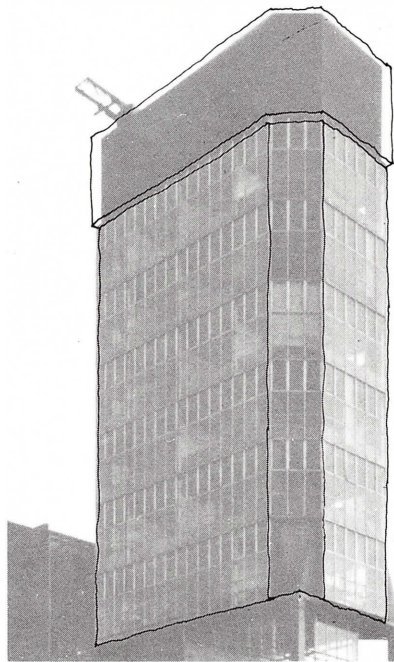
Figure 24. Diagram showing the office tower expressed as a cage with equal horizontal and vertical structural elements on the same surface as the glass.

Figure 26. The base of the office tower from the north west showing the columns marking a void.

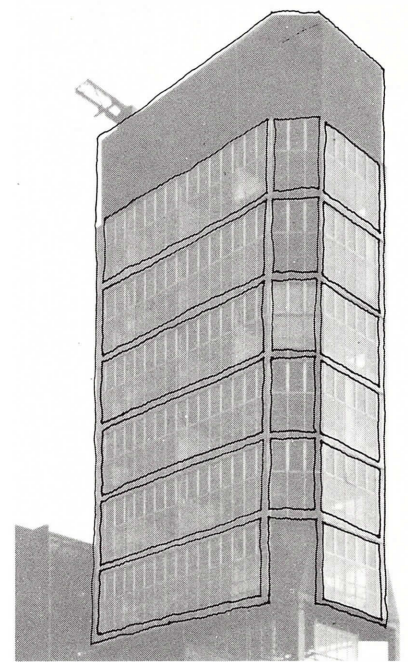
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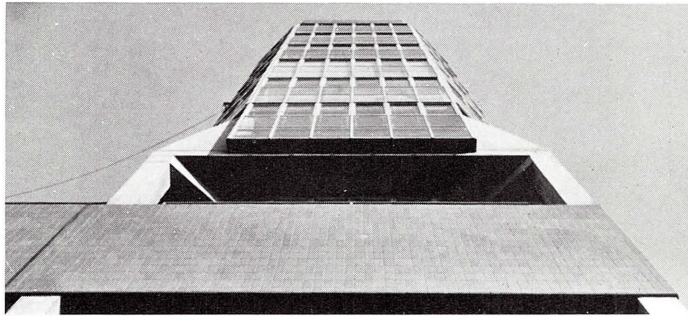
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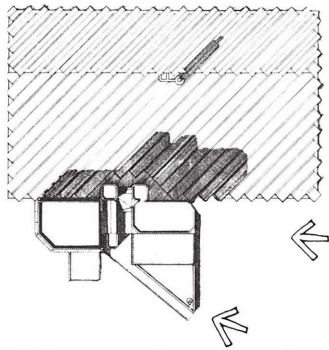


Figure 27. Office tower from the west showing the profile of the glass projecting forward of the tile cornice.



27.

of the exposed concrete floors (fig. 25), it seems to be a more substantial material even though it is obviously transparent. It takes on the appearance of being some solid piece which is either pushed forward of the concrete frames or wrapped around them. One could imagine that the glass plane could also have been continued on the same surface as the tile cornice rather than projecting slightly beyond it (fig. 27), or that the floor slabs might have been faced with brick, or brought forward and turned up into spandrel panels (fig. 22). Another alternative would have been to set the glass back from the tile cornice so as to be literally recessive and conceptually void (fig. 23). Or finally the entire tower could have been treated as a plane; the columns could have been brought forward to the surface and expressed as a cage (fig. 24). But none of these alternatives was chosen. In fact, the only place where the concrete frame is brought into line with the exterior surface is at the base of the tower (fig. 26) where it marks an actual void. In this situation the columns are a positive mark. When they disappear behind the glass above they become negative. This reinforces the reversal in the conception of the glass from void to solid. So it is not only when the frame is actually expressed on the surface of the building, marking and defining a void that this reversal is conceptually active, but also when it is suppressed behind the glass. It is interesting to note that both the glass and the tile cornice are chamfered in the office tower, as opposed to the laboratory tower where only the glass is treated in this way (fig. 32). In both cases the glass is read as solid but the brick and tile readings are reversed. In the office tower, tile, the surface material, is chamfered and reads as a volume. Conversely, in the laboratory tower, brick, the volumetric material, is banded and finished square at the corners, and reads as a surface. Again, in the view of the office tower from the northwest, the glass takes on the quality of a solid (fig. 31), primarily because of its relationship to the diagonal form of the haunch. This form appears initially to be the most mass-like, but when the haunch is seen in relationship to the glass, which is deliberately set forward, the haunch seems flat and planar.

This conception seems similar to the play of solid and glass at the Salvation Army Building (figs. 28,29).¹⁶ Yet there is no question that Le Corbusier's conception of the vertical plane is absent from the vocabulary of Leicester. In fact, each of

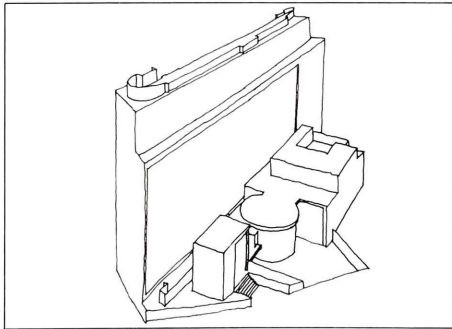
Figure 28. Salvation Army Building. Le Corbusier and Pierre Jeanneret, architects, 1932. Diagram, early study.

Figure 29. Diagram, final project.

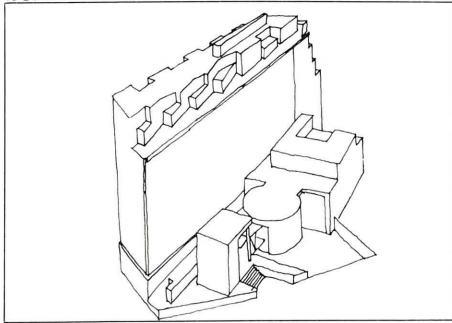
Figure 30. Villa Savoye, Poissy, Le Corbusier and Pierre Jeanneret, architects, 1929. Diagram showing the lateral extension of glass.

Figure 31. Leicester University Engineering Building. James Stirling and James Gowan, architects, 1963. Office tower from the north showing glass projecting forward of the haunch.

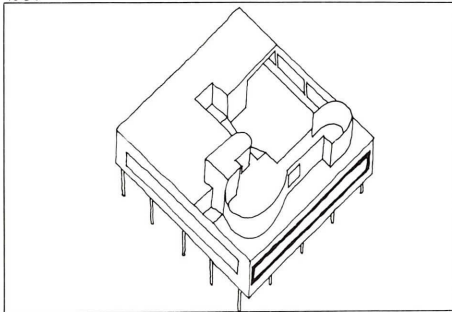
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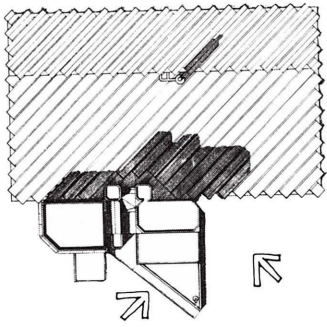


Figure 32. Detail view from the east; laboratory tower on the left, office tower on the right.

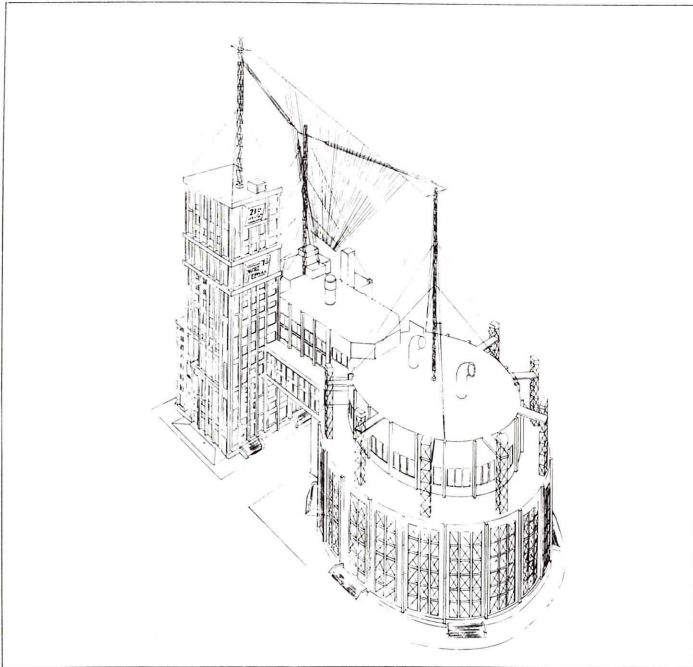
Stirling's devices seems to be an attempt to both destroy our received notion of the vertical datum as a paper-thin surface and to suggest another conception of a vertical plane. For, in many respects, each visual cue is drawn from a mass-like architecture which is conceptually volumetric as opposed to planar. In fact there is hardly any presentation of an unarticulated vertical plane. All such potential planes are cut, chamfered, or splayed to imply depth in volume. When Le Corbusier is concerned with a vertical datum, he postulates it as a literal analog—in a flat, tenuous surface, made visually available, for example at Garches and Poissy, through the location of banded windows and their extension to the lateral edges (fig. 30). Thus the abstract construct-plane is set within a very literal plane, its virtual sense being established in a frontal, and dematerialized vertical referent. In contrast, at Leicester, there is no literal analog—the plane is never real. It emerges for us only in a conceptual process by an elaborate unravelling of a series of visual clues. In this context, Leicester is a commentary on the Le Corbusier/Rowe conception of the vertical plane, and ultimately an assault on any modernist conceptions of plane.¹⁷ This attack on modernist sensibilities also brings us face-to-face with Leicester as a critique of Constructivism;¹⁸ the direct constructivist references in Leicester being more difficult to refute.

First, constructivist architecture can be seen literally as a series of solids—solid volumes juxtaposed about a vertical axis (as opposed to a vertical plane), which acts as a fulcrum for these volumes which are seemingly in collision or straining to pull apart from a centralized vortex of dense, centripetal pressure; the whole creating dynamic visual configurations (fig. 34). Second, these solid volumes, while literally containing real space, exhibit no tension between the bounding surfaces of volume and the contained space. No virtual pressure is exhibited on the exterior plane which would imply an intention to confer positive animating characteristics to the space inside; they seem as a limp mass of air maintained by four walls (fig. 33). Third, Constructivism is an architecture of articulation. It uses these solids in an additive, as opposed to a subtractive, compositional mode (fig. 37). All three of these dispositions display a common attitude toward a subtle yet unmistakable concern for total figural composition. In a certain sense, these asymmetric balances



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Figure 33. Palace of the Soviets competition, 3rd prize. A. and V. Vesnin, architects, 1923. The fenestration, the engaged columns, and the protruding floor slabs seem to deny any dynamic between the internal space and the surface.

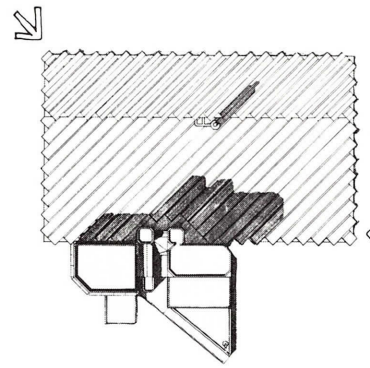


33.

Figure 34. Pravda Tower, project. A., L., and V. Vesnin, architects, 1923. The project displays an asymmetric anti-gravitational dynamic, between balance and collapse. A reverse pyramidal composition which appeals to the sensorial as opposed to the rational.



34.



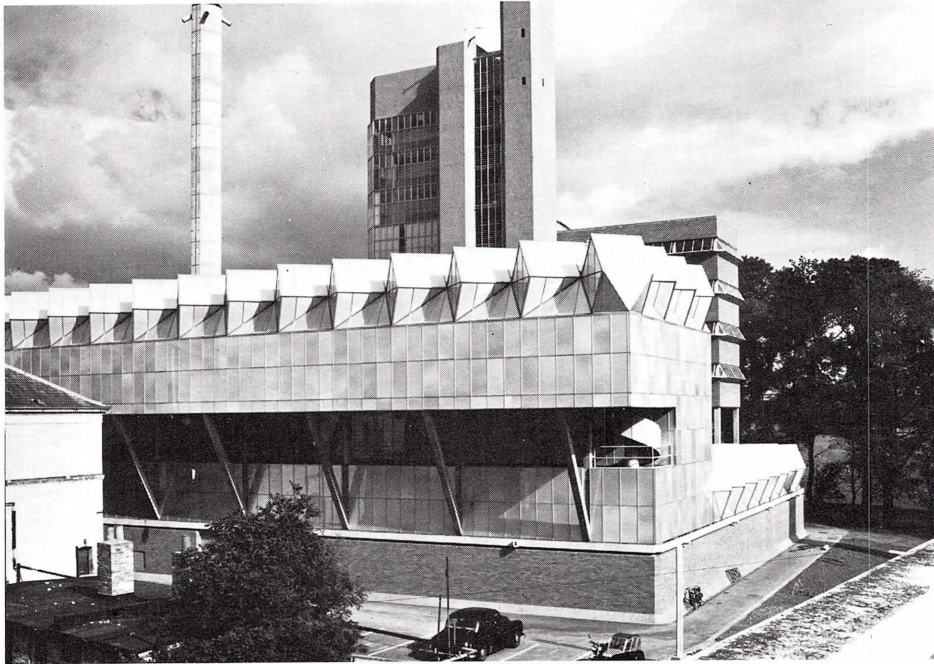
serve only to conceal a more traditional attitude to the object.¹⁹

If there is any link in Stirling's work to the first of these aspects of constructivist architecture, it lies in the fact that he takes the compositional attitude of Constructivism, rather than its vocabulary and brings it into some sort of dialectic with the conception of layered space and ultimately with the concept of the vertical plane in Le Corbusier. Naturally such a process involves a transformation of the Corbusian paradigm since unlike, say, the Dom-ino or Citrohan houses, the vertical plane is used as a fulcrum for both vertical and horizontal elements. This can best be seen in the southwest elevation of the shed building (fig. 35).

Here we again have a simultaneous sequence of reversal upon reversal; a play between the diagonal facets of the glass skylights, the vertical planes of glass, and the diagonal, cantilevered struts which support the overhanging volume. Obviously the most void-like and spatial aspect of this facade is the particular triangular void that is bounded and marked by the diagonal struts (fig. 36). In one interpretation, we can read the diagonal braces as solid and supporting. Yet since their angle corresponds to the angle of the glass skylights above and since we have already read these particular truncated shapes as solid in the lower shed, then, in another reading, this long triangular space can be read as a solid piece, especially when seen as a continuation of the diagonal elements of the triangulated roof. In this context, the vertical glass plane of the cantilevered rectilinear volume reads as a void in the relationship solid-void-solid (fig. 38). However, the reverse condition can be posited if the triangular space is read in its literal condition as void. Then the vertical plane which is glass, and opaque, can be read as a conceptual solid; the truncated skylights in this interpretation are read as void. In other words, because of the particular juxtaposition of triangular-vertical-triangular elements, the triangular space can be read either way. Thus we can read, simultaneously, literal void and conceptual solid. If the space is conceptually a solid, then the vertical plane, which is literal solid, becomes conceptually void (fig. 39). And the lower vertical plane, which is recessed but is also opaque glass, is read as void when it is read against the conceptual solid of the actual

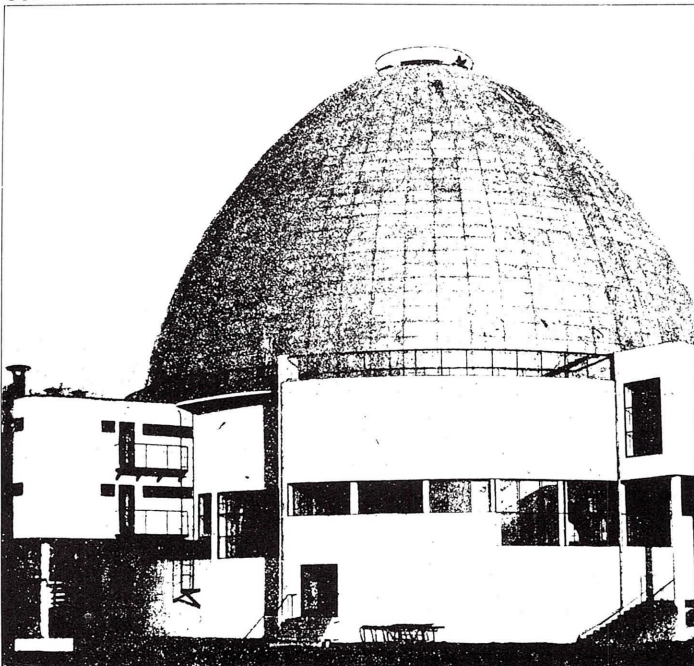
Figure 35. Leicester University Engineering Building. James Stirling and James Gowan, architects, 1963. View from the south of the shed building.

Figure 36. Detail view from the northwest looking up under the shed building.

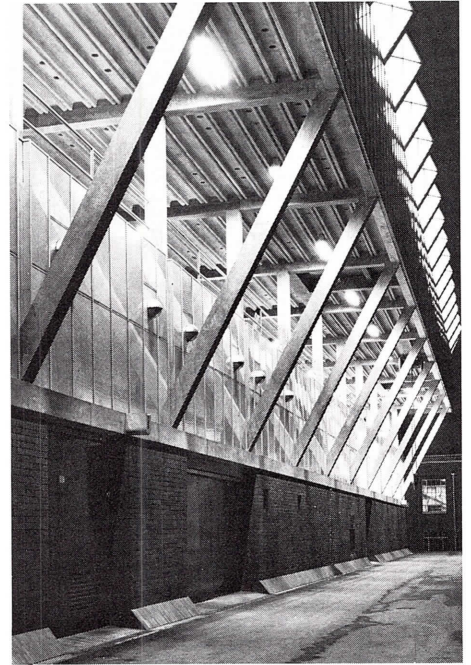


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Figure 37. Planetarium, Moscow. M. Barsch and M. Siniavski, architects, 1927-1929. Elements added to a central form type in such a way as to foreclose any reading of erosion.



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Figure 38. Leicester University Engineering Building. James Stirling and James Gowan, architects, 1963. Diagram showing first reversal — solid-void-solid reading.

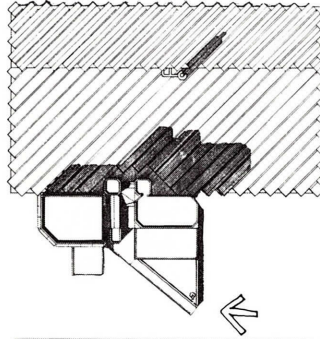
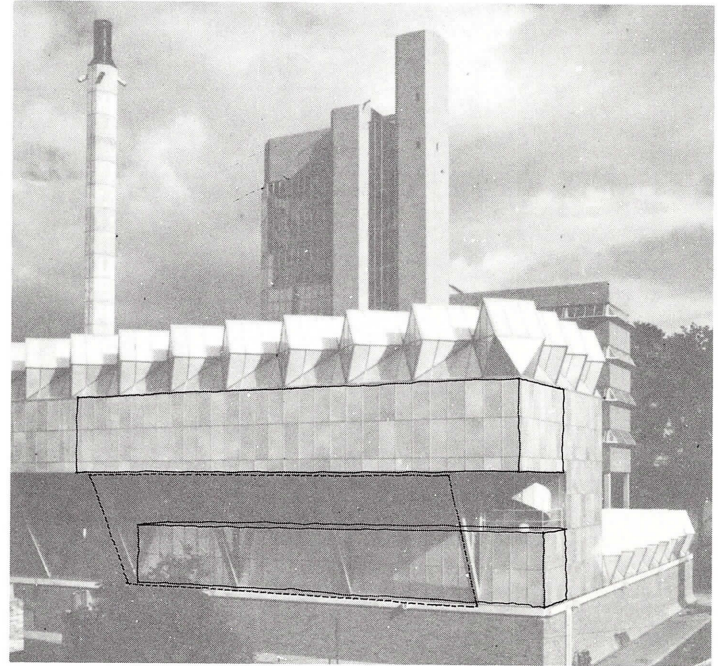
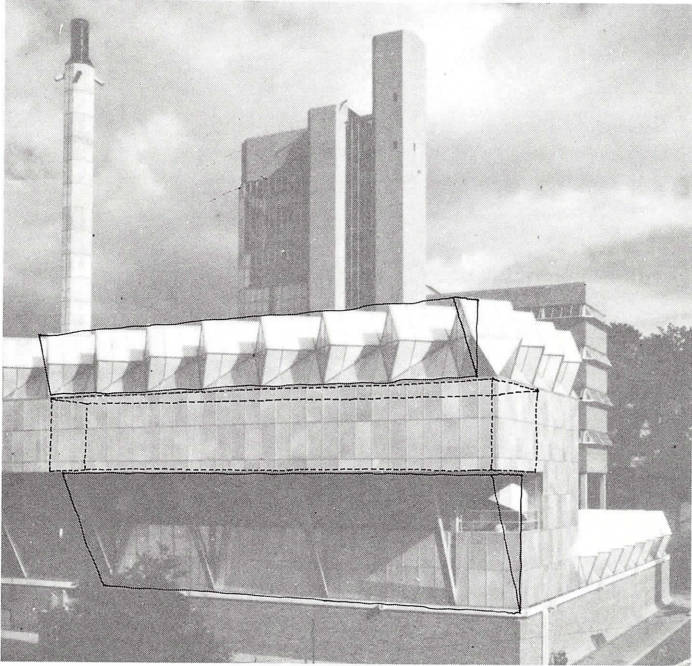
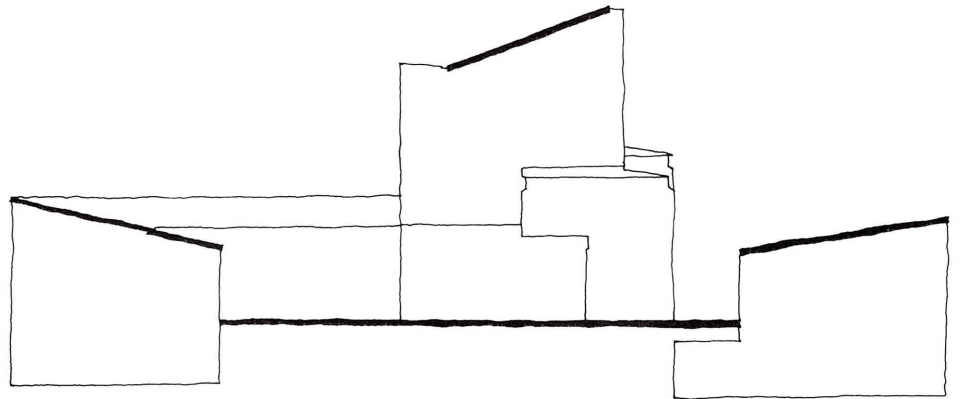


Figure 39. Diagram showing second solid-void-solid reversal with the diagonal plane as the datum.



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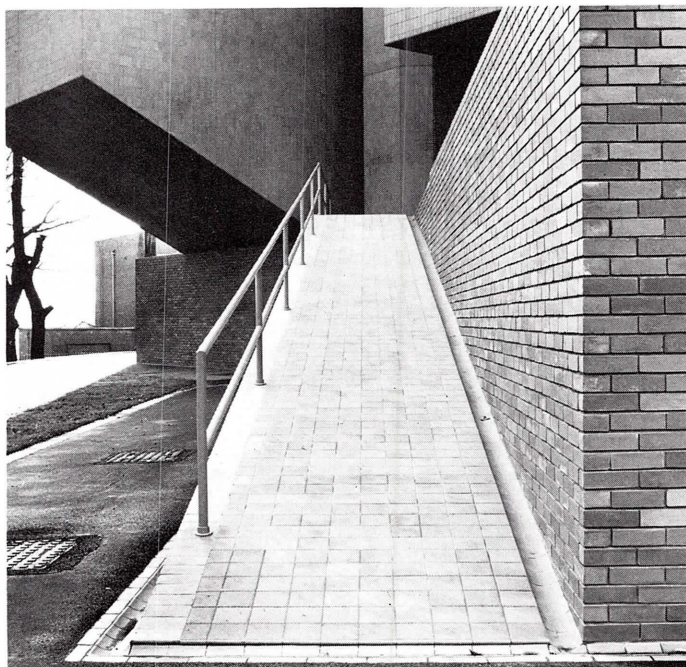
Figure 40. Saynatsalo Civic Center. Alvar Aalto, architect, 1952. Diagram showing the courtyard level which acts as a horizontal datum mediating the slope of the site and the pitch of the roof.

Figure 41. View from the north at the base of the entry ramp showing the relationship of the auditorium and the ramp about the podium level.

void. In both cases the ambivalent reading is produced by a vertical plane acting as a fulcrum element to the two triangular volumes, or conversely by a diagonal plane (of the struts) acting as a fulcrum for the vertical volumes. Thus a planar datum is articulated as a fulcrum element, oscillating between a vertical and diagonal position.

At this juncture there is a second conceptual fulcrum developed, using the horizontal plane; a device that is in fact closer to the neo-plastic horizontal datum than it is to the pivotal and frontal concerns of Constructivism and Cubism. This datum appears in the podium element which acts as a plane of reference for the contrapuntal diagonal vectors of the underside of the auditorium and the entry ramp (fig. 41). In this case the three elements function in much the same manner as the angled roof, the courtyard plane, and the sloping site of Aalto's Civic Center at Saynatsalo (fig. 40).²⁰ In its use of both vertical and horizontal fulcrums, Leicester embodies a dual relationship of planes to volumes absent in Le Corbusier's work.

The two lecture theaters, which seem to be most constructivist in their mass-like volumetric form, are in fact the occasion of another major distinction between Leicester and orthodox Constructivism. Expressed as diagonally projecting forms set at right angles to each other under the asymmetric towers, they are reminiscent of Melnikov's Rusakov Club in Moscow. However, the mass-like elements of the Rusakov Club in no way seem to compress or extend the external space by the influence of their bounding surfaces (fig. 44); in essence there is no vertical or frontal plane as in the Maison Citrohan, and without such a frontal datum there is no implied or virtual depth in space. While the lecture theaters at Leicester are obviously volumetric elements, they are tile-clad in such a way as to read as surfaces containing space. Furthermore through their relationship to the vertical elements they begin to activate the external space in a way which is absent from the Rusakov Club. At Leicester there is a further play between space and surface which serves to augment the idea of fulcrum. The larger volume on the left (fig. 43) appears to be restrained under the weight of the brick tower. The following relationship between surface and the space contained seems to be operative in this juxtaposi-



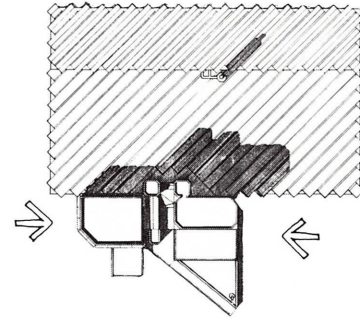
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Figure 42. Leicester University Engineering Building. James Stirling and James Gowan, architects, 1963. Lower level entry from the northwest. The night view shows the glass elements reading as conceptual solids.

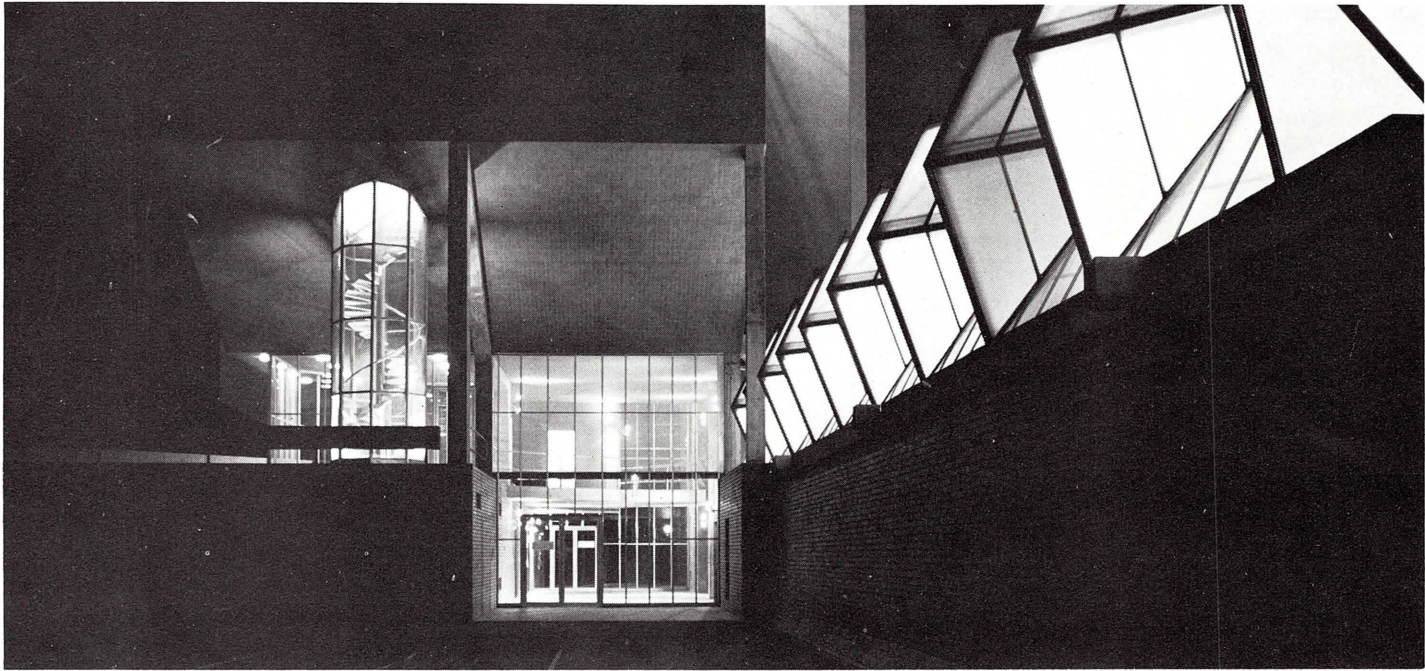
Figure 43. View of auditorium volumes from above the entry ramp.

Figure 44. Rusakov Workers' Club, Moscow. K. Melnikov, architect, 1928. Solids juxtaposed about a dominant central axis; the vertical datum referent can be seen as external to the object.

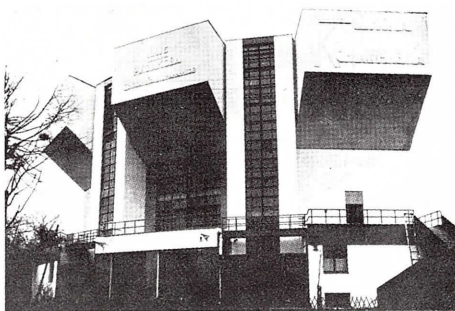
Figure 45. View from southeast to rear of entry lobby.



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ion. First there is the literal dialectic between the towers, which we have discussed above. Against this we have to confront a glass tower which is transparent but conceptually solid and the brick tower which is solid but conceptually void. It follows that the brick tower which apparently rests on the lecture theater (fig. 45) cannot fully express itself as a counterweight because it is conceptually void and therefore weightless. The reverse is true of the glass tower, which is conceptually solid but appears to be held up by the transparent glass box.²¹ Thus it is not the towers but an unseen vertical axis which acts as the stabilizer of the composition—as a kind of fulcrum stabilizing the cantilevering volumes.

The relationship of the pair of columns to these volumes is also foreign to any constructivist articulation (fig. 42). These columns that support the canted underside of the auditorium do so in such a way as to establish the vertical edge of this volume as the first of a series of vertical layers. A second layer is established by the plane of the lower level entrance lobby. However, since the entire thrust of the diagonal underside of the tiled volume appears to come down on this plane which is literally transparent and planar, this plane is read metaphorically as a solid supporting the brick. But further, since the first layer in the sequence is a void with no glass, the rear plane with glass is again read as a conceptual solid.

We have a further set of contradictions (fig. 47) which refer to a third break with a basic lexical attitude of constructivist architecture—its additive mode. While Constructivism uses solid elements—volumes which appear solid and are aggregated in time, ultimately displacing space—the office tower was seen above to reverse this strategy, and because of the visual evidence we saw an eroding or chipping from some larger solid enclosure. The spiral staircases—a motif which is repeated three times at Leicester—are a second key to the conceptual difference between additive and subtractive volumetric articulation at Leicester and in Constructivism.²² The spiral stair, in and of itself, is the essence of an additive element because it visually connects two horizontal planes through the device of a non-planar, volumetric element. The spiral staircases at Leicester seem to come directly out of Golosov's Workers' Club in Moscow (fig. 46). However, in the



45.

Figure 46. *Workers' Club, Moscow. I.*
Golosov, architect, 1928.

Figure 47. *Leicester University
Engineering Building.* James Stirling
and James Gowan, architects, 1963.
View from northwest showing the
spiral stair in the cutout volume of the
shed.

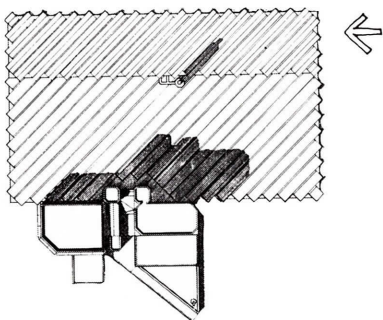
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Golosov building no dialectic or ambiguity seems intended. In fact everything is almost doubly, but literally, articulated. The square horizontal elements are distinguished from the circular vertical elements. And further, the horizontal element is solid; the vertical element is glass. Rather than compressing the readings so that there is a visual ambiguity, the elements are purposely pulled apart.

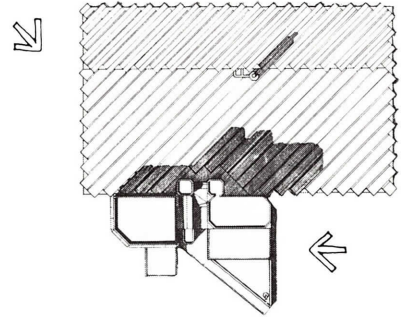
In both the west (as shown in Figure 47) and the south corners of the shed, the rectilinear form seems initially cut in such a way so that the resultant volume of opaque glass panels are read as conceptually solid. This creates the first reversal—a glass plane, albeit opaque, being read as solid. Within the cut out volume a very solid looking spiral stair baluster is revealed. However, upon closer inspection, because the baluster is treated in the same material as the glass panels of the vertical surfaces, it creates the condition for a second reversal. The glass planes of the rectilinear volumes are literally opaque; they can be read as solid. Since the spiral stair, which is both literally volumetric and conceptually volumetric, is treated in the same material as the glass volumes, it causes the rectilinear volume, which is less literally volumetric than the cylinder of the stair, to be read as planar. In other words, because the glass of the rectilinear volumes is not treated initially as a skin, it reads as a solid block which is cut out and eroded. The rectangles are not seen initially as plane or surface but as a “chunk of stuff.” Thus, the object-like cylinder stairs can appear to have pre-existed in the block and to have been revealed by some subtractive process. In this conception, two disparate form masses are given initial object-like properties. And then because one form—the stair—is more object-like and is treated in the same materials as the volumes, then these block-like volumes reverse and become planar. If, for example, the stair were treated with a brick facing or with clear glass, there would be no ambiguity. But because both are in the same material—and opaque glass at that—there exists the possibility for a reversal. So that far from treating glass as dematerialized and transparent in either the literal or virtual sense, glass is here again found to be conceptually solid (fig. 48).²³

The third spiral staircase (fig. 49), that connecting the podium to the underside of the auditorium volume (seen at the

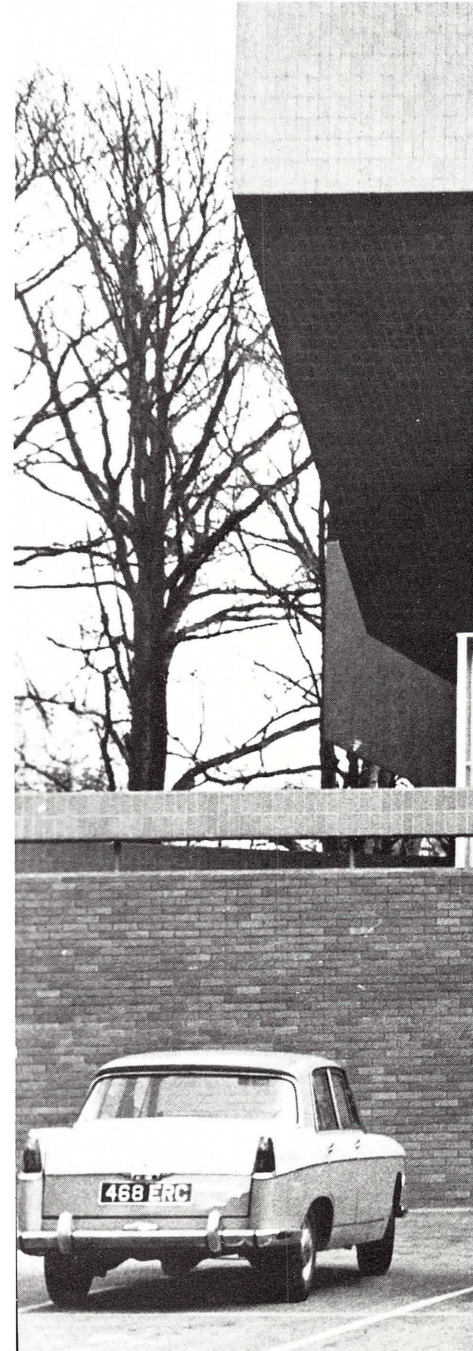
left of the picture), also works in a similar fashion. It plays with the reading of the stairs in the shed space as well as with the tiled volume above. This spiral staircase is treated in transparent glass; the other two spirals are in opaque glass. Since the latter two are read as conceptually solid, the former must be a conceptual void. Yet two aspects of the way this staircase is detailed mediate against this simple interpretation. First, it has a faceted geometric form which tends to give a solid reading to its surface; second, it is the only one of the three circular stairs which is actually fully enclosed (i.e., solid) albeit in totally transparent glass (i.e., void). Further, while the tiled volume above is actually supported by two columns, they seem to have had their supportive material, the brick, stripped away. They seem very thin when compared to the faceted circular stair which in this context seems to be the more substantial of the elements. However, there is a further reversal; for the stair, far from supporting the auditorium volume, seems to punch through it.

In both cases where glass is presented as offering a literal transparency—in the circular stair and in the lower entrance foyer, as at the main block of the Bauhaus—we find it to be conceptually considered as a solid, that is, it is virtually opaque. Thus it can be seen that this dialectical play of opaque glass to transparent glass becomes a dominant reference in a marking system, which reverses the additive and volumetric canon of Constructivism. In fact, in essence, Leicester reverses the notational or cueing system of the Modern movement in which glass was rendered as transparent, thin and layered, to one where glass can be seen as solid and opaque; where instead of being layered, it is eroded. To understand the referent system proposed at Leicester, one must first detach Stirling’s notation from its historical context, to begin as it were with a notational zero and attempt to build a new lexicon. Rather than attempting this, many of the critics merely reduce Leicester to a set of metaphors, and minimize in such a judgment the significant distinctions between Leicester and its two sister buildings, the Cambridge History Faculty Building and the Oxford Florey Building.

Despite these recent critical pronouncements, which would have us place Leicester, Cambridge and Oxford in an historical continuum, it is my contention that Leicester remains



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Figure 48. Leicester University Engineering Building. James Stirling and James Gowan, architects, 1963. Detail view of shed from the south. The night view gives a further dimension to the ambiguity between solid conception as a property of shape as opposed to an aspect of materials. Here similar materials and dissimilar shapes play

together to produce opposite readings of solid and void.

Figure 49. View from the northwest. The base of the auditorium showing the relationship of the circular stair to the underside of the auditorium and to the columns.



30 seminal and singular in this context. In all three we are presented with a too-easy similarity—a lineage in brick and glass developed in a repertoire of molded, pyramidal and canted shapes. And while it is unfair to the quality of both Cambridge and Oxford to dismiss them summarily, within the limited context of this discussion they do not seem to be addressing the same issues critically. That is to say, the gestures at Leicester seem to be invested with a rationale and the suggestion of an alternative position that a similar analysis of materials and volume relationships at Cambridge and Oxford might not reveal.²⁴

For example, if we compare the small cant strips in the brick surfaces at Cambridge or the pyramidal glass roof over the reading room, they do not have the same conceptual value as at Leicester. They seem to exist as perceptual embellishment—as the marks of a personal, albeit evocative, style—rather than as a challenge to the conceptual heritage of the Modern movement. And in the context of my initial remarks, Cambridge and Oxford are not polemical. They seem to be merely borrowing on the iconic charge given by the use of similar materials and building methods developed at Leicester, and collaging them in a way which in and of itself deprives them of their polemical quality. While one can argue that every first gesture will always be deprived of this fundamental quality of originality by being repeated, and thus deprived of the polemic of the initial moment, one should not excuse Cambridge and Oxford on these grounds. Nor should one say that it is not possible to continue putting forth polemical imagery in the monumental type. It is simply that Cambridge and Oxford are not in their compositional attitude invested with the same relational structure. And if one need make a further point to clarify the earlier comparison, one might say that Leicester is European and Cambridge is American.²⁵ Leicester demands the existence of the Modern movement, confronts a major tenet of its theoretical base and transcends it. Cambridge pretends, as does much recent American architecture, that the Modern movement did not exist; that the nineteenth century without any formal caesura can continue into the future.²⁶

The point that is being made is that the Leicester Engineering Building operates on the level of what might be called the

archetypal “stuff” of architecture, in the same manner that any gesture does that moves away from a rigid, stylistic or classical vocabulary. What is being argued is that one of the ways one operates as a designer is to explore and expand the potential of space to be manipulated in different ways in order to develop a lexicon out of the innate—rather than the proscriptive—*intrinsic* formal vocabulary of architecture. In one sense this is an activity of architecture that can be seen to be continuously an internal critique of architecture; the nature of such a critique being: one, the examination of the essential nature of architecture itself; and two, the examination of the nature of our predispositions in the way we look at that essence. Such a critique questions how much of our perception is culturally conditioned and thus not open to any exploration beyond what we know, that is, beyond what is identifiable and easy for us to grasp. And I believe that it was precisely Stirling’s subconscious reaction to Le Corbusier and Constructivism that produced what must be called an *apertura* in the predicament described at the beginning; that is, as an alternative to an eclecticism using cubist and constructivist elements as *the* vocabulary of the fundamental modes—subtractive and additive—of forming space. Stirling has produced a potential form-giving process that had been neither manifest nor realized before. In Leicester this process is brought to a level of conscious concern in the vertical plane. First, by bringing together the vertical plane and the volumetric displacement of space into some sort of dialectic, he introduces the concept of the vertical plane as a fulcrum, as something other than a datum for layered space or as a surface membrane containing space. Le Corbusier used the vertical plane to define and contain; Stirling uses the vertical plane to displace space. Second, by using the juxtaposition of mass elements in a second dialectic mediated by the horizontal plane, Stirling again uses this element to displace rather than to mold or to form space.

Leicester stands some ten years on as an example of the latent potential in architecture to make manifest in physical form certain ideas which in themselves stand continually as critical agents to all of our activity. It challenges us to throw over the way we want to see in favor of what we might see. And in an era where functionalism was offered up as a substitution for ideal content, Leicester reaffirms the need

for the continuity in the evolution of the formal vocabulary of architecture.

But further, Leicester stands against an increasingly vocal group of architects concerned with hard data, recycling materials, and inflatable structures, who would think of this building (and this criticism) as irrelevant, precisely because of its manifest lack of involvement with the positivism of these technologies or the apparent social commitment of such an empirical attitude. But from these, this building must be defended. And while this is not to suggest the opposite, that the polemics and the visions of the 1920s are either applicable or relevant today, and therefore should be resurrected, it is rather to say that the theoretical implications of modern architecture, which must ultimately affect any architecture, and the implications of the abstract logic inherent in space and form, must yet again be a subject of investigation. Even fifty years after *Maison Citrohan*, the lessons inherent in such conceptions can still be learned and explored.

- 32 1. While I have no intention of continuing the Stirling and Gowan debate over the paternity of certain drawings, it seems quite clear from the record of projects completed since the dissolution of their partnership—in particular the History Library at Cambridge and the Florey Building at Oxford—that the *compositional attitude* being discussed in this article seems to be a continuing preoccupation of James Stirling's (as it had been in his Sheffield University project of 1953). I will therefore only refer to Stirling in the remainder of the text, while acknowledging that the Leicester Engineering Building was a product of their partnership.
2. This term, which combines both the nineteenth-century idea in the use of the term "gesamt" with the iconic intention of the term "monument," was first suggested to me by Kurt Forster in conversation.
3. While a range of such metaphorical attributions are commonly placed on buildings of this temperament, one must ask how they help us to understand what will be seen to be a rather unique exploration of a formal vocabulary present in this work. If we are to believe Manfredo Tafuri, that Stirling rejects such analogies as "fishing for references" (Tafuri, "L'Architecture dans le Boudoir," *Oppositions* 3, May 1974), it is possible that such metaphorical attribution tends to obscure such an understanding. It is in fact possible to sort through the visual evidence to build an entirely different pedigree, iconography and ideology for this building.
4. This argument was developed with Kurt Forster in conversation.
5. It has been argued that this emphasis on the vertical plane can be seen to be culturally determined, that is, as a northern European as opposed to a Mediterranean manifestation. My argument is based on an opposing notion, not concerned with vertical *emphasis*, but rather on the use of the vertical plane as a datum and as a *conceptual necessity* in architecture (see my "Notes on Conceptual Architecture III." Unpublished.). Equally there are enough culturally based examples which tend to contradict the former assertion. Maison Citrohan is nothing if it is not Mediterranean and when comparing two similar interior spaces, Gunnar Asplund's Stockholm Town Hall and Giuseppe Terragni's Casa del Fascio at Como, the former (which is northern) is horizontally layered; the latter (which is Mediterranean) is vertically layered.
6. Manfredo Tafuri has also speculated on a possible interpretation of Stirling's work in "L'Architecture dans le Boudoir." "The parabola which Stirling has followed has a high degree of internal consistency. It indeed reveals the consequence of a reduction of the architectural object to pure language, yet it wishes to be compared to the tradition of the Modern movement, to be measured against a body of work strongly compromised, in an antilinguistic sense. Stirling has 'rewritten' the 'words' of modern architecture, building a true 'archaeology of the present.'" The operative idea for what will follow is Tafuri's concept of "rewritten." In my terms there will be two rewritings: Stirling's rewriting of modern architecture and my rewriting of this received interpretation of Stirling's work.
7. Le Corbusier and Pierre Jeanneret, *Oeuvre complète, 1910-1929*, vol. 1, ninth edition (Zurich: Les Editions d'Architecture, 1967), p. 31.
8. Kenneth Frampton caught this same idea when he said that "Stirling's reaction of 1959 from mass to light was accompanied by a strong feeling for the erosion and disillusion of form *per se*." (Kenneth Frampton, "Stirling's Building," *Architectural Forum*, November 1968.) His use of the term "erosion" applies to the *actual shape* of the building; my use of the term is concerned with the *conception* of that shape.
9. Here Kenneth Frampton speaks of Stirling as having "consistently exploited patent glazing as a *matière* whose spectacular qualities are to be most effectively revealed, through draping it like a giant curtain over a configured shell; a seductive form of material expression on occasion, . . . irrelevant to the intrinsic syntax of a particular structure." (Frampton, "Stirling's Building," p. 45.) The problem for me in Frampton's prose stems from his attempt to place the idea of an "intrinsic syntax" in a cultural context by his use of the term "irrelevant." Since relevancy does not seem to be a quality of "intrinsic," there is a suggestion in his use of "irrelevant" of a certain attitude, for example, with respect to the relationship of surface to structure—which may not be intrinsic but merely an attitude of modern architecture. Something which may not seem within the canon of the Modern movement may not be irrelevant to the idea of an intrinsic syntax.
10. Stirling himself seems ambivalent on his intentions vis-à-vis brick and tile. At one time he says, ". . . bricks are low in cost, need little maintenance, and can also be the structural support. These seem to me to be very good practical reasons for using brick. I never select materials emotionally; they are chosen entirely at a practical level. . . ." (James Stirling, "An Architect's Approach to Architecture," *RIBA Journal*, May 1965, p. 240.) This seems to contradict the architect's own statements to me about the need to send to Holland to find a tile with a color which would match the particular brick that was being used.
11. It should be pointed out that when Le Corbusier used or expressed "natural" materials before the war, he did so in a way which questioned their "natural" qualities. For example, the rubble stone in the house for Madame de Mandrot and the Pavillon Suisse is framed in concrete and thereby made to appear paper thin.
- Critics, such as John Jacobus, who now argue that Stirling's use of brick is a return to English tradition or to a pure Mod-

ern movement functionalism, forget that the white rendered walls were never intended to be so much *functional* as they were *symbolic*. In the degree that Le Corbusier's work was not so much a style, or a set of abstractions, but an attitude toward building, he did not use natural materials in a natural way because it was thought iconically to represent a return to the soil, and to something which was very close to the German Expressionist ideology. As Le Corbusier commented on stone in the de Mandrot House and in the Pavillon Suisse, so does Stirling comment on brick here. It has nothing to do with Stirling's own smokescreen concerning his use of brick.

12. Stirling himself makes an argument something like this: that the particular use of brick in one place and tile in another is based on purely functional reasons; that the tile is used as a veneer only on structural in-situ concrete surfaces. To distinguish these from other conditions of concrete, he uses brick. Again, the use of tiles with the same coloration as the brick seems to suggest an ambiguous or dual reading, beyond one of mere functional distinction.

13. It is also possible to imagine the brick continuing vertically up and down at the corners or the skeletal column-slab structure brought to the vertical surface which in both cases would have literally restored the vertical surface.

14. In this context it must be remembered that the readings are simultaneous. None are held more strongly than any other and they do not have to be read in any particular sequence. For the chamfered brick can be seen as the initial cue to reading the glass in the laboratory building as solid or vice versa.

15. While Frampton has correctly pointed to the obvious dialectic of the brick tower and the glass tower (Frampton, "Stirling's Building," p. 46), he does not comment on a second and more subtle opposition. The brick tower volume can be seen to be conceptually a membrane, and conversely the glass tower "membrane" is read as volumetric.

16. Two attitudes toward the vertical plane as a datum seem operative at the Salvation Army Building. One is the concept of a shifting or ambiguous vertical datum; the other is the concept of the vertical datum as a potential fulcrum. This can be seen in the changes made by Le Corbusier from the early project to the final project. In the early project the vertical datum is not clearly established but neither is it purposely ambiguous. There are three possible locations for such a datum. The rear plane of the slab block; the rear raised portion of the slab (this conception is particularly active if one reads the lower front portion as a volume); or the front plane of the slab. When the roof level storey is changed from a flat plane to a serrated volumetric form, it provides for two readings: first, it fixes the front plane and the rear plane as shifting references; second, it causes the front plane of the slab block to be read as both a proscenium and a fulcrum relating the ground level volumes to the roof projections. (See my un-

published Ph.D. thesis "The Formal Basis of Modern Architecture," Univ. of Cambridge, 1963, p. 81.)

17. It should be understood that the attempt here in the discussion of Leicester is to speculate on formal conceptions embedded in the nature of architecture other than those notions such as phenomenal transparency developed by Colin Rowe and Robert Slutzky in their *Perspecta* articles. (Colin Rowe and Robert Slutzky, "Transparency: Literal and Phenomenal. Part I," *Perspecta* 8, 1963; idem, "Transparency: Literal and Phenomenal. Part II," *Perspecta* 13/14, 1971.)

18. See among others Alvin Boyarsky's penetrating article, "Stirling 'Dimostrazioni,'" *Architectural Design*, November 1968. If Constructivism is an architecture of mass and form and if Kenneth Frampton is correct when he said of Leicester that it was "a deliberate turning away from an architecture of mass and form, to one composed of the dynamics of reflection and the luminosity of light" (Frampton, "Stirling's Building," p. 45), then we must see Leicester with some other litmus. In this context Frampton is of little help, for in fact he traps us in a metaphorical web with his pronouncement that Leicester is an architecture of "literal transparency." For, as we shall see, it is possible to build an argument for its pedigree which involves a totally opposite interpretation and conception of the glass. And in the end while it has the texture of Constructivism it is conceptually more Corbusian. It should be pointed out that one is here talking about Constructivism in its formal as opposed to its iconographic sense. For the differences between Cubism, De Stijl, Constructivism, and this building are not so much in their social rhetoric as in their formal strategy.

19. In this sense, constructivist architecture shares a similar set of preferences to De Stijl in its concern for asymmetric balances and its overall tendency to pose a set of outward exploding yet composed vectors. But it differs from De Stijl in that its formal components were not planes so much as they were solids made all the more mass-like through the introduction of diagonal shapes. It should be noted that in De Stijl the diagonal is only implied in the juxtaposition of planar elements and never made literal as in Constructivism.

20. See my unpublished Ph.D. thesis, "The Formal Basis of Modern Architecture," p. 110.

21. A similar argument is developed by Joseph Rykwert in "Un Episodio Inglese," *Domus*, June 1964.

22. For example, the circular stair in Constructivism seems a vehicle for a literal expression of articulation. Stirling's use of the same element, while for similar expository purposes, produces different results. Both of these attitudes can be distinguished from Le Corbusier's use of the circular stair which, as Colin Rowe has noted, is often the central animating and organizing device for the space. See, for example, the Spiral Museum or the Pavillon Suisse, where, as Rowe says,

34 the stair acts as “a spiral or turbine eroding a plane and reducing it to a turbine.” (Colin Rowe, unpublished notes.)

23. This kind of potential reversal within the physical data again points up the fallacy of the too-literal, easy, perceptual analogy. In this context one must question the usefulness of such metaphors as “over the heavy teaching labs there foams, like suds from some cubist detergent, a good head of angular north-light glazing. . . .” (Reyner Banham, “The Style for the Job,” *New Statesman*, 14 February 1964.) Or again as “. . . a crystalline sea flooding across the top of the heavy lab area and erupting in diamond breakers over the solid walls on every side of the podium.” (Reyner Banham, “The Word in Britain: Character,” *Architectural Forum*, Aug.-Sept. 1964.)

24. Stirling himself contends that this is not so. He says that the difference is not so much in the architecture but in the limitations which are placed on the architecture by the intention of the program which is different for Leicester than it is for Cambridge and Oxford.

25. This conflicts with Kenneth Frampton’s argument when he says that “its true spiritual affinity lies well within that great romantic American tradition that stems from Frank Lloyd Wright and remains most vividly alive today in the work of Louis Kahn.” (Kenneth Frampton, “Leicester University Engineering Laboratory,” *Architectural Design*, February 1964.) Even the pairing of Wright and Kahn is an oversimplification. In the context of my argument, Wright could be seen as European and Kahn as American.

26. If an historical precedent for such a conceptual gap is necessary then one only need compare Frank Lloyd Wright’s work after the success of the Wasmuth Publication of 1910 with his houses of the previous decade.

Figure Credits

Figure 1. *Projects: Architectural Association 1946-71*, James Gowan, ed., A.A. Cahiers Série No. 1., p. 42.

Figure 2. Robert Venturi, Denise Scott Brown, Steven Izenour, *Learning from Las Vegas* (Cambridge, Mass.: M.I.T. Press, 1972), p. 100.

Figures 3-6,12,22-24,28-30,38-40. Diagrams by Peter Eisenman.

Figure 7. *Louis Kahn* (Zurich: ETH, 1969).

Figure 8. Photograph by Richard Einzig. Courtesy James Stirling.

Figures 9,13-16,19-21,25-27,32,36,42,48,49. Courtesy James Stirling.

Figure 10. Photograph by Y. Futagawa. Courtesy James Stirling.

Figures 11,31,35,41,43,45,47. Photographs by John Donat. Courtesy James Stirling.

Figure 17. *James Stirling* (London: R.I.B.A. Publications Ltd., 1974), p. 4.

Figure 18. *James Stirling* (New York, Oxford University Press, 1975), p. 29.

Figures 34,37,44,46. Anatole Kopp, *Ville et Revolution* (Editions Anthropos, 1967).

Robert Stern

This article is the first in a series which will attempt to uncover the major philosophical currents in American architectural education over the past twenty-five years. Other articles on similar themes, such as the "Philadelphia School", the "Texas Rangers," Harvard, and The Cooper Union, will follow.

What is apparent from Robert Stern's very careful research is the curious absence at Yale of any polemical bias either for or against the Modern movement. When compared with some of its academic counterparts during the fifties and sixties, Yale seems to have been strangely placid, particularly in light of the fact that its graduates from that period seem to have achieved a certain hegemony in the professional world of the East Coast. For these graduates and presumably the Yale School at that time, the question of the relevance of any European notion of modernism, or conversely the deficiencies in any "pure" American position, did not seem to be at issue. Stern's own format, relying heavily on quotations, seems to be indicative of a rather self-indulgent Yale, disengaged equally from polemics and theoretical speculation.

Mimi Lobell's comments, originally written for a different context, add a further dimension to this judgment and as such make a fitting and reflective postscript to Stern's piece. Its inclusion here also sheds light on the so-called "Yale-Philadelphia axis," a superficial term which tends to blur rather than sharpen certain necessary distinctions which have to be made vis-

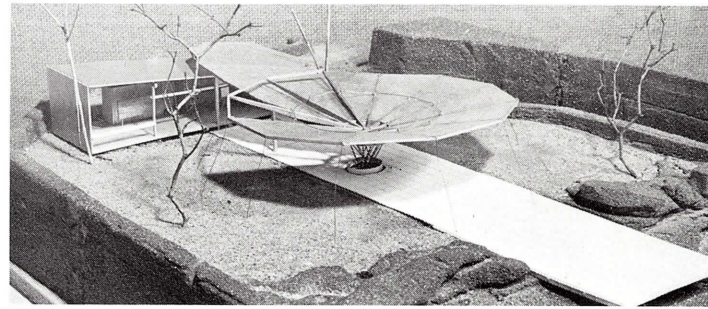
à-vis Yale and other East Coast educational institutions.

This initial and highly partisan view of a particular American school is surely sufficient to open up a retrospective dialogue about American architectural education as a whole. It may well be that this nostalgic and exclusive account is after all an accurate portrait of Yale during these years. If this is so, then are we not prompted to question, for the future, the effect of such a picaresque approach to both architecture and architects on the vigor of American architecture as a whole?

P. D.E.

Robert Stern was born in New York in 1939 and received his M.A. in architecture at Yale University in 1965. He has taught at Columbia University since 1970, at Yale University during 1972-73, at the University of Houston and Mississippi State University in 1974. He has been in private practice with John S. Hagmann since 1969 and their built works include a residence in Montauk, New York (1972); a duplex apartment in New York City (1973); a remodelling of a roof-top apartment in New York City (1973); and a residence in Washington, Connecticut (1974). His published works include *New Directions in Architecture* (1969) and *George Howe: Toward a Modern American Architecture* (1975). He has been President of the Architectural League of New York since 1973 and is a Director of the Society of Architectural Historians.

Figure 1. Hypothetical beach house by James Jarrett. 1st Year, 1950.



36 This account of the Yale School of Architecture between 1950 and 1965 covers the period between the respective arrival and departure of the most significant heads of the department, namely George Howe at the beginning and Paul Rudolph at the end.¹ Prior to this era, that is, throughout the twenties and thirties, the leading American schools of architecture, namely those at Yale and at the University of Pennsylvania, organised their courses after the Beaux Arts model.² Yet, while Penn possessed a solid core of distinguished teachers focused around the great progressive classicist Paul Cret, Yale, always hardpressed to obtain first-class architects who would be willing or able to teach and practice in New Haven, developed under Dean Everett V. Meeks a visiting critic system which brought a continuously changing succession of distinguished practitioners to the university.³ Thus, the school's attitude to stylistic issues was to remain flexible and between 1920 and 1940 it was to shift from the progressive historicism of Otto Faelton (chief designer for the James Gamble Rogers office who reigned in association with Lloyd Morgan), through the "Art Deco" modernism of Raymond Hood (who dominated the school from 1930 until his death in 1934), to the "International Style" modernism introduced by Wallace Harrison during his tenure between 1937 and 1940.⁴ Within the framework of a curriculum closely modeled on that of the Ecole des Beaux-Arts, the school was able to shift the emphasis of its design philosophy during the 1930s from that of an archaeologically-based eclecticism to one more closely tied to the Modern movement in general, though not always to the orthodox International Style.

The manpower demands of World War II naturally disrupted the normal processes of the school, more so than at Harvard, where Walter Gropius and Marcel Breuer continued to teach (owing to their ages and nationality) and where women were encouraged to fill the places normally occupied by male students.⁵ By the end of the war, Harvard's Graduate School of Design⁶ had become the preeminent American school because of its brilliant design program which was firmly rooted in the esthetic and philosophical preferences of the Modern movement. On the surface at least, Harvard was heir to the brilliant Bauhaus scene of the mid-1920s. Yale, on the other hand, like so many other schools at the time, was pretty much without direction in design; Dean Meeks, while he tolerated

1. innovation, had never really accepted anything more than stylistic variation within the continually evolving context of post-Renaissance architectural form-making.

Charles Sawyer, Meek's successor on his retirement in 1947, was not an architect.⁷ A new post, that of chairman of the department, was therefore created and this was awarded to Harold Hauf, a professor of architectural engineering.⁸ Although Hauf was admired for his administrative abilities he was not a designer and criticism in the design studios, the core of any architectural program based on the Beaux-Arts model, as Yale's continued to be, was put in the hands of a succession of senior critics, including Edward D. Stone, who was associated with the school as chief critic in architectural design from 1947-1950.⁹ Despite the presence of such strong personalities, the program failed to enjoy the esteem of Harvard's, probably because there was no strong design talent at the head to provide a focus for the department.¹⁰ Nonetheless, one should note that the idea of a strong administration comprising the dean and his senior critics, first under Meeks, then under Sawyer and Hauf in 1947, and then under Hauf's successor Gibson Danes in 1958, was to become the established tradition at the school. These critics and chairmen were to be more specifically responsible than the dean for the teaching and the staffing of the various disciplines.¹¹

Student work at Yale in the late 1940s derived its form and philosophy partly from Gropius and Breuer and partly from Frank Lloyd Wright. As Herbert McLaughlin wrote in 1958, it largely featured "irregular angles, within the buildings themselves and in their layout as groups. There was a definite sense of the building as being a series of related but separated functional areas, each to be expressed individually. This was often done by actually separating these 'zones' but usually by fenestrating them differently. This style was influential in the school to the point that the type of project selected was generally domestic in scale and thus favorable to this type of work."¹² James Jarrett's first-year project of 1950 for a beach house shows this clearly in its combination of Marcel Breuer's so-called butterfly house, then recently displayed in the garden of The Museum of Modern Art in New York, with a circular pavilion of vaguely Wrightian origins (fig. 1).¹³

On Hauf's resignation in the spring of 1949, George Howe, then sixty-three years old and residing at the American Academy in Rome, was called out of his semi-retirement by Dean Sawyer to assume the chairmanship.¹⁴ Louis Kahn, who as senior critic had instigated this move, felt that the luster of Howe's reputation would establish a new tone, bringing to Yale an American architect of first rank who had been associated with the Modern movement. Howe was an architect with an international reputation and, though a confirmed modernist, he was not in any specific way associated with the Bauhaus scene, neither in Germany nor in its various American transplantations at Harvard, at the Institute for Design in Chicago or at Black Mountain College in North Carolina. Yet Howe did in fact command the respect and friendship of the Bauhaus "set" as well as that of Mies van der Rohe and Frank Lloyd Wright. With the appointment of Howe, then, it seems clear that the Yale School was destined to carve out a pedagogical position for itself that was different from Harvard's but of equal caliber. In selecting as its chairman an American-born, Beaux-Arts trained convert to modernism, Yale seemed to be not only making a solid commitment to modernism but also to be departing from Harvard's specific direction. Howe represented, in a sense, a reaffirmation of that eclectic pluralist outlook that had characterized the school under Meeks.

Part I: 1950-1955

George Howe was the first major American architect of the Modern movement to be offered a position of administrative and philosophical importance in American architectural education.¹⁵ He came to Yale not only as the first modernist architect to have influenced governmental policy from within but also as the designer of a handful of remarkable buildings, including the Philadelphia Savings Fund Society of 1926-1933 (designed in association with William Lescaze), Fortune Rock of 1938-39, and the Carver Court housing of 1942-44 designed in partnership with Louis Kahn and Oscar Stonorov.

Howe not only brought to Yale the extraordinary benefits of his experience as traditionalist turned modernist, but also his

wisdom, his experience, his charm, and what Wilder Green, a former student, has described as his "constructive cynicism and sophistication."¹⁶ To a faculty rent by conflict, much of it reflective of the indecisive state of American architecture at the time, he was able to apply the soothing balm of aristocratic geniality — often at the expense of a genuine solution to the problems at hand.

Coincident with Howe's arrival, came a series of events in the school which assured its preeminent position. One of these was the recognition, under Christopher Tunnard's direction, of city planning as a degree-giving program housed in the architecture department.¹⁷ Another was the appointment, in June 1950, of Josef Albers as chairman of the art department (Albers had been a visiting critic since October, 1949). Albers reorganized the department of fine arts as the department of design, a title which, like Gropius' creation of the Graduate School of Design at Harvard, was filled with anti-fine art references like those programs with which Albers had already been associated both at the Bauhaus and Black Mountain. Albers, in turn, appointed Alvin Eisenman to the faculty in September of 1950 and initiated Yale's program in graphic design under the leadership of Eisenman, with Norman Ives and Alvin Lustig playing important roles.¹⁸

The excitement of Albers' new teaching techniques and the hostile reaction of the vestigial Beaux-Arts faculty in the design department were complemented, less dramatically, by Howe's innovations in the department of architecture. As he subsequently indicated, Howe was critical of the state of the department as he found it on his arrival in 1950. He found that "the first-year students were being neglected" and that they "were working under great difficulties" within the constraints of a program of the "direst and most unimaginative kind." At the same time, "the second-year students were being projected into a planning program of the crassest two-dimensional nature," and their discontent was spreading to the first year to such a degree that many of them, in 1951, declared "they would rather go to another school than into the second year at Yale." In the third and fourth years, things were even worse, with students "incapable of three-dimensional thinking and prone to slap on an elevation at the last minute."¹⁹ The sheer magnetism of Howe's presence seemed to

38 infuse new life into the school. After lectures or juries he would usually invite a group of students to his rooms for an informal session of conversation and drinking. These he called “meetings of the Digressionist Club.” Wilder Green, Peter Millard, James Jarrett, and Earl Carlin were among the students who constituted its membership. Avery Faulkner, whose career as a student paralleled Howe’s tenure as chairman, regarded Howe as being an “effective and powerful [influence] as a ‘design master.’ [His] experience in Philadelphia . . . and his experience at the American Academy in Rome gave us a scholarly and ‘fatherly’ chairman of great critical abilities. His historical reference for contemporary design was clearly the Italian Renaissance and Italian Baroque. He stressed the role of history as a reference for all design.”²⁰

Howe’s preferred method of communication with the students was the formal lecture, delivered from time to time during the school year.²¹ Shortly after taking office, Howe addressed the alumni as to the duality of imagination and intellect and as to the conflicting roles of the architect as artist and as technician. Howe’s talk established the basis of his program at Yale—a program that insisted that architecture was an artistic discipline involved with issues of administration, planning, technological competence and simple problem-solving. He said, “We must not lose sight of the fact that the primary purpose of architectural schools is to create architects, not to prepare draftsmen for office work.”²² Howe went on to argue that an architectural school had to find a mean between technical studies and design.

Thus, as under Meeks, Yale’s architectural program was to remain firmly based in the humanities and not in the natural or social sciences. Yale’s department of architecture, reflecting the character of the university as a whole, was to be a place in which abstract theory was always to give way to pragmatic observation, in which social concern was to be assumed to be the responsibility of an individual’s life experience and not something to be taught in a classroom. Howe elaborated his empirical non-utopian approach to architectural education in a talk delivered before the department of architecture in September 1951, and reprinted in the first issue of the student magazine, *Perspecta, the Yale Architec-*

tural Journal, which Howe helped found in the same year.²³ Using the same title that Charles Herbert Moore, his teacher at Harvard, had used thirty years before, “Training for the Practice of Architecture,” Howe spoke of his intention to develop a “course of training . . . peculiarly Yale’s, based on no doctrine or theory but worked out from day to day by experience.” Howe reiterated his belief in the duality of imagination and intellect, going on to define the practice of architecture as “the occupation, with intent to create significant form, of producing designs for and producing the execution of, any and every sort of work constructed for the use of man.”²⁴ For Howe, style was not to be made but discovered. Another lecture, possibly his most important, was delivered before the third-year class on 5 October 1953 as an introduction to their first major design problem (a bank) that term. It contained the key to that philosophy of design which he had been developing since the 1930s and which he came to describe as “the path of the feet and the eyes.” This doctrine was an explicit criticism of Giedion’s conceptual emphasis on spatial flow, the core of the G.S.D.’s philosophy of architectural composition under Gropius. It, and Howe’s philosophy as a whole, were soundly based on faith in the perceptual capabilities of architects and ordinary people alike.

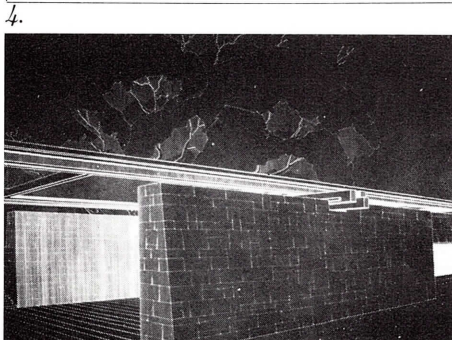
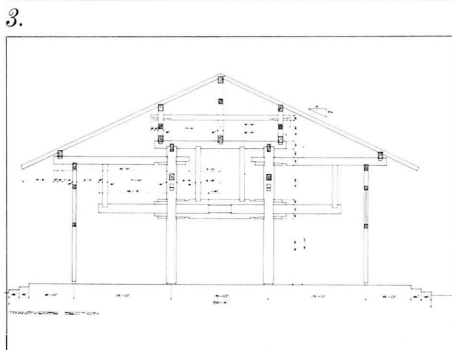
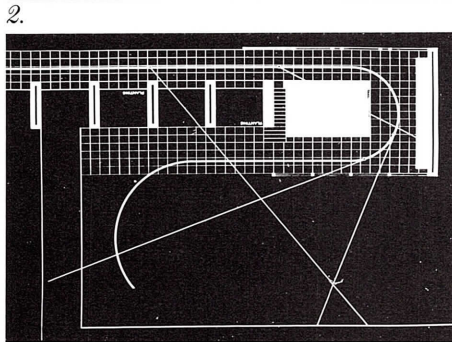
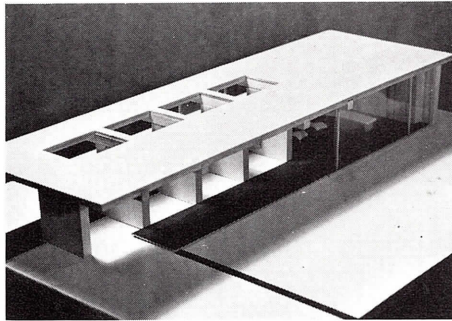
In order to more fully inculcate the students with the notion of the “path of the feet and the eyes”, Howe, together with Eugene Nalle, whom he chose as the principal focus of his teaching program, devised a problem in which a pavilion was to be designed as an expression of clearly articulated spatial sequence along a route (figs. 2,3). Nalle had worked as an architect and as a general contractor in Texas. He was recognized at once for his almost obsessive dedication to architectural education, with the result that Howe made him “the foundation stone” of this “teaching structure.”²⁵ Nalle’s method has been recently credited by William Huff, a former student, as a way of keeping the students “innocent and open.”²⁶ Unfortunately, his Zen-like primitivism of approach seemed slowly to degenerate into a somewhat mindless aping of Frank Lloyd Wright, although throughout his tenure Howe continued to rank his support of Nalle as among his most important contributions to the school. In retrospect Howe claimed a certain responsibility for initiating both the tenor and the subject matter of Nalle’s first-year course.

Figure 2. Pavilion by James Jarrett.
1st Year, 1950.

Figure 3. Plan.

Figure 4. Open-air market by Harold
Fredenburgh. 1st Year, 1954. Section.

Figure 5. Pavilion by James Stewart
Polshek. 1st Year, 1951.



Yet Howe's dependence on Nalle, with his obsessive teaching techniques, which seem so alien to his own aristocratic view of life, may well have been an expression of his own desperate inability to go beyond his own words in this direction, to translate his concerns into a program of his own. 39

In his teaching, Nalle placed tremendous emphasis on the interrelationship between small elements of building fabric. The expression of joinery became a fundamental concern in the design process. The emphasis of Nalle's method was in what Harold Fredenburgh, a first-year student in 1954-55, recalls as "stick and stone architecture." Thus, as can be seen in drawings made by Fredenburgh for Nalle's studio, buildings were seen as "built things, an articulate assemblage of elements" (fig. 4). There seems little doubt that Nalle's method was a compulsive one—but it was, as Fredenburgh recalls, "a remarkable discipline. . . . Almost from the start we drafted (ever so precisely) details of materials being put together. This is quite different in approach, say, than designing a house with 2 x 4s and wood siding wherein, however simple the program, the structure is obscure."²⁷

While Nalle's inarticulateness and uncommunicative nature were regarded by some as indications of remarkable depth, his mystical devotion, to quote Tim Prentice, "did not so much involve the students in a craft or art or service to society, as in a religion."

In addition to Nalle's specific strengths and limitations in the studio, his and Howe's attitude toward the relationship between a professional program in a university and the university as a whole was a critical one. Howe and Nalle sought to mediate the exposure of architecture students to disciplines outside design by establishing special courses in which these disciplines would be presented to students in the context of an overall architectural approach. Their position, which many regarded as fundamentally anti-intellectual, was articulated by Howe in his final report to President Griswold wherein he argued for a highly individualistic approach to the teaching of design; a Dewey-like program close, at least in principle, to that of the early Bauhaus whereby ". . . the student is freed from the excessive number of variables . . . and can develop his own interpretation without reference to precedent of any

Figure 6. Park shelter, Baldwin, Long Island. James Stewart Polshek, architect, 1966.

Figure 7. House project by James Jarrett. 2nd Year, 1951. Section through the living room.

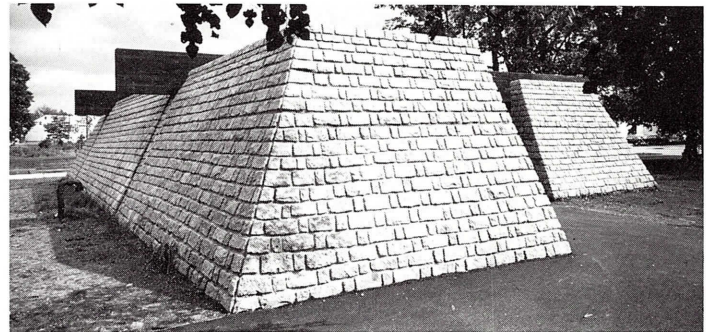
Figure 8. Wiley House, New Canaan, Connecticut. Philip Johnson, architect, 1953. Section.

Figure 9. Communications center by James Jarrett. 4th Year, 1954.

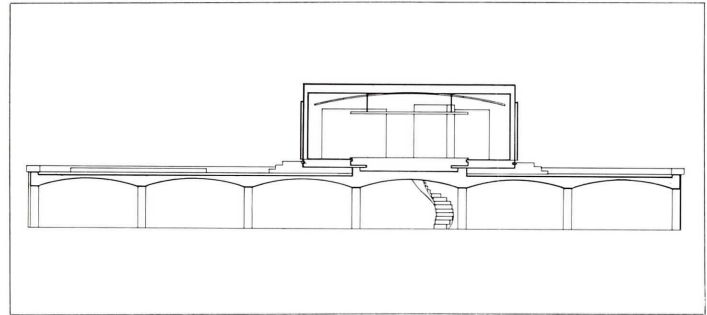
40 kind, as his own personality unfolds.”²⁸ As a number of Nalle’s students have since testified, the course with its obsessive elliptical terminology, such as referring to a post office as a “mail depository,” was designed to eliminate as far as possible “all traces of memory overlay.” And yet, despite all the criticism of Nalle, for some students such as James Polshek he was a remarkable and powerful influence. One of Polshek’s student projects (fig. 5) and an early building (fig. 6) by him rely, by his own admission, heavily on Nalle’s teaching. While testifying to the importance of Nalle in his education, Polshek recalls Nalle’s first year as combining the mysticism of Taliesin with the Prussian rigor of Mies at I.I.T.

There was an unbalanced set of allegiances with practically all my energies, attentions, and loyalties revolving around Eugene Nalle . . . who was the super guru of the student avant-garde. The various sets of experiments that were undertaken centered around our class. It should be stressed that these were not random or irresponsible and each was tested during the summer preceding our coming by Nalle.²⁹ Aside from this, the Nalle method not only had the effect of eliminating the need for separate courses in drafting and perspective but was also oriented towards the immediate involvement of students in the principles of wood and masonry construction—an aspect of the course which many regarded as being prematurely pragmatic.

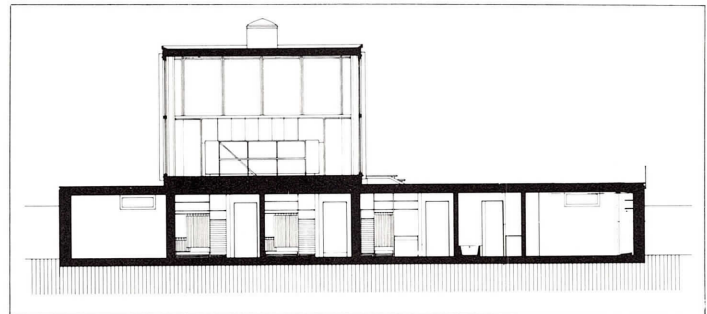
Equally radical and completely opposite to Howe’s encouragement of Nalle was his decision to appoint Philip Johnson as visiting critic. Following hard on the completion of his Glass House, Johnson was still very much the *enfant terrible* of the architectural establishment and he certainly had no reservations about “memory overlay.” Johnson proceeded to assign a house design problem in a daring, provocative way—limiting the students’ freedom of formal expression to the personal styles of either Wright, Mies, or Le Corbusier; in other words, contradicting Nalle completely. According to William Huff, Johnson came to Yale and “demolished” the Wrightian bias and romanticism of the school “overnight,” answering the lackluster spirit of the late 1940s and the primitivism of Nalle with a personal advocacy not only of Mies but also of Le Corbusier, thereby returning architectural education to the “realm of design.” At the same time, Johnson advanced Kahn’s reputation and urged him to greater



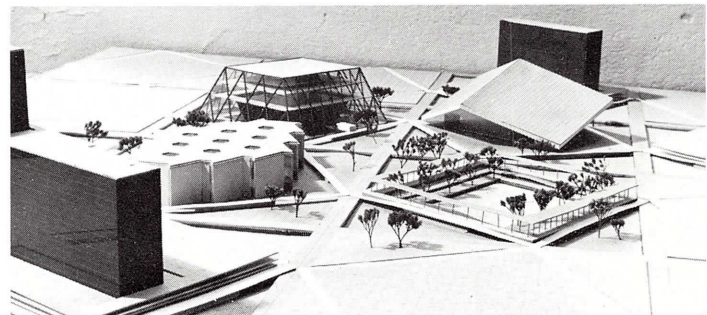
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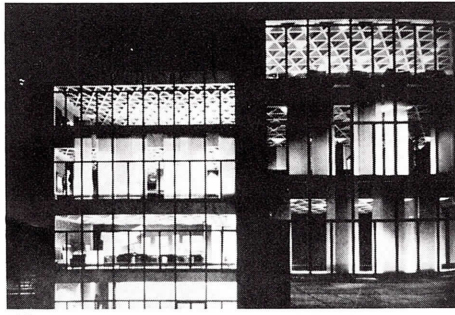


Figure 10. Art Gallery and Design Center, Yale University, New Haven, Connecticut. Louis Kahn, architect, 1951-53.

10. achievement, all the while encouraging Howe to back Kahn for the Art Gallery commission of 1951.³⁰ Johnson called the attention of students, architects and critics alike to Kahn's work, and in 1960 he was instrumental in The Museum of Modern Art's decision to have a one-man show of Kahn's Richards Medical Laboratories. Johnson's implicit opposition to Nalle manifested itself in a display of erudition which ranged over a wide area from classical philosophy to political, cultural and architectural history. Employing his remarkable cultivation as a means for assessing the work of both his students and his contemporaries, Johnson brought to Yale a concern for classicism in design and an impulse to reintegrate the compositional theories of the International Style within the tradition of western classicism.

Johnson's impact can be seen in the work of James Jarrett, probably one of Yale's most sophisticated students of the period. Jarrett's house project of fall 1951 (fig. 7) is remarkably similar to Johnson's Wiley House, then under design (fig. 8), while his thesis, a high-rise office building, is involved with the same Miesian issues as an unbuilt project of Johnson's for an apartment house in New York.

Aside from introducing such critics into the school as Johnson, Kahn, Kiesler and Buckminster Fuller, Howe also encouraged Vincent Scully, then just beginning his teaching career, to participate actively in the life of the department. Thereafter Scully, with his passionate concern for American (as well as other) architects, was fated to become for many students the single strongest influence in the school; a force which, within Howe's permissiveness, was to encourage in many students, such as Evans Woolen, "a degree of freedom from formal, personal, stylistic pressures in favor of social, programmatic, and environmental issues as a basis for architecture."³¹

Although Kahn had preceded Howe to Yale, Howe was now in a position to not only advance Kahn's role in the school but also his career.³² It can be claimed, as Scully did at an informal talk at the Architectural League on 1 May 1974, that in Kahn's writing and work of the period all the disparate ideas then prevalent at Yale came together—Nalle's obsessive dedication and his tremendous enthusiasm for the relation-

ship of each part of the building fabric to the next, Howe's firm insistence on the reliability of direct personal observation, Johnson's reverence for classicizing form, and Fuller's persuasive explorations into large-scale structural decision-making.³³ All these can be seen as well in Jarrett's communications center project, done under Kahn's direction in 1954 (fig. 9). Here the struggle in Kahn's own work between particularization of shape and strong geometry is brilliantly reflected in a startlingly mature student project.

Certain of Howe's achievements at Yale were to enjoy a lasting influence: among them, the founding of *Perspecta*, and the securing of the Art Gallery commission for Louis Kahn (fig. 10). *Perspecta's* first issue appeared in the summer of 1952. Generously underwritten by Howe and others, it immediately exhibited a professionalism that has come to distinguish it from other student magazines and even from the so-called professional journals.³⁴ *Perspecta's* origin, according to Howe's preface to the first issue, seems to have grown out of a need, first expressed in his "digressionist" meetings, for the students to have a medium of expression for themselves. In his preface Howe wrote: "The first number of *Perspecta* is but a beginning. It proposes to establish the arguments that revolve around the axis of contemporary architecture on a broader table, encompassing the past as well as the present, and extendable to the future. To all architects, teachers, students, *Perspecta* offers a place on the merry-go-round."³⁵ This reference to the "merry-go-round" was, of course, a conscious reiteration of the pluralism which had since become Yale's most valuable asset in architectural education. And it is interesting to note in this regard that no other architecture school has been able to succeed for so long in the publication of a first-rate journal of ideas, presumably for want of this pluralism of approach leading to a broad outlook, and for want of students of sufficient brightness and sound basis in humanistic education to assemble and edit material on so high a level. *Perspecta* enabled the school to take some public measure of itself. This was never more marked than in the second issue, where an article entitled "On the Responsibility of the Architect" recorded fragments from a series of informal seminars, involving such figures as Louis Kahn, Paul Weiss and Vincent Scully. These sessions soon became a regular feature of the school and on various occasions one might

42 find any of a number of the school's visiting or permanent luminaries, men such as Scully, Johnson, Pietro Belluschi and Eliot Noyes, locked in highly animated and often heated debate.

Howe's tenure as chairman was circumscribed by Yale's compulsory retirement age of sixty-eight, and in 1952, two years before he was to retire in February 1954, he suggested that Paul Schweikher, who had taught intermittently under Hauf and Howe, be invited to succeed him. Schweikher rejoined the faculty in 1953, first as critic and then in 1954 as chairman.³⁶ Schweikher was a man of very different temperament from Howe. He was at once brusque and impatient, formidable and dogmatic. Schweikher's complex personality did not take easily to the faculty that Howe had assembled. He was capable at one and the same time of being in awe of Albers and in competition with a man like Kahn. At the same time his practice was growing and he was out of New Haven a great deal of the time. Nonetheless, given the interest of Schweikher's work at this time, Howe's choice of his successor seems to have had a certain validity.

No one was more appreciative of the interesting challenge offered by Schweikher's move away from his Wrightian origins towards a more structural Miesian approach than Scully, when he wrote that:

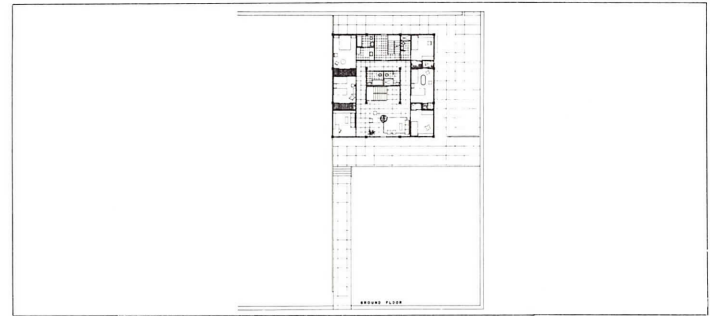
Beyond the superficial level . . . it becomes clear that Schweikher's present work represents a more integrated stage of the kind of design toward which he had apparently always been moving. His experiments with plank and beam construction in wood during the thirties—experiments strongly influenced by Japanese architecture—were concerned in essence with values rather apart from those of Wright, although many of his houses certainly owed much to Wright's example. Yet the plank and beam system's skeletal insistence, like that of the nineteenth-century "stick-style," is basically different from the "flesh-covered" continuities of most of Wright's work.³⁷

William Huff's thesis project, an urban church (figs. 11,12), completed in the spring of 1952, not only reflects many of these developments in the work of Kahn and Schweikher, but also suggests the nature of their separate influence, the one

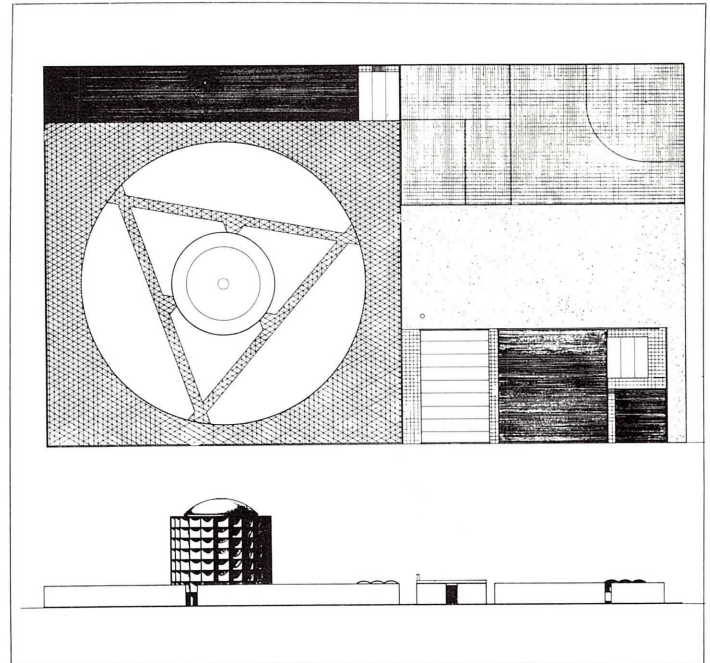
Figure 11. Urban church by William S. Huff. Baccalaureate thesis, 1952. Rectory, ground floor.

Figure 12. Site plan and west elevation.

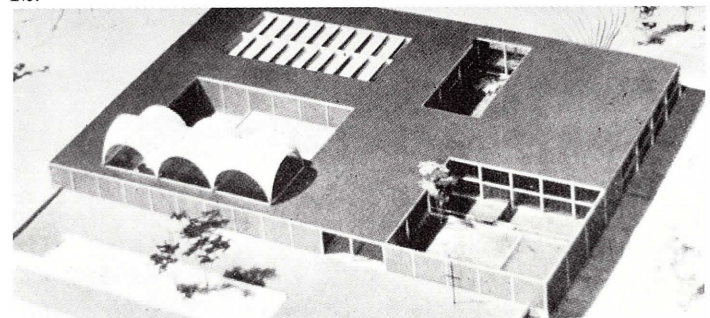
Figure 13. Church project, Teaneck, New Jersey. Paul Schweikher, architect, 1955.



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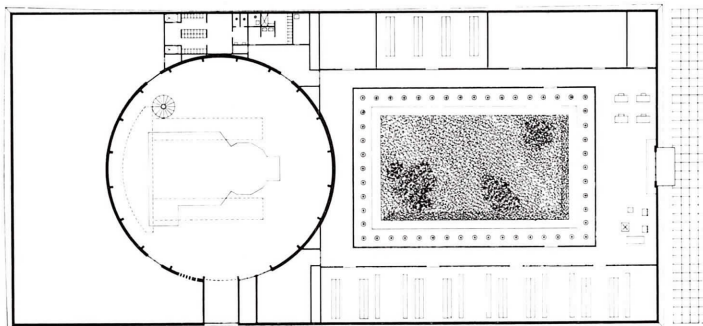


Figure 14. Nuclear reactor, Rehovot, Israel. Philip Johnson, architect, 1960. Plan.

14. poetic the other pragmatic, on such students as were willing and able to be subject to it. Huff's completed design, with its references to Piranesi and to the neo-Palladian classicism of Johnson, was extremely assured and sophisticated, anticipating Schweikher's church project for Teaneck, New Jersey of 1955 (fig. 13), Johnson's roofless church at New Harmony, Indiana, and his nuclear reactor at Rehovot, Israel (fig. 14), both of the early sixties.

While Schweikher continued to rely on Nalle to run the studios, he lacked Howe's ability to modify Nalle's single-mindedness. Not surprisingly, in November 1954, just five months after his retirement at Philadelphia and in response to a general decline within the department, Howe was asked by Dean Sawyer to come back to New Haven to prepare an independent report on the state of the school. The principal criticism voiced by Carroll Meeks and King-Lui Wu amongst others, was focused on Nalle, whom, according to Howe's report, the faculty regarded as "dictatorial, unfair and vindictive, confused, narrow, psychopathic." In response to these charges, Howe cited instances of student enthusiasm for Nalle, although he did not dignify the accusations with a direct refutation. As to claims that the "whole method of instruction evolved by Mr. Nalle, at my suggestion, is too analytical, not free enough, distorted, unhumanistic, contrary to the Yale ideal of the free exchange of ideas," Howe ventured total disagreement, going on to claim that the principle of "integrated teaching in various fields, under the leadership of architecture, in an architectural school" is thoroughly sound and should be continued by whatever means possible.³⁸

Howe knew, of course, whereof he spoke. It had been his charm and commitment to excellence which acted as the bonding agent. Now, with it gone, everything began to fall apart.³⁹ Bickering among the faculty was a reflection of the limitations of Howe's pragmatism, dependent as it was on his personality. It was also a reflection of the limitations of the resident design faculty which lacked the obsessive focus which characterized Nalle, whose temperament made him inflexible and intolerant toward his colleagues.

More importantly, I think, Nalle's attitude toward the studio as the focus of all education in architecture was in conflict

with the diversity of experience generally deemed appropriate for the undergraduate in Yale College. Thus, the introduction of Nalle's methods to undergraduates appeared to compromise the humanistic basis of architectural education at Yale as Howe and others had outlined it earlier, although Howe himself failed to see this. If Nalle's methods had been confined to graduate students, much of this might not have happened. But, as reported in the *Yale Daily News*, the criticism made by the undergraduate majors of Nalle's first- and second-year design program was fourfold: "(1) inadequate criticism by instructors; (2) arbitrary grading of creative projects by one man; (3) absence of diversity and depth within the course; and (4) insufficient number of instructors."⁴⁰

In the 1955-56 academic year, the National Architectural Accrediting Board visited the department and cast a disapproving eye on the entire situation and especially on the undue scope of Nalle's teaching responsibility. The Board's reaction to the situation left university provost Edgar Furness "with the impression that more funds should be directed to the department."⁴¹ Despite Schweikher's implied support of Nalle, the students and some of the faculty demanded administrative reform, which was to include reinstatement of the open-jury system in the third and fourth years and use of a grading committee in the first and second years. In addition, more instructors were to be hired as a matter of university policy, thereby reducing Nalle's teaching load and his influence as well.⁴² Thus the issue of the mystique of Nalle's teaching, like that of Johannes Itten at the Bauhaus thirty years earlier, was never openly aired and the real reasons for his departure from Yale became camouflaged by administrative reform.⁴³

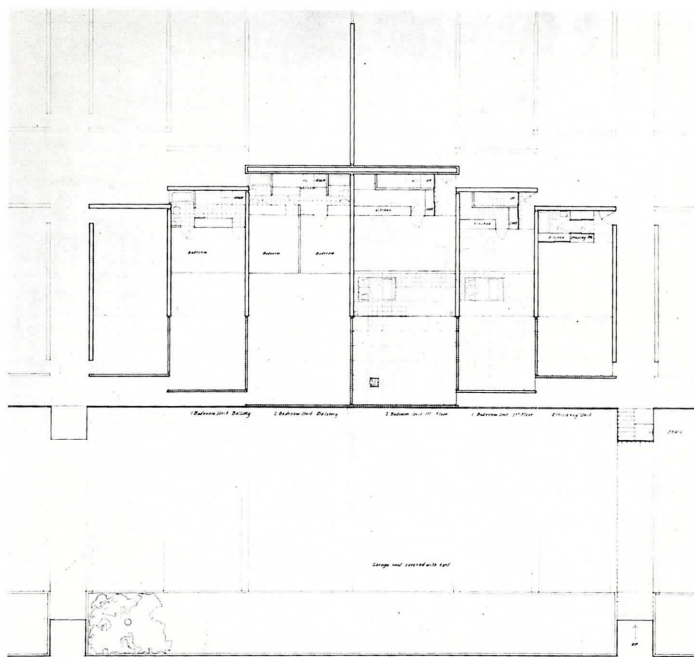
The desire of the university to gloss over departmental conflicts was aided by Howe's death on 16 April 1955. Without a champion, Schweikher's position was immeasurably weakened. For Nalle, the agony of reflection must have become almost unbearable when his authority over the first- and second-year program was ended. In 1956 Schweikher resigned and Nalle was to depart shortly afterwards.⁴⁴ Schweikher's fall from grace led to Charles Sawyer's resignation in September 1956 to accept a post at the University of Michigan, and by 1958 the School of Fine Arts was com-

Figure 15. Low-rise high-density urban housing by Giovanni Pasanella. Baccalaureate thesis, 1958. Plan.

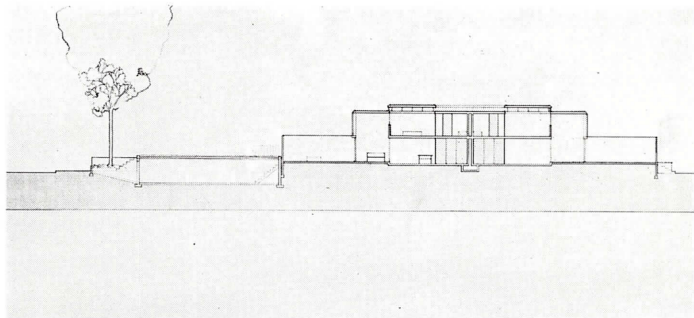
Figure 16. Sections.

Figure 17. Grain exchange by Harold Roth. Baccalaureate thesis, 1957.

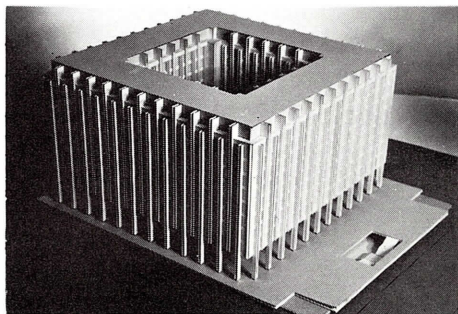
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pletely reorganized, emerging as the School of Art and Architecture with a new dean, Gibson A. Danes, and a new chairman for architecture, Paul Rudolph, under whose direction Yale was propelled into a position of international prominence in architectural education.⁴⁵

Possibly the most beneficial outcome of the Schweikher/Nalle controversy was the establishment of Yale's architectural program at a graduate level, ultimately making it possible to shorten the course from four to three years and to raise the status of the degree granted from Baccalaureate to that of a Master's in Architecture. Given a higher initial level of undergraduate education it was not possible to enlarge on the idea of architecture as a humanistic discipline.

The ensuing void between the departure of Schweikher and the arrival of Rudolph was filled by the acting chairmanship of Henry Pfisterer presiding over an executive committee that was nominally responsible for the direction of the school throughout the period of the interregnum. Under the aegis of this faculty committee, the school not only recovered its status with the Accrediting Board, but also assumed an air of professionalism that had been absent throughout the previous decade. This aspect found expression through a renewed interest in the rigors of programmatic design; particularly with the incorporation into the studio curriculum of the Magnus T. Hopper Fellowship in hospital design. Aaron N. Kiff, the visiting critic in charge of the 1957 hospital problem, could write with some amazement of the positive reception he received in that year, where contrary to his expectations, he not only found an intense interest "in the hospital as a planning problem" but also the proof of this interest in a level of studio work which one would normally expect "from experienced and specialized designers."⁴⁶

Harold Roth and Gio Pasanella who were students at the time characteristically combine the attitudes instituted by both Nalle and Schweikher (that is, love for the building as a constructed object) with a concern for big scale urban problems that were then to be more closely associated with Kahn and Rudolph, men who became dominant towards the end of their careers at Yale. Pasanella's thesis was an "unfashionable" one for the period—a low-rise, high-density urban housing

scheme. His drawings of it (figs. 15,16) were in the manner established by Nalle yet, probably because of the influence of King-Lui Wu and Edward Larrabee Barnes, his thesis critics, Pasanella seems to have given as much attention to the design of the house/apartment as to that of the architectural composition. On the other hand, Roth's project for an office/exchange building (fig. 17), with its emphasis on the form of giant prefabricated structure and an ambivalence towards the user, already reflects the influence of Paul Rudolph.

Despite this professionalism and this new found "maturity," which Clovis Heinsath has attributed to the presence of a large number of veterans from the Korean war, there is little question but that this was a time of great richness and unsettling transition. For many students, such as Roth, Pasanella, Jaquelin Robertson and Robert Kliment, it was a period in which, to quote one of their colleagues, Harold Fredenburgh, ". . . not much was learned after that first year (under Nalle). The emphasis afterwards (1955-1958) was not in teaching, but on critique. I can't exclude, however, the impact of Scully's lectures. . . . That perception of a singular and powerful relationship between landscape and temple had perhaps metamorphosized [sic] itself into the concern to see buildings as an active part of a framework layer other than themselves."⁴⁷

Fredenburgh's observations serve to emphasize once again the unique importance Vincent Scully has had, not so much on the day-to-day running of the school—though he has been influential there—but on the intellectual lives of the students both in the college and in the department itself. Much more than the "Architectural Spellbinder" he was characterized as being by David McCullough in his 1959 article for *Architectural Forum*, Scully has been an inspiring scholar and critic.⁴⁸ In the late fifties he embarked on that career as historian and critic that has done so much to recast our view of American architecture not only in terms of its own history but also in terms of its interaction with Europe. His researches in American domestic architecture have not only given us an enduring descriptive term and image for a period of unique importance to the history of American architecture, namely the "Shingle Style," but have also spawned an attitude among an entire generation of his former students which affects every aspect

of their work and which Scully himself discusses in a recent long essay.⁴⁹ In addition, Scully's writings about Greece brought to life for most students at Yale a subject that had been previously buried in the dreariest pedantry.⁵⁰

To a remarkable extent, Scully's perceptions have influenced those of all the best Yale graduates. These men have found Scully's splendid lecture style, his passionate personality and his powerful convictions central to their own concerns for architecture. At a deeper level Scully's influence is based on his feeling for the interrelation of man, building, and place. In seeing architecture whole, Scully is capable of articulating powerful relationships across the boundaries of time and culture. Through the richness of his conceptions he exemplifies the pluralism that has long since been Yale's strength.

Nowhere has the particular pluralism of this period been better characterized than in the words of Jaquelin Robertson:

. . . you could in a day experience young Vincent Scully, a kind of demonic Irish firefly darting back and forth before huge flickering images of White and Sullivan and Peter Harrison, and Richardson and Wright—literally, a man on fire; or discover the mystery of seeing for the first time your own hand at work exploring (with eraserless pencil) the differences between paper and stone, under that hawklike unrelenting gaze of Albers, always half afraid of your own clumsiness yet excited at the magic of self-revelation and the power of the teacher; or wander into one of those paper-strewn late afternoon sessions high above the glowing reddish court and listen to the funny, little, white-haired, pock-marked man, Louis Kahn, sometimes so clear, sometimes opaque, who talked so lovingly with his hands about the "idea of architecture"; and *showed* you by the building you were in that he had built, that somehow that idea *could* survive, at least in part, its translation "from becoming into being." Kahn also reinjected into architecture the "sense of place"—long before we'd heard of Aldo van Eyck—and a profound respect for history. He was a cultured man.⁵¹

The richness of the architecture teaching program at this time cannot be separated from the university's building

46 program or, for that matter, from the astonishing urban renewal activities of the City of New Haven, spearheaded by its mayor, Richard C. Lee, and Edward Logue, its director of urban renewal. At the same time it should be noted that, although Howe was the decisive figure in influencing Griswold's decision to hire Kahn as architect for the Art Gallery, he was by no means a trusted consultant in these matters in the way that Saarinen and Rudolph were later to become.

Saarinen became the advisor of Griswold around 1953 and his own first assignment, executed in association with Douglas Orr, was the preparation of the site plan and preliminary designs for the Gibbs Physics Laboratory, which was to become Paul Schweikher's only commission at Yale.⁵² Regrettably, both Saarinen's and Schweikher's work on this project is quite mediocre, though, as Scully has pointed out, Schweikher pushed his building to one side of the axis of Hillhouse Avenue, thereby leaving it open for Johnson to place the "agora of the Kline Science Center on axis and thereby permit the space of Hillhouse Avenue to sweep on uninterrupted."⁵³

While Whitney Griswold was a remarkably intelligent and enthusiastic patron of architecture, he was to rely for advice, in matters of taste, on a series of consellers drawn from the alumni or the teaching staff. On occasion Scully became a prominent advisor to Griswold in these matters; most notably in an attempt at modification of Douglas Orr's banal designs for Helen Hadley Hall and in the defence that he and some of his colleagues prepared in support of Saarinen's design for the Ingalls Hockey Rink.⁵⁴

By the late 1950s, Griswold had focused a great deal of the administration's attention on the building program, thereby insuring that the distinction of the great campus expansion of the 1920s and early 1930s would be matched in his administration. By the beginning of Paul Rudolph's career as chairman of the architecture department in February 1958, all the pieces of the mosaic were in place: a university president so convinced of the role of architecture in the university that he was prepared to commission the finest architects and to back them with a well-funded program; a heterogeneous faculty in the arts comprising superb scholars and practitioners, partic-

ularly in the areas of art and architectural history, painting, and graphic design; a small tenured faculty in architecture—a situation which emphasized visiting personnel and a diversity of viewpoints, with the chairman as intellectual arbiter; and, finally, a sophisticated student body, not only at the undergraduate level but also, and critically so for the architecture department, in the graduate program.

Part II: 1958-1965

On assuming the duties of chairman in February 1958, Paul Rudolph was a passionately outspoken and brilliant designer who was just on the threshold of an incredibly fertile period in his career. He had been a guest critic at a dozen or more universities since entering practice in Sarasota, Florida, in 1947, and was generally regarded as a most inspiring teacher. His analytical abilities with regard to design issues were (and continue to be) remarkable. At the age of forty he was little more than ten years the senior of many of his students and he shared in their rebellion against businessman architects, pseudo-functionalism and all other "isms" which were so often offered up as substitutes for genuine design insight. Furthermore, Rudolph's style of administration and teaching and, indeed, his whole persona were virtually the opposite of Howe's and Howe's successor, Schweikher. His style was not the methodical, painstaking drive for gentlemanly elegance and perfection that prevailed in the early fifties but a direct, brash, refreshing brusqueness, combined with genuine shyness, ingenuousness and a willingness to work. Nevertheless like Howe, Rudolph did not have a theory of architectural education nor, would it appear, was he intent on developing one. At the same time Rudolph's pragmatic approach was able to provide students with that sense of urgency through which the education process was to become more stimulating, tense and intense than it had probably ever been before. Despite Rudolph's immediate capacity for balancing the conflicting sensibilities of both the resident and visiting faculty together with those of an intensely committed and articulate student body, he was unable to avoid a conflict with Kahn. Despite this, Kahn continued to teach the thesis and masters classes until the end of the 1958-59 academic year, when he assumed full teaching responsibilities



18. at the University of Pennsylvania, where he had been a member of the teaching staff since 1956. Although Kahn was probably hurt by the university's decision to withhold the chairmanship from him for a second time, his clash with Rudolph would surely have arisen out of pedagogical differences and out of Rudolph's need to establish himself as the dominant teaching and administrative force.⁵⁵

In contradiction to Kahn's line, Rudolph was to maintain the Howe legacy of eclecticism of which Craig Whitaker has written:

Despite his own strong personal style, he was able to teach one how to design a "Mies" building as opposed to a "Corbu" building or any other current style. The school rejected an *a priori* polemical position as a basis for design. In this sense . . . [this] period at Yale is almost "book-ended" between the functionalism of the Harvard School of Design of the late forties and early fifties and the sociological relevance which became the vogue in architecture schools in the late 1960s; whereas the student at Harvard had first to learn about back-to-back plumbing and the student of the late 1960s had to go to live in the ghetto, Yale concentrated almost exclusively on problems of design. . . . Rudolph's greatest contribution was his talent for helping a student analyze his work purely in formal terms.⁵⁶

Rudolph's chosen antidote to his permanent staff was the importation of a certain amount of outside talent, often from Europe: Wilhelm Holzbauer, James Stirling, Colin St. John (Sandy) Wilson, Frei Otto and Bernard Rudofsky. All came and brought a mixture of views. Many other illustrious names were added to the visiting critic roster throughout Rudolph's tenure, including Mies van der Rohe, Ulrich Franzen, Craig Ellwood, John Johansen, Edward Barnes, Ward Bennett, Serge Chermayeff, Walter McQuade, Ralph Erskine, Romaldo Giurgola, Robert Venturi, and Alison and Peter Smithson. Not surprisingly it was as John Copelin writes, people, not ideas, that dominated during this period. . . . Certainly, Vincent Scully championing Wright, Mies, Corbusier, and then Louis Kahn and [Scully's] dramatic lecture on the Parthenon was a catalyst for Yale undergraduates leaning toward architecture. Working in Louis Kahn's building, his presence was always felt—inspirational—but



19. somewhat remote (a few dinners, a crit but little personal contact). It was in the end Paul Rudolph who dominated the school. So many of the other faculty now sound like a bumble bee with a head cold in comparison. His enthusiasm, the incredible fertility of his imagination, his love of building, and his personal honesty made the school. Unlike much of the other faculty, he built buildings, he made statements—we hated them or loved them, but we reacted.⁵⁷

In a time before so-called student power, it was often the students who proposed the visiting faculty and it was always they who suggested names of guest critics for the thesis and other important juries. The resident design faculty, by and large, was used more for its ability to handle the day-to-day administrative chores of the department than as a source of guidance.⁵⁸

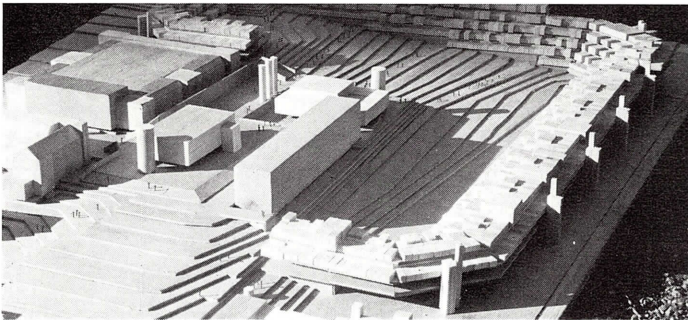
Rudolph's personal commitment to architectural education at this time was the result of his belief that action has indeed outstripped theory and that it is the unique task and responsibility of great universities such as Yale to study, not only that which is known, but far more important to pierce the unknown. My passion is to participate in this unending search. Theory [Rudolph continued] must again overtake action. . . . Architectural education's first concern is to perpetuate a climate where the student is acutely and perceptively aware of the creative process. We must understand that after all the building committees, the conflicting interests, the budget considerations and the limitations of his fellow man have been taken into consideration, that his responsibility has just begun. He must understand that in the exhilarating, awesome moment when he takes pencil in hand, and holds it poised above a white sheet of paper, that he has suspended there all that will ever be. The creative act is all that matters.⁵⁹

Rudolph's interest in broadening the bases of education not only led him to support *Perspecta*, to which he was a frequent contributor, but also to encourage student-organized exhibits such as the ones devoted to the recent work of Mies van der Rohe and Philip Johnson. It is this attitude of Rudolph's together with the university building program that had the effect in the 1960s of making Yale a major focus for the attention of architects all over the world.

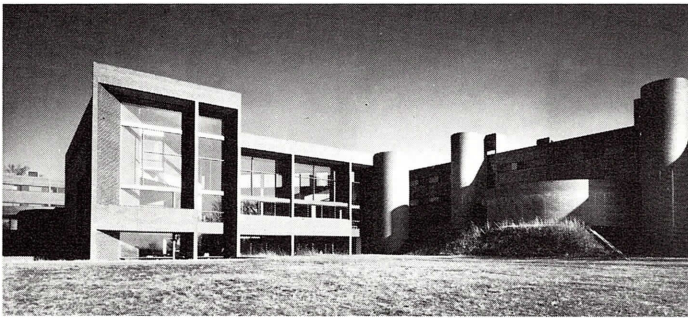
Figure 20. Pierson Sage science complex by Charles Gwathmey. 4th year, 1962. Model.

Figure 21. Dormitory and dining facility, S.U.N.Y. at Purchase, New York. Gwathmey/Siegel, architects, 1973.

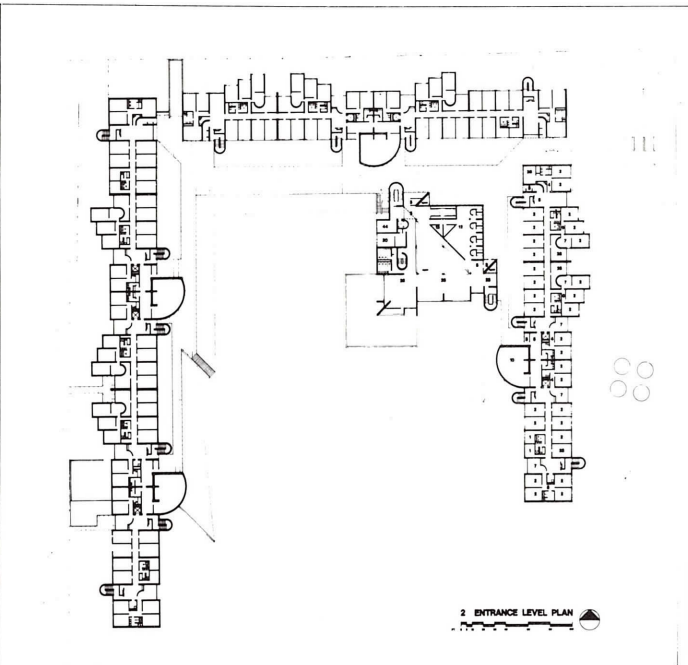
Figure 22. Entrance level plan.



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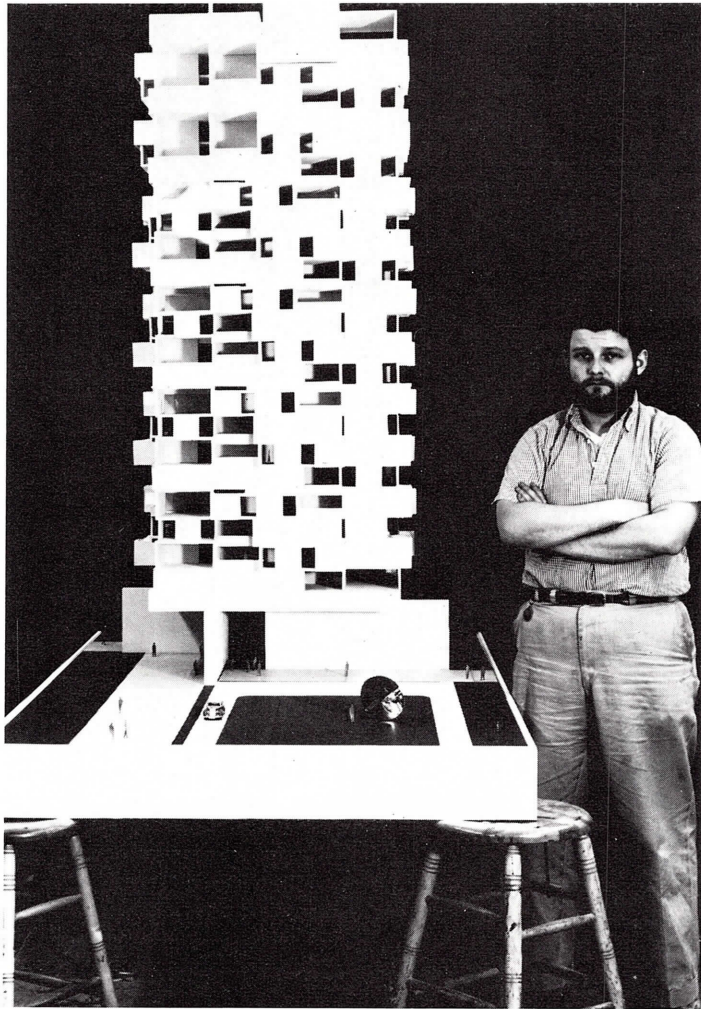
Rudolph invigorated the masters class, sharing responsibilities for it first with Kahn, and then with a succession of visiting critics. At the same time, in alternate semesters, he gave criticism in the third- and fourth-year classes of the baccalaureate program. His approach at both levels was often to set programs with which he was professionally involved. Typical of this was Rudolph's Blue Cross/Blue Shield building in Boston which he assigned simultaneously to the fourth-year baccalaureate and masters class students.

While the masters class grew in size under Rudolph, and often attracted mature students from the profession, the students in this program almost inevitably seemed to emulate their teacher rather than learn from him. Thus, to a considerable extent, the masters program of these years may well have been a failure, particularly as measured against the so-called undergraduate program leading to a B.Arch degree, which had been confined since 1957 to students already holding B.A. degrees.⁶⁰ These baccalaureate candidates were on the whole more intellectually aware—and therefore more independent and resourceful—than the masters class students. They and not the masters class provided the student leadership of the department's intellectual and artistic life.

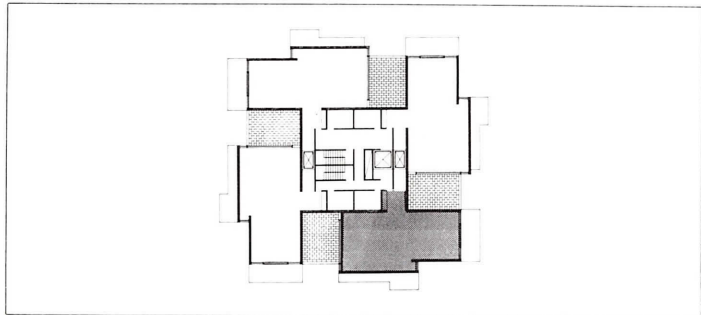
However, there were exceptions to this, particularly the masters class of 1960-61 which included such remarkable students as Rurik Ekstron, K. Sam Scheele, Marvin Hatami, and Stanley Tigerman. While Kempton Mooney and Alexander Tzonis, amongst others, lent distinction to the masters class of 1962-63, the 1961-62 masters class was dominated by a remarkable group of English students including Eldred Evans, Norman Foster, and Richard Rogers. In the fall of 1961 the Foster/Rogers design for the Pierson-Sage science complex introduced to Yale and perhaps to America a first glimpse of that megastructural approach that has come to be associated with the Archigram group. The astonishing grasp of urban scale which this scheme (drawings for which are regrettably lost) embodied can be appreciated if one refers to Charles Gwathmey's solution to the same problem (fig. 20) which is, in itself, a remarkable anticipation of American tendencies in large-scale campus planning in the late 1960s, including the work of his own firm at the Purchase campus of the State University of New York (figs. 21,22).

Figure 23. *Luxury housing by Stanley Tigerman. Baccalaureate thesis, 1960.*

Figure 24. *Floor plan.*



23.



24.

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However, of all the masters students of this period, Stanley Tigerman was probably the most outstanding since, attracted by Rudolph's reputation, rather atypically he came to Yale in his late twenties, after extensive experience with Skidmore Owings and Merrill, in Chicago. Ironically, it was not his work in the masters class but that in his one year in the baccalaureate program in 1959-60 that is memorable. His baccalaureate thesis,⁶¹ a luxury housing project for Chicago's lake front (figs. 23,24), brought the classicized rectangle of the mid-fifties, the so-called Yale Box,⁶² to a new sculptural level, despite its urbanistic inadequacies, characteristic in many respects of the department's philosophical stance at that time.⁶³ Photographs of this project and of the jury assembled to review it, along with other fourth year projects mark a return to the practice of the mid-fifties when distinguished figures would make an annual trip to participate in what had become the department's equivalent of the "Academy Awards" (figs. 18,19).

1960-63 may be seen as the apogee of Rudolph's positive influence on the department. The period coincides with the intensive effort Rudolph expended on the design and construction of the Art and Architecture Building, which was to unite the various departments of the school under one roof for the first time.⁶⁴ Throughout this period, the students and Rudolph were the only constants in the department. The visiting critics were constantly being changed, since they were usually at the school for only six weeks. At the same time, the resident faculty was able to exercise little influence over the design work in the department. The effect of Rudolph's charismatic and highly competitive influence may be readily assessed from reminiscences of the period. Thus, as Etel Kramer has written:

. . . Undoubtedly the richness of exposure we had to the famous architects of the day was valuable as well as fascinating. I was very critical of their performances and found only Rudolph to be consistently astute and enlightening. I thought that [the] visitors' work was better than their words. Our building of Kahn's affected me very much with its loving attention to detail and warmth and animation of the drafting room, even empty on Sunday morning. But when Kahn came to speak, his sermons seemed foolish. The architects I admired were students. I was dazzled by

50 D. Sam Scheele's imagination, by Jaque Robertson's BCBS project and by his seemingly two hour preliminary thesis jury, by Charlie Gwathmey's slick proficiency, by Der Scutt's thesis, and by anything Dave Sellers did. The school was a hothouse of ingrown energy and personal relationships and a total absorption in ourselves.

Kramer is equally informative about the emphasis placed on the individual act at Yale when she writes:

I arrived at Yale from beneath the waterfall of Henry Russell Hitchcock's method of total immersion in all the building of most of the architects of Europe and America of the last 150 years. . . . Yale was a shock. Suddenly life was the drafting room cardboard and yellow paper; and this was to be taken seriously. The anti-intellectualism I felt was reinforced everywhere: Scully's assumption that we had no critical faculties but wanted to be told what was good architecture, especially his phrase "act, love or die" exalting the elemental God-architect; Peter Millard's attitude that nothing was to be learned from the past, we must learn it all from our own actions; Rudolph's incredible intensity and commitment to building bright ideas. These attitudes delighted me and slowly, feeling guilty, I grew to assume that it was right to make my own way in as original a manner as I could. I did not want to design anything resembling any building I had ever seen before.⁶⁵

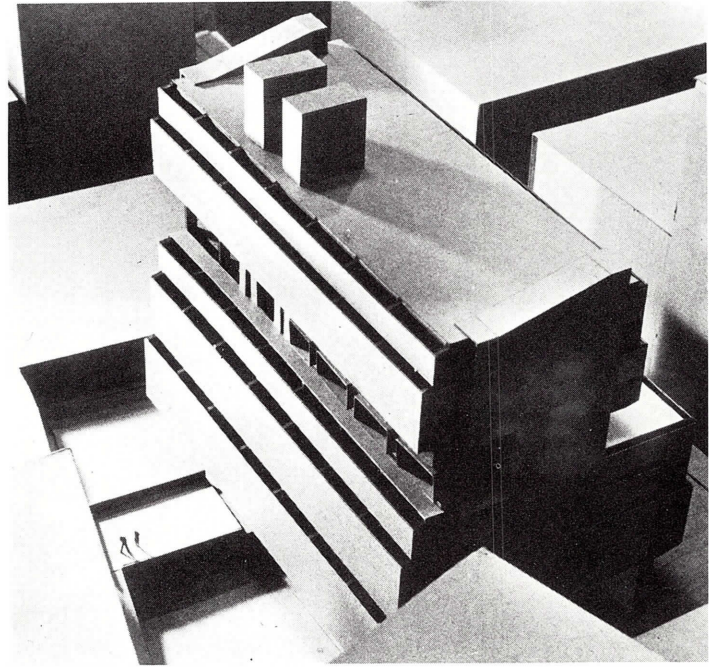
If one looks for an explanation for this competitive self-consciousness, one must look not only to the emphasis on the individual act, which seems to pervade the Yale attitude (witness Scully's insistence that we "act, love or die," his quotations from Camus) but also, with specific regard to the architecture department, to that unspoken belief, supported by Carroll Meeks but tacitly shared, to a varying degree, by most of the faculty, that the admissions process should include among its judgments a determination of the candidate's potential for success as an architect in the marketplace.

Looking at this period, one sees not only Tigerman's B.Arch thesis and Robertson's Blue Cross/Blue Shield project (figs. 25,26) but also a number of other more than merely interesting student efforts. Der Scutt's thesis project of spring 1961 for a museum adjoining the site of Philip Johnson's Amon Carter Museum in Fort Worth (fig. 27) was noteworthy in its

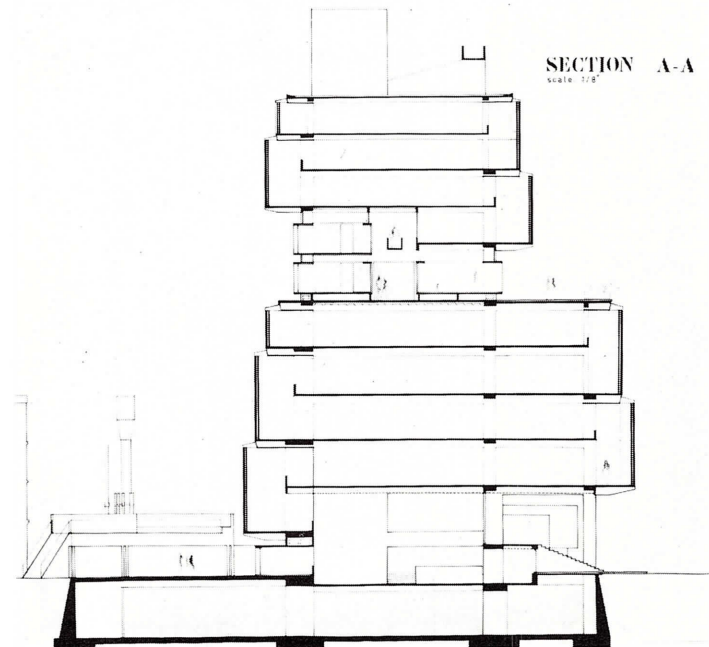
Figure 25. Blue Cross/Blue Shield office building by Jaquelin Robertson. 4th year, 1960.

Figure 26. Section.

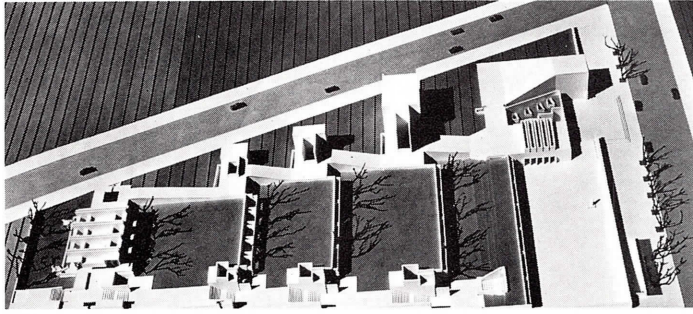
Figure 27. Museum in Fort Worth by Der Scutt. Baccalaureate thesis, 1961.



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modesty—one of the earliest so-called nonbuildings, all planted terraces and garden walls, a probable source for Kevin Roche’s winning entry in the Oakland Museum competition of 1961.⁶⁶ Scutt’s scheme is also notable for its clear articulation of “servant” and “served” spaces, a reminder that even among the most devoted of Rudolph’s admirers, as with Rudolph himself, many of Kahn’s most important lessons, ironically enough stemming from the Beaux-Arts, were heeded faithfully. Jaquelin Robertson’s thesis for a dormitory on the Old Campus at Yale (figs. 28,29), also of spring 1961, may be seen as a complement to Scutt’s. It took an even more “nonheroic” stance with regard to its site and program.⁶⁷ Robertson, in his very selection of the program, was departing from the normal building typology of thesis projects. It was housing, and it was involved with larger issues of urban design and historical context, issues that had hitherto been ignored at Yale as in our architecture at large.

In the next year, 1961-62, the conjunction of James Stirling’s return as a critic (after his first visit at Rudolph’s invitation in 1959) and the presence of a number of English masters students, was remarkably influential on the direction of the department. The English seemed to offer an alternate way of looking at things. Despite their admiration for the uninhibited formal exuberance of the American scene, the English, according to M.J. Long, afforded the nexus of a countervailing criticism against that which Long has since described as “the forced and rather blousy monumentality prevalent at the school.” For many, the arrival of the English critics at the school was a breath of fresh air; for others it was reversion to weak, diagrammatic design or to a form of militant anti-intellectualism.

The English used “humble” materials (brick rather than concrete) and displayed a natural reticence which sometimes emerged as anti-monumentality. They talked about Aalto as much as about Corbu.

They showed that it was not necessary to resort to anaemic form as an antidote to overblown form—their buildings at best had a kind of animal toughness and boniness. It was a set of images which we could use and it took hold, just before Moore and Venturi pointed to the possibilities in traditional American wood buildings and gave to others of us a similarly usable alternative set of images. . . .

They were also interested in issues of planning and saw them in design terms. . . . And, they were never anti-intellectual; on the contrary, they were highly articulate and historically conscious.⁶⁸ 51

In any event it is not clear why such a virulent reaction against Rudolph should have set in, just at that moment when his work on the Art and Architecture Building and his interest and commitment to the university and the department were at their most intense. M.J. Long writes that “Peter Millard, the critic most associated with this group of students in revolt against Rudolph, was more an example, and not necessarily a cause, of this situation. For that offshoot group (or perhaps it was the majority), ‘gut reaction’ was the cry, even though the term had not been invented in those days.”⁶⁹ Millard’s situation at the school was an especially complex one at this time. He had taught there continuously since his graduation and while in many ways the opposite of Nalle, Millard nonetheless brought to the 1960s that mystique-laden uncommunicativeness and insistence on self-determination which had added so much to Nalle’s teaching style.⁷⁰

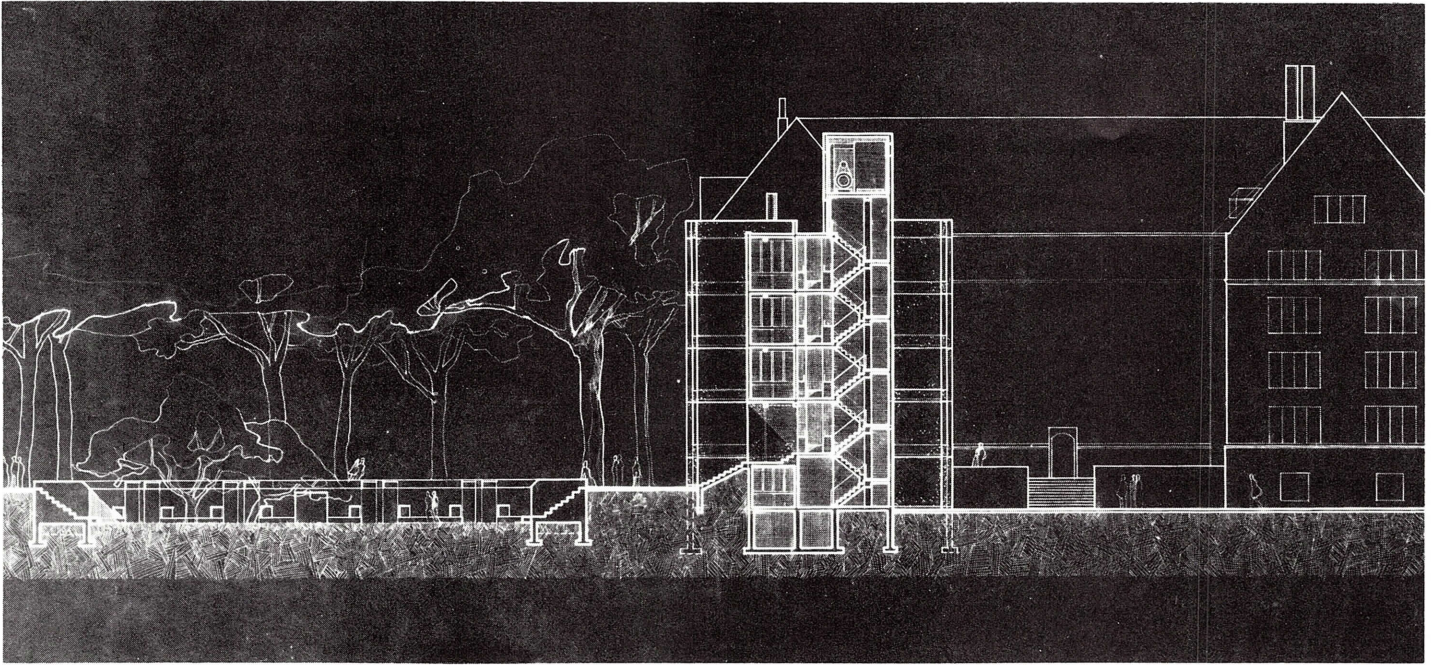
Peter Gluck assigns responsibility for the disenchantment of the students with Kahn and Rudolph not to their philosophical position, the “basic premises” of their professional positions, but to the “actual results,” to the buildings which the highly mobile Yale students were able to see firsthand in the early sixties. The functional limitations of the Richards Medical Laboratories and the Art and Architecture Building were only too well-known to them.

The emergence around 1962 of Edward Barnes, first as a design force of significance, later as campus planner and as architectural adviser to Griswold’s successor, Kingman Brewster, was also related to the shift away from Rudolphian “heroics” to what appeared to be a lower-keyed, more self-effacing attitude toward form. Though Barnes’s work appeared to many to be associated with that of the English and even with certain of the Philadelphia architects, its diagrammatic quality was firmly rooted in those International Style orthodoxies first expressed decades before by Gropius and Breuer at Harvard. Barnes was appointed campus planner in 1964. In that year, Kingman Brewster succeeded Whitney

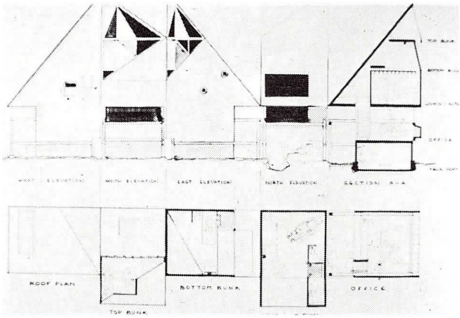
Figure 28. Dormitory building on the Old Campus at Yale by Jaquelin Robertson. Baccalaureate thesis, 1961. Section.

Figure 29. Plan.

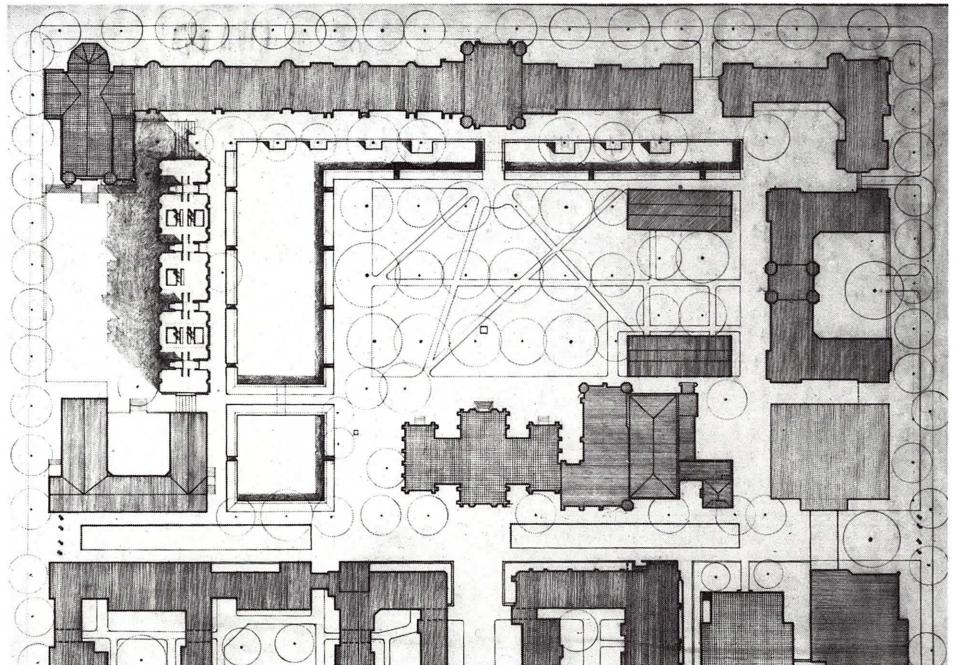
Figure 30. Tack House, Prickly Mountain, Vermont. David Sellers, architect, 1966. Elevations, section and plan.



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Griswold as president, and the direction of the university's policy toward building paralleled the shifts in concern of the faculty and students in the school. As Myles Weintraub puts it, "the University's policy of hiring a 'big name' firm for each of its new building commissions . . . was beginning to seem an inadequate response to the wrong question."

Irrespective of this, Barnes was uniquely qualified to guide Yale's building policy, which included complex town-gown relations and involved such volatile issues as car parking and a controversial ring road then threatening to bisect the Yale campus. Apart from his qualifications as a campus planner Barnes was able to attract to his office a lion's share of Yale's recent graduates including Pasanella, Weintraub, Robertson and Gwathmey.

The completion of the Art and Architecture Building in 1963 marked "the watershed," of Rudolph's career at Yale, as Craig Whitaker suggests. "For many students, the camaraderie and spirit of investigation which were fostered by the spare lean spaces of Kahn's Art Gallery disappeared in the new and more extravagant building."⁷¹ The succession of events surrounding the school's moving into the new Art and Architecture Building in September 1963 and the formal opening ceremonies which followed in November, with the hoopla of the enormous dedication party, took a hard toll on the energies of the school and on Rudolph. In the weeks preceding the dedication ceremonies, the painting and sculpture students picketed in front of the school in protest over the cramped quarters designed for them at the top and bottom of the building. These protests, which now seem so mild to us after the riotous activities of the late sixties, caused no end of consternation at the school and were screened as far as possible from the press. The complaints of the painting and sculpture students about the size, quality, and orientation of their work spaces were caused, in part, by the fact that since the building had been programmed there had been a shift in emphasis not only in the teaching in the art department but also in the conception of art itself—a shift from the small-size canvas or sculpture such as was favored by Albers and his successor as chairman of the art department, Bernard Chaet, to a gigantism of gesture represented in the work of such newer faculty members as Jack Tworkov, Al Held, Louis

Finkelstein, and James Rosati.⁷² This new preoccupation with size is reflected in the student as well as subsequent work of Robert Mangold, Richard Serra, Nancy Graves, and Chuck Close, all of whom were enrolled in the art department at this time. The situation was resolved by making available, to the advanced students, large-scale spaces in early nineteenth-century houses owned by the university and then being held for future development. Thus, even at the outset, the unity of the arts under one roof at the Art and Architecture Building was not achieved, while as Whitaker notes, "The demonstrations which attended the opening of the new building almost presaged the *Gotterdammerung* which took place in 1969 when the building was burned. . . ."⁷³

In the revised edition of his book *Modern Architecture* Scully observes that the completion of Rudolph's Art and Architecture Building, virtually coincidental with the assassination of President J.F. Kennedy, can be seen as the starting point of a new, "tragic" age, one of "irony." Scully writes that "Rudolph's mood at that moment was one of heroic confrontation; he was at last ready to take the European masters on. . . . Over the decade since its completion, most of its students have rightly or wrongly come to regard it as the prime symbol of an unnecessarily competitive attitude toward people and things. It clearly demonstrated, at least, some of the programmatic limitations of the sculpturally-active mode of building."⁷⁴

Rudolph's shifting attitude toward the department at this time can be seen in his decision to bring Serge Chermayeff from Harvard to Yale on a half-time three-year teaching contract. At Harvard, Chermayeff had been a dominant and highly controversial member of the teaching staff since 1953, but by the early 1960s it was clear that his influence in Cambridge was waning. There seems little doubt that Rudolph's decision to bring Chermayeff to New Haven was a complex one. It was at once a gesture of friendship to a revered elder colleague whose position at another university was under considerable attack from both students and faculty; more significantly it marked a loosening of the reins on Rudolph's part, a first indication of a willingness to have someone else share the focus of debate. What it resulted in was a growing divisiveness of approach to architecture, an

54 argument rather than a debate or discourse; worst of all, it implied a blurring of lines between the two schools which had, since Howe, come to stand for different ideas. This debate between what might be described as “functionalism” versus “formalism,” as if the two were mutually exclusive and even of equal measure, reached its fullest expression under Charles Moore, who surprisingly chose to renew Chermayeff’s contract.

The fullest enthusiasm for what has been described as Rudolph’s “blousy monumentality” was reflected in a number of thesis designs of the mid-sixties. Most dazzling of these was Robert Mittelstadt’s thesis for a monastery in 1964;⁷⁵ while David Sellers’s thesis project for a new Macy’s coming at the same time embodied a strong reaction against that very thing. Sellers had taken a year off to design the prophetic Tack House at Prickly Mountain in Vermont (fig. 30), which was to revolutionize ski house design and, more importantly, was virtually to give birth in the process of its making to a whole new lifestyle.⁷⁶ This act was to be of importance to the future of the department itself for it set the stage for a new direction in the school which would prevail in the late sixties under Rudolph’s successor, Charles Moore. As Sellers recounts it: “After the 2nd year . . . I took a year off to build a house. . . . The remainder of the time at Yale I operated a construction company simultaneously building two houses, remodeling a ranch house and building a tree house for some kids.”⁷⁷ Upon returning to New Haven in the fall of 1964, Sellers produced as his thesis (a pre-Portman urban vision) a department store with a great cavernous public space and an exciting system of escalators, motorized conveyors to connect rapid transit, existing streets, and shopping floors above.

When I finished my thesis in February, graduation was four months away. [Sellers continues] I decided to go to Vermont in the meantime and build a house out of ice sprayed over weather balloons. I arrived, there was no snow or ice, so I looked into the possibilities of doing some building in Vermont. This evolved into lengthy discussions on the virtues of vacation-house building versus going into the cities where the action was. The conclusion was that if continuing education after architecture school involved one in actual construction (which was my opinion) that eliminated the inner city.

Figure 31. Pan Am building by Peter Gluck. Baccalaureate thesis, 1965.

Figure 32. Interior perspective.

Figure 33. Whitney Museum by Robert A.M. Stern. Baccalaureate thesis, 1965.

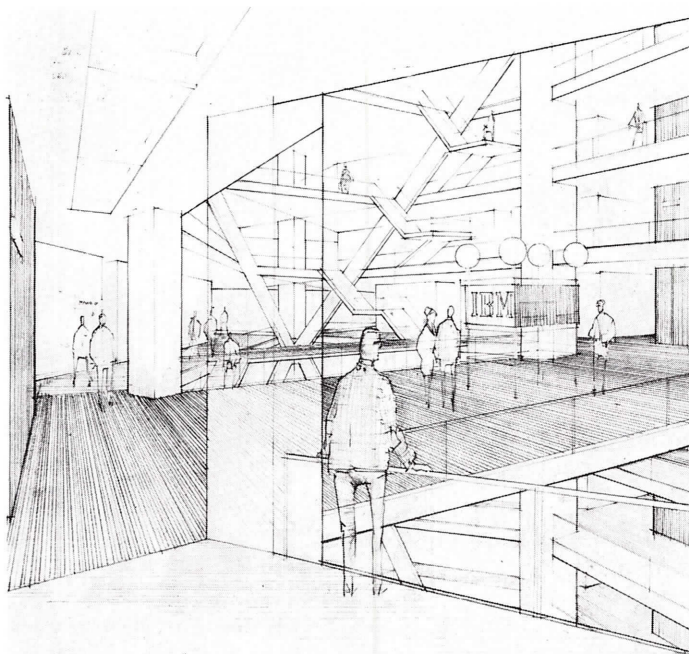


After much discussion and economic forecasting, the Mad River Valley was selected as the field of action—in fact, “a nob at the foot of the valley with a fifty-mile view looking up the valley to a double mountain in the distance (Scully would have puked when he heard us comparing it with the temple sites in Greece, though the comparison is real).”⁷⁸ Ultimately, numerous other Yale students participated in the Prickly Mountain project, as it came to be known, and after an article in *Progressive Architecture* in May 1966 “dozens of students from all over the country came up to work on the houses.”⁷⁹

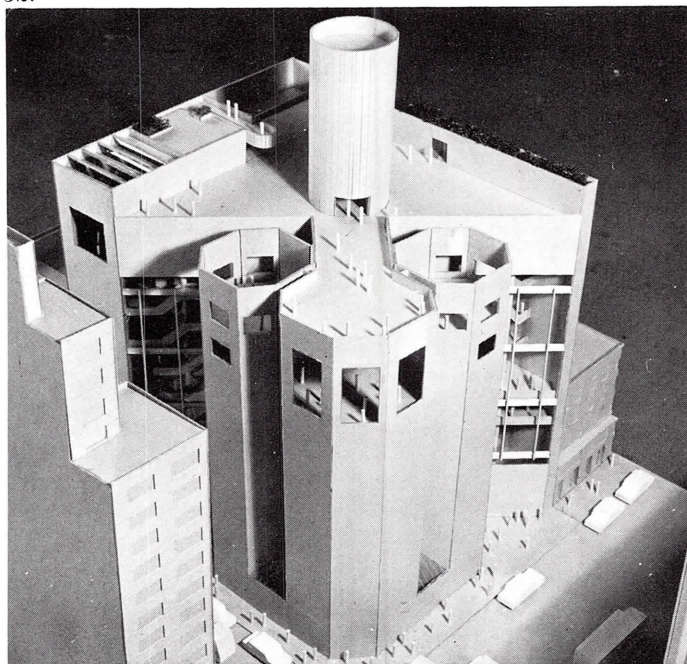
Despite all the apparent anti-intellectualism in his work, Sellers has deep appreciation for the existential richness of Yale.

I found myself not being (even now ten years later) in conflict with the vibrations and vitality and searching which started at Yale. In fact, that is what allowed me to get involved in research, politics, education and community development. The more you have a basic understanding of what it is to be alive, the more you have a solid foundation on which to live. The more firm this is, the more you can venture from it. The real content of the Yale experience for me wasn't form or design or structure, but being. Chermayeff, Engman, Millard, Chris Argyris, Paul Weiss, Kahn, Scully, Woody, all talked about this.⁸⁰

In the next year, 1965, Peter Gluck was able to pick up on the direction implied by Sellers and proposed as his thesis a redesign of the Pan Am Building (figs. 31,32). Gluck's design, ironically, brings us back to the complex geometries of Kahn, not only as manifested in his Art Gallery but as seen in his tower projects of 1953. My own thesis, the design of the Whitney Museum (fig. 33) (Breuer's scheme had not yet been published), was presented before the same jury as Gluck's. In it, I attempted to combine the idea of the museum-as-monument (the three towers for the permanent collection) with the museum-as-warehouse, the loft-like background building which was expandable in two directions. Venturi's criticism was invaluable in shaping the design, and refining the argument and such bold strokes as the single column in the loft space and the oversized lettering along the diagonal “street” were the direct result of his suggestions.



32.



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56 This last thesis jury of Rudolph's tenure, held in May of 1965, was in many ways a kind of ritual marking of the shifts taking place not only in the Yale scene but also in our architecture as well. The critics Venturi, Johnson, Rudolph, Chermayeff, and Cobb, included representatives of both sides of that debate between heroic form-making of the late International Style and the more semiological architecture that was emerging.

Within two years everything would be different—students building community centers in Appalachia in the manner of Sellers and Charles Moore (fig. 34), Moore and the Venturis suggesting new formal attitudes or at the very least giving new ideological focus to old ones, together with students analyzing Las Vegas and Levittown, and asking architects to learn to love these places and learn from them as well. And then in June 1969, fire at the Art and Architecture Building, the nightmare culmination of the protests of students against its strong forms, protests which had been a continuous threat since its opening in 1963.⁸¹ What had begun as an issue of form versus functional accommodation had expanded and matured, frighteningly, into the deepest ideological controversy of our time—to the question of elitism in culture (fig. 35).

Charles Moore's appointment as chairman was announced in May 1965. Paul Rudolph, by his own choice and unlike Howe, had not taken an active role in the selection of his successor. Robert Venturi and Romaldo Giurgola had also been considered for the position. Interestingly enough, the work of all three had formed the collective focus of the double issue of *Perspecta*, numbers 9 and 10, which was published in April 1965. Venturi and Giurgola had each taught in the school for brief periods in previous years, but neither had made strong impressions on the students, faculty or administration until 1963-64; in fact, the so-called Yale/Penn axis, which Colin Rowe and others refer to, did not seem to exist at this time to its presumed participants.⁸² It is interesting to note that the peak of Rudolph's influence in 1960-63 coincided with that of G. Holmes Perkins at Penn and that, though the presumed rivalry between Penn and Yale in the early 1960s can be compared with that of the 1930s, the tables were turned after a fashion—Penn having in Perkins a dean whose strengths like Meeks's at Yale thirty years before lay in ad-

ministration, and Yale with a chairman, Rudolph, whose strengths like Cret's were in design.

Moore's arrival brought with it sweeping changes in curriculum as well as dramatic alterations in the Art and Architecture Building even before the devastating fire of June 1969. In this regard, for example, the celestial visiting critics suite was converted to a student restaurant; the double-height exhibition space was turned over to a more-or-less permanent lighting extravaganza prepared by PULSA, a group of students interested in electronic communication; and the chairman's office was provided with doors, conventional furniture, and other commonplace paraphernalia of bureaucratic administration.

While Moore's tenure as chairman is outside the time frame of this article, it is important to note that, particularly in its early years before June 1969, much of what he set out to achieve in terms of curriculum reform was intended as direct comment on the department's direction under Rudolph. Principally, Moore attempted to broaden the focus of concern of the design process. Attempting to be as "inclusive" in his approach to design education as Rudolph, he renewed Chermayeff's contract, encouraged the Venturis and Stirling in having them share the Charlotte Shepherd Davenport chair,⁸³ reshuffled the composition of the permanent faculty, and diversified the thrust of the curriculum. Under Moore the curriculum ranged from actual building projects, such as the Community Center at New Zion, Kentucky, which students designed and built in the spring of 1967,⁸⁴ to a conference on computer technology held in April 1968,⁸⁵ from the Las Vegas and Levittown studios,⁸⁶ to an ongoing student-designed renovation of the Art and Architecture Building, which became one of the decisive monuments of the so-called supergraphics of the late 1960s.

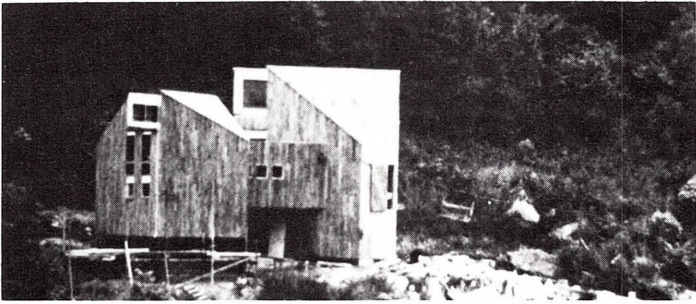


Figure 34. New Zion community center, Appalachia, Kentucky, by Yale architecture students. Class project, 1967.

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Figure 35. Art and Architecture Building, Yale University, New Haven, Connecticut. Paul Rudolph, architect, 1963. After the fire of June 1969.



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35.

- 58 1. Portions of this article are included in my book *George Howe: Toward a Modern American Architecture* (New Haven: Yale University Press, 1975). An abbreviated version of the whole text was delivered before the Society of Architectural Historians at New Orleans in April 1974 and before the Graduate School of Architecture and Planning, Columbia University in September of the same year.
2. See "Yale Scores Another Victory in Prix de Rome Competition," *Art Digest* 6 (15 May 1932), p. 32; "Yale School Scores Another Victory in the Prix de Rome Competition," *Art Digest* 9 (June 1935), p. 11; "Yale's Method," *Art Digest* 9 (August 1935), p. 24; "A l'Université de Yale," *Beaux-Arts* (23 August 1935), p. 41.
3. "Arbiter of the Arts. A Beaux-Arts dean has reigned over Yale's architecture, painting, sculpture and drama for the past quarter of a century," *Architectural Forum* 86 (June 1947), pp. 74-76, 152, 154; Everett C. Meeks and C.L.V. Meeks, "A Center for the Stimulation and Development of Creative Ability in the Several Arts," *Bulletin of the Beaux-Arts Institute of Design* 16 (January 1940), p. 2. Dean Meeks died in 1954. According to a prevalent rumor, the visiting critic system had been established by him as a remedial measure when practically the whole faculty resigned just prior to a new school year. William Huff, in an incomplete paper prepared in 1957 for a class of Max Bill's at Ulm wrote the following based, as Huff now believes, on "a letter from C.L.V. Meeks" which is now missing from Huff's files: "Originally, the Department of Architecture was conceived and created by Everett Meeks. . . . He was steeped in the Beaux-Arts tradition, and under him the Yale Architecture School enjoyed a golden era when it won most of the glories the Beaux-Arts system had to offer. The Prix de Rome became known, for instance, as the Prix de Yale. Though this grand gentleman of the Arts was never really convinced by the new era of art, he recognized its existence and was deeply disturbed." See letter to author, 12 December 1974. For a discussion of Cret and his influence at Penn, see Vincent Scully, *Louis I. Kahn* (New York: Braziller, 1962), passim, and Theo B. White, *Paul Philippe Cret* (Philadelphia: Art Alliance, 1973), passim.
4. For Hood, see Walter H. Kilham, Jr., *Raymond Hood, Architect* (New York: Architectural Book Publishing Co., 1973). Though Kilham does not deal with Hood's tenure at Yale, he does touch on the retirement from active practice in 1931 of Hood's partner, Frederick A. Godley, and Godley's decision to join the architecture faculty at Yale (p. 73). Meeks articulated his visiting critic policy as an attempt to "assimilate school training and office practice in one procedure." See "Yale Will Follow American System," *Pencil Points* 19 (August 1938), p. 18. See also "Yale Goes Native: Appointment of Wallace K. Harrison to the Architecture Faculty," *Art Digest* 12 (July 1938), p. 28; and "Yale Plans to Move Forward in a Truly American System of Architecture Education," *Magazine of Art* 31 (August 1938), p. 487. According to Huff, in his 1957 paper (see note 3), it was Harrison who brought to Yale "for short periods Ozenfant, Nitschke, and Albers."
5. C.L.V. Meeks, "Defense Work in the Department of Architecture," *Pencil Points* 22 (April 1941), pp. 285-88. For a discussion of the role of women at Harvard in this period, see "The Education of Women Architects: a history of the Cambridge School," *Architecture Plus* (December 1973), pp. 30-35.
6. For G.S.D. student work in this period, see Paul Rudolph, ed., "Walter Gropius et son école (the spread of an idea)," *L'Architecture d'Aujourd'hui* 20 (February 1950), pp. 1-116.
7. "Appointments," *Architectural Forum* 86 (April 1947), p. 62; "C.H. Sawyer Appointed Arts Division Director and Fine Arts School Dean," *New York Times*, (3 March 1947), p. 23.
8. Hauf's appointment was announced on 9 October 1947. As a means of supplementing the visiting critics, Yale was to invite a number of "critics in residence," each of whom stayed at the University for a period of five weeks. Hauf was assisted by first, Edward D. Stone, who was initially "Senior Critic in Residence" and then "Chief Critic in Architecture Design" (see note 9) and later by Louis Kahn who was appointed chief critic in 1948. William Huff writes in his 1957 paper (see note 3) that Sawyer and Hauf "formally organized the visiting critic system . . . in the realization that busy architects would come to Yale for six weeks but not for life."
9. Huff, in his 1957 paper, writes: "Edward Stone acted from 1948-52 as chief design critic, who was responsible for outlining the programs and theses of the upperclassmen." Stone was replaced by Louis Kahn, upon Kahn's return from a long stay at the American Academy in Rome. Edward Stone writes of his tenure at Yale in his autobiography, *The Evolution of an Architect* (New York: Horizon Press, 1962), pp. 36-37.
10. Charles Sawyer writes, "Harold Hauf was an excellent administrator-manager of the department; but he was not an innovator and some of our alumni in architecture and members of the Council Committee felt that our department lacked the image and specific identity of Harvard or M.I.T." In a letter to author, 9 February 1974, Sawyer noted that there was general agreement that the School needed to move away from the Beaux-Arts tradition which had been its hallmark in the previous administration. See George Howe Collection, Avery Library, Columbia University, New York.
11. It should be noted that George Howe (1950-54), Paul Schweikher (1954-56), Paul Rudolph (1958-65), and Charles Moore (1965-71) were each, in turn, department chairmen and that only in 1970, when the School of Art and Architec-

- ture was split into two separate entities, the School of Art and the School of Architecture, did Moore become the dean (1970-71) of the latter. See "Yale A and A: restructured and still going strong," *Architectural Record* 147 (March 1970), p. 37.
12. Herbert McLaughlin, Jr., "Style of Education," *Progressive Architecture* 39 (July 1958), p. 11.
13. For Breuer's house, see "Manhattan's Museum of Modern Art presents house designed by architect," *Architectural Forum* 90 (May 1949), pp. 96-101.
14. Sawyer recalls in letter to author, 9 February 1974, that Kahn had initially suggested Howe. Howe seems to have accepted the invitation somewhat reluctantly having previously decided to live in Europe and write. See letter, 31 August 1949, George Howe Collection, Avery Library. See also "G. Howe Succeeds H.D. Hauf as Architecture Department Chairman," *New York Times*, 15 September 1950, p. 30, and "George Howe Named to Yale Post," *Architectural Record* 106 (October 1949), p. 154.
15. Without wishing to deny the importance of Raymond Hood one should note that Hood played a more modest role at Yale probably because Meeks was very much in command at the time of Hood's tenure and, more importantly, because Hood's concern with the Modern movement seems to have been less committed than Howe's.
16. Witnesses of this period such as James Wilder Green and Thomas R. Vreeland testify to the fact that Howe, with his gentlemanly style, left a distinctive mark on all those Yale graduates who came in direct contact with him.
17. See *Architectural Record* 107 (April 1950), p. 186. Tunard had been head of the section in city planning in the department of architecture since 1945. See also *American City* 65 (April 1950), p. 5, and Yale University News Bureau, Release #481, 26 February 1950.
18. The department of graphic design was grouped with painting, sculpture, and architecture within the School of Fine Arts. See "New Department of Design," *Architectural Record* 108 (August 1950), p. 194; "Design Department Set Up, Fine Arts School," *New York Times*, 16 July 1950, p. 52; and "A. Eisenman Appointed Lecturer in Graphic Arts, Fine Arts School," *New York Times*, 16 September 1950, p. 10. For a notable early by-product of Yale's entrance into the field of graphic design, see "Museum of Modern Art and Yale Art Gallery Symposium on Signs and Lettering on Streets and Buildings," *New York Times*, 21 November 1953, p. 10.
19. George Howe, "Memorandum to Dean Sawyer," 4 November 1954, George Howe Collection, Avery Library. Peter Millard, who was then a student and has since the mid-1950s been a teacher in the department, largely confirmed Howe's assessment of the situation in conversation with the author, 17 January 1974.
20. Avery C. Faulkner, letter to author, 21 March 1974.
21. See George Howe Collection at Avery Architectural Library, Columbia University, New York.
22. George Howe, untitled lecture, quoted in Yale University News Bureau, Release #479, 22 February 1950.
23. Howe had been interested in so-called "little magazines" since his involvement with *U.S.A.*, *T-Square*, and *Shelter* in the early 1930s. See Stern, *George Howe*, especially chapter 6.
24. George Howe, "Training for the Practice of Architecture," *Perspecta* 1 (1952), pp. 1-5.
25. By 1953 Howe had established a combined professional course for Yale students, leading to a B.A. and B.Arch. degree in six years, and in entrusting the first two years of the architectural program, that is to say, the junior and senior years of the Yale College major's career, to Nalle's direction. See George Howe, "Annual Report to the Chairman, 1952-53," 3 June 1953, typescript, George Howe Collection, Avery Library. For the Howe and Sawyer restructuring of the Yale College program, see Charles Sawyer, letter to Dean William C. De Vare, 29 October 1952, a copy of which is on deposit in the George Howe Collection, Avery Library.
26. William Huff, letter to author, 26 February 1974.
27. Harold Fredenburgh, letter to author, 13 March 1974.
28. For a student's view of Yale during the term following Howe's retirement but just before the dam burst, see Edwin A. Kent, "Graduate Schools: V. School of Fine Arts, New Trends," *Yale Daily News*, 31 October 1954. The closest one is now able to come to Nalle's own philosophy of design is his article "Whole Design," *Perspecta* 1 (1956), pp. 6-7.
29. James Stewart Polshek, letter to author, 15 March 1974. The perfect expression of Nalle's technique can be seen in the house Fred Lyman, Nalle's former student, designed for his own use. See Esther McCoy, "Young Architects in the U.S.," *Zodiac* 8 (1961), pp. 166-85.
30. The original Art Gallery, as designed by Egerton Swartout, was only partially completed. Its expansion was a frequently discussed project throughout the 1930s and early 1940s. See "New Exhibition Gallery," *Yale Associates Bulletin* 8 (June 1937), pp. 27-29; "Art Gallery Extension," *Yale Associates Bulletin* 10 (December 1941), pp. 1-3; "Plans Addition to Art Gallery," *Museum News* 19 (15 January 1942), p. 2. In 1950 the gallery expansion project was revived, keeping the scheme first prepared by Philip Goodwin in 1941. See "To Add to Its Building," *Museum News* 28 (May 1950), p. 1; "Plans to Add a Three Story Wing," *Interiors* 109 (July 1950), p. 10; "Yale Plans Addition to Art Gallery Building," *Architectural Record* 107 (July 1950), p. 196; "To Erect a New Three Story Addition to Its Present Art Gallery," *College Art Journal* 9 (1950), pp. 423-24; "To Build Art Gallery Wing," *New York Times*, 8 April 1960, p. 15. By the time Kahn had been designated architect, restrictions imposed by

- 60 the Korean War, preventing the construction of all but essential classroom space at universities, forced the university to include classroom and drafting room space for the architecture department, then housed in a variety of buildings around Weir Court and along Chapel Street (though it was always intended that the gallery would eventually occupy all the space). See "Yale Design Lab Constructs Building," *Museum News* 30 (15 October 1952); "Art Gallery and Design Center Cornerstones Set," *New York Times*, 8 November 1952, p. 15; "Art Gallery and Design Center Designed by L.I. Kahn Described," *New York Times*, 1 November 1953, p. 217; "Center, 1st University Building in Modern Architecture Dedicated; R. Lehman Speaks," *New York Times*, 7 November 1953, p. 2.
31. Evans Woolen III, letter to author, 6 February 1974.
32. Huff, letter to author, 26 February 1974. See also Scully, *Louis I. Kahn*, passim and Stern, *George Howe*, especially chapter 8.
33. Huff, in his 1957 paper, testifies to Kahn's interest in Fuller. He writes, "Recently he [Kahn] has been experimenting with the translating of many of the experiments of Buckminster Fuller into meaningful architecture."
34. Howe started the magazine with a contribution of \$2,500 toward its first issue. From the outset it was widely recognized as an important journal of architecture.
35. George Howe, preface, *Perspecta* 1 (1952), p. 1.
36. See "Schweikher Appointed Professor Architecture," Yale University News Bureau, Release #871, 22 June 1953.
37. See Scully, "Archetype and Order in Recent American Architecture," *Art in America* 42 (December 1954), pp. 251-61; Ian McCallum, *Architecture USA* (London: Architectural Press, 1959), pp. 108-9; Vincent Scully, *The Shingle Style and the Stick Style*, 2nd ed. (New Haven: Yale University Press, 1971).
38. Howe, "Memorandum to Dean Sawyer."
39. See Calvin M. Trillin, "Architecture, Yale's Latest Controversy," *Yale Daily News*, 3 March 1955, p. 2.
40. Calvin M. Trillin, "Students, Faculty, Hit Architectural School," *Yale Daily News*, 18 February 1955, pp. 1,4.
41. Quoted in "Regimented Approach? Controversy Sweeps Architecture School," unsigned editorial, *Yale Daily News*, 22 February 1955, p. 2. See also "Architectural School Listed by Accrediting Board on Provisional Basis, 56-57," *New York Times*, 6 January 1957, p. 73.
42. Calvin M. Trillin, "Architecture Students Win Grading Reforms," *Yale Daily News*, 25 March 1955, p. 1.
43. See Trillin, "Architecture, Yale's Latest Controversy," p. 2.
44. See "Schweikher to Submit Resignation from Top Architecture Post," *Yale Daily News*, 8 February 1956, p. 1; "Schweikher Leaves as Architecture Department Head," *New York Times*, 23 February 1956, p. 25; Peter F. Hannah, "A Year's Progress in Yale Architecture Controversy: Results?" *Yale Daily News*, 16 March 1956, p. 16; "Dr. Danes Names Dean, P. Rudolph Architecture Department Chairman," *New York Times*, 12 June 1957, p. 29; "Yale Gets New Dean, New Chairman, New Rating," *Architectural Forum* 107 (July 1957), p. 6; "Dean Smith to Retire; G. R. Danes Successor," *New York Times*, 30 December 1957, p. 10. Nalle was replaced as head of the first year at the end of the 1954-55 academic year by T. Gorm Hansen. See Calvin M. Trillin, "Committee Sanctions Architecture Revisions," *Yale Daily News*, 31 May 1955, p. 1; "Architecture Report to Get Official Study," *Yale Daily News*, 12 May 1955, p. 1.
45. Boyd M. Smith succeeded Sawyer. He had been appointed associate dean of the architecture school on 30 October. His appointment as dean was an interim one. See Yale University News Bureau, Release #216, 29 November 1956. See also J. G. Fritzinger, Jr., "Arts Division Replaced in Major Readjustment," *Yale Daily News*, 18 October 1955, p. 1.
46. "Yale's Hospital-Design Fellowship," *Progressive Architecture* 39 (April 1958), pp. 115-7. The award-winning project by Martin Kirchner and the 1957 award-winning scheme by John Houk reveal a diagrammatic approach to design more involved with broad functional decisions than with the issues of structure and space-making they imply; the 1958 hospital schemes by Martin Kirchner and Marc Goldstein indicate a change of emphasis shifting from issues of diagrammatic planning to those of form, no doubt a direct reflection of the change of direction in the department caused by the arrival of Paul Rudolph. See "Master's Thesis and Magnus T. Hopper Fellowship Thesis," *Progressive Architecture* 40 (October 1959), pp. 180-85.
47. Harold Fredenburgh, letter to author, 13 March 1974.
48. David McCullough, "Architectural Spellbinder," *Architectural Forum* 111 (September 1959), pp. 136-37, 191, 202.
49. Vincent Scully, *The Shingle Style Today, or The Historian's Revenge* (New York: Braziller, 1974).
50. Vincent Scully, *The Earth, The Temple, and the Gods* (New Haven: Yale University Press, 1962).
51. Jaquelin Robertson, letter to author, no date, 1974.
52. "Physics Building for Yale," *Architectural Record* 114 (September 1953), pp. 141-47. See also Vincent Scully, "Architecture and Man at Yale," *Saturday Review of Literature* 47 (23 May 1964), pp. 26-29.
53. See "Locus for Gown, Focus for Town," *Progressive Architecture* 48 (February 1967), pp. 90-97.
54. For an account of the art history department's role in advising President Griswold, see Vincent J. Scully, Jr., "Ingalls Rink. It's a bird, it's a plane, it's . . ." Yale/Harvard Hockey Program (New Haven: February 1974), no page nos. See also Walter McQuade, "Yale's Viking Vessel," *Architectural*

Forum 109 (December 1958), pp. 106-11, and "Yale's Hockey Rink," *Architectural Record* 124 (October 1958), pp. 151-58. 55. William Huff writes in reference to Rudolph's early tenure as chairman: "I only knew of the crushing blow he[Rudolph] dealt Lou Kahn (whom I met at the RR [sic] station on that particular return trip from Yale), when he [Rudolph] plaster-boarded and black vinyl-based over the bricks, blocks and concrete of the Art Gallery (while Lou crited [sic] on the top floor) and of his later unconvincing flirtations to have Lou return as critic" (Letter to author, 26 February 1974).

56. Craig Whitaker, "Reflections on the Yale School of Architecture," no date, ca. Feb. 1974. One is reminded of the lecture Philip Johnson gave at Yale in which, as Scully recalls it, Johnson stated, "I'd rather live in the nave of Chartres Cathedral with the nearest john three blocks down the street than in a Harvard house with back-to-back bathrooms."

57. John K. Copelin, letter to author, 19 February 1974.

58. Gibson Danes, the dean, was preoccupied with the relationship between the varying departments in the school and with the relationship of the school to the other professional schools in the university, Yale College, and the university administration in general.

59. See Paul Rudolph, "The Architectural Education in U.S.A.," *Zodiac* 8 (1961), pp. 162-65. Portions are quoted by Russell Bourne, "Yale's Paul Rudolph," *Architectural Forum* 108 (April 1958), pp. 128-29, 192; see also Rudolph's "Six Determinants of Architectural Form," *Architectural Record* 120 (October 1956), pp. 183-90, in which Rudolph castigated the "early theory of modern architecture" for its limited focus. See Rudolph, "Changing Philosophy of Architecture," *American Institute of Architects Journal* 22 (August 1954), pp. 65-70 and also, Rudolph, "Regionalism in Architecture," *Perspecta* 4 (1957), pp. 12-19. For varying assessments of Rudolph as an educator see Peter Collins, "Whither Paul Rudolph?" *Progressive Architecture* 42 (August 1961), pp. 130-33 and Henry Russell Hitchcock, "The Rise to World Prominence of American Architecture," *Zodiac* 8 (1961), pp. 1-5. See also, *Architectural Record* 131 (January 1962) for an interview between Jonathan Barnett and Paul Rudolph.

60. See interview between Jonathan Barnett and Paul Rudolph, *Architectural Record* 131 (January 1962), pp. 12, 62, 74, 84.

61. Tigerman's project is published in "Travaux d'élèves à l'université de Yale," *L'Architecture d'Aujourd'hui* 35 (September 1965), p. LVI.

62. For a description of the "Yale Box," see Herbert McLaughlin, "Style of Education," *Progressive Architecture* 39 (July 1958), p. 11.

63. Der Scutt writes: "Yale was weak in stressing the importance of urban compatibility of [sic] planning structures with-

in an existing context. To that end, most of the Yale group is building imposing monuments of enormous striking beauty, totally isolated from the community" (statement, 15 February 1974).

64. The decision to go forward with the construction of the Art and Architecture Building was officially announced on 18 June 1960, Yale University News Bureau, Release #515. At the same time the Beinecke Library was announced.

65. Etel Thea Kramer, "Notes on the Yale School of Architecture, 1960-63," ca. March 1974, typescript.

66. In 1974 Scutt stated that, "The Amon Carter program was expanded to develop a more complex problem with more and different functions than required of Philip Johnson." Scutt went on to speculate that: "I would be curious to know if Roche and Dinkeloo saw the model and drawings which were on exhibit the entire summer of 1961 at the Yale Gallery. . . . There is an extraordinary likeness in concept between my thesis and their Oakland project. The section, steps, "brise-soleil," and massing are remarkably similar in some details. . . ." (statement, 15 February 1974).

67. Etel Kramer writes: "An awareness of the glamorous project, what would sell to juries, was a valuable awareness to acquire. . . . It showed itself particularly in the choice of thesis projects; buildings of social concern or with spatially unrewarding programs were politely received at best. I remember only Robertson surviving a housing thesis, but he proposed the radical rebuilding of Yale's Old Campus ("Notes on the Yale School of Architecture, 1960-63").

68. Long, letter to author, 11 February 1974.

69. *Ibid.*

70. For further discussion of Millard, see Robert A. M. Stern, "The Office of Earl P. Carlin," *Perspecta* 9/10 (1965), pp. 183-98, and Peter Millard, "Some Remarks on Architecture," *Perspecta* 9/10 (1965), pp. 179-82.

71. Whitaker, "Reflections on the Yale School of Architecture."

72. Albers retired in June 1959 and was succeeded by Bernard Chaet. See "B.R. Chaet Names Art Department Chairman," *New York Times*, 11 March 1959, p. 23. Chaet was succeeded by Jack Tworokov in 1963; see "J. Tworokov Named Art Department Chairman, Art and Architecture School," *New York Times*, 8 April 1963, p. 44. See also Henry Russell Hitchcock, in his "Connecticut, USA, in 1963," *Zodiac* (1964), pp. 5-25.

73. Whitaker, "Reflections on the Yale School of Architecture."

74. See Vincent Scully, *Modern Architecture—The Architecture of Democracy*, rev. ed. (New York: Braziller, 1974), p. 50.

75. Mittelstadt writes: "My thesis was a last chance to do something far out and experimental before becoming tied up to the world of practicality for good. It was, therefore,

62 founded on irrelevance. I regarded it as a serious effort, Serge Chermayeff's apoplectic fit notwithstanding. It represented a full lockup with the formal principles of Paul Rudolph as I interpreted from then current work, notably the Boston Government Center" (letter to author, 28 March 1974).

76. See F. Kapler, "Tree-house, Ski House," *Life* 62 (24 March 1967), pp. 84-87.

77. David Sellers, letter to author, ca. March 1974.

78. *Ibid.*

79. C. Ray Smith, "Architecture Swings, Like a Pendulum Do," *Progressive Architecture* 47 (May 1966), pp. 150-57.

80. Sellers, letter to author, ca. March 1974. Chris Argyris, a professor of industrial administration at Yale, studied the studio teaching and jury review process at Yale from the point of view of social interaction and conditioning.

81. See "University community, partly because of provocative broadsheet distributed on campus with question 'Why Yale has gone up in smoke?' view with suspicion recent fire that caused unofficial \$500,000 damage at Art and Architecture School. . .," *New York Times*, 27 June 1969, p. 39; "New Haven Fire Department says it found no evidence of arson after 6 week probe of blaze that resulted in \$900,000 damage for Art and Architecture Building; rules cause of fire 'undetermined,'" *New York Times*, 29 July 1969, p. 39; "Arson Suspected in Fire at Yale Art and Architecture Building," *Architectural Record* 146 (July 1969), p. 36; "Fire in Yale University Art and Architecture Building," *Architectural Forum* 131 (July 1969), pp. 41-42; "Yale Art and Architecture: Restructured and Still Going Strong," *Architectural Record* 147 (March 1970), p. 37; and Paul Goldberger, "Yale Art Building—Decade of Crises," *New York Times*, 30 April 1974, p. 48, deal with the impact of the fire on subsequent developments in the school.

82. To the best of my knowledge, Colin Rowe first coined this phrase in a talk delivered at the Architectural League in the spring of 1974.

83. Initial announcement of this novel arrangement was made by President Brewster on 16 March 1966, Yale University News Bureau, Release #292. In connection with this appointment, Moore stated: "Stirling is a great architectural designer as well as a famous thinker; Venturi is one of the world's leading architectural intellectuals as well as a superb designer. . . . It was not until 1969 that Denise Scott Brown Venturi joined her husband and partner as an official occupant of the Chair."

84. Yale University News Bureau, Release #1, 2 July 1967. See also Mark Ellis, "Yale Goes to Kentucky . . . An Account of the Lower Grassy Trace Branch Community Center Project," *Interiors* 128 (December 1968), pp. 136-47; also, Robert A. M. Stern, *New Directions in American Architecture* (New

York: Braziller, 1969).

85. "Architects and computer experts confer on use of computer graphics in architectural planning," *New York Times*, 28 April 1968, sec. 8, p. 1.

86. See "Yale Dissects Vegas," *Progressive Architecture* 50 (March 1969), p. 50; also, Venturi, Scott Brown and Izenour, *Learning from Las Vegas* (Cambridge, Mass: MIT Press, 1972).

Figure Credits

Figures 1-6,9-13,15-20,22-35. Courtesy the author.

Figure 7. Drawing by Robert Cole.

Figure 8. Drawing by Gregory M.S. Gall.

Figure 14. Reprinted from *Philip Johnson: Architecture 1949-1965* (New York: Holt, Rinehart and Winston, 1966).

Figure 21. Photograph by Bill Maris.

Postscript: Kahn, Penn, and the Philadelphia School

Mimi Lobell

There have been many references lately to a “Yale-Penn Axis.” As a graduate of the Penn coordinate of this alleged axis, I must say that the link never occurred to me, nor has it occurred, to my knowledge, to my fellow colleagues of Penn’s “golden age” which is generally thought to have ended by the mid-sixties when many who were teaching there went off to become deans or heads of other schools.

I think more in terms of the “Penn-Point,” if you will. The point is that the University of Pennsylvania and the Philadelphia School were a focus of that once-in-a-lifetime energy and creative expansion that result from a convergence of sympathetic minds on all levels: administration, faculty, students, community, and city government. Not that all was smooth or that the ambience was without jealousy, political manipulation and misunderstanding; but there was a synergy beyond the norm in Philadelphia in the early sixties that can be seen as a model for architectural education, professional practice, individual growth, and municipal policy working together toward achievements in architecture that transcend the sum of the parts. The dramatic importance and lessons of this model have, I believe, been overlooked in the attempts to aggrandize individual architects and universities.

One of Penn’s weaknesses, which is why I haven’t been so critical of the idea of a “Yale-Penn Axis,” is that Penn people aren’t very good at promoting themselves (the Venturis and two editions of *VIA* notwithstanding). There is a classic story about Charles Enrique Vallhonrat, a principal in Kahn’s office and then chairman of the school, who upon being called up by *Progressive Architecture* for an interview responded: “*Progressive Architecture*? I don’t think I know that magazine. . . . No, we don’t give interviews.”

For years Romaldo Giurgola was reluctant to publish his firm’s work. As yet few people know about Karl Linn’s pioneering of vest-pocket parks, Robert LeRicolais’s or August Komendant’s advanced work in engineering, Edmund Bacon’s ideas and successes in urban design, or the innovative ways that Venturi and Giurgola taught history. Not to mention the impact of Dr. Humphrey Osmond (the psychiatrist who introduced psychedelic drugs to Aldous Huxley) as a visiting critic in Bob Geddes’s studio, or the interaction of

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Aldo van Eyck with Kahn and Venturi. As well as having a coherent philosophical core centered around Kahn, Penn, during G. Holmes Perkins’s deanship, was a place of serendipitous meetings, paradoxical insights, and evolutionary ferment.

The Penn architectural education differed greatly from Yale’s. When I was there we saw no connection between the two schools whatsoever. A Penn building was evaluated for the quality of its contribution to human experience and for its sensitivity to the surrounding contextual fabric, not for its visual or formal gyrations. A Penn student was encouraged to become an “anonymous architect” in the best sense. Geddes’s dormitories at the University of Delaware, Kahn’s Exeter Library, and Venturi’s Yale Mathematics Building are examples of visually modest buildings which fit comfortably with their neighbors while being outstanding works of architecture. Being a great work of architecture has little to do with short term “user need requirements” (the thrust of Robert Gutman’s critique of the Richards Medical Research Building). It has more to do with perceiving the universalities of being, experience, and institutions as the genesis of architecture—a sensibility that is little understood outside of the Philadelphia School. Kahn’s ability to sense these universalities and give them form are what made him a great architect—and his buildings far from mute. Vincent Scully’s insistence on the muteness of Kahn’s buildings attests only to Scully’s deafness.

While Penn was educating anonymous architects, Yale was grooming virtuoso formalists and highly visible “stars” like Paul Rudolph, Charles Moore, Jaquelin Robertson, Bob Stern, Jonathan Barnett, and Vincent Scully. I think that the current attempts to identify a “Yale-Penn Axis” have been grossly one-sided. They have been attempts to channel Penn’s unique synergy into Yale’s personalities thereby making very strange bedfellows of Charles Moore and Louis Kahn, George Howe and Frank Furness, or Bob Stern and Bob Venturi. Perhaps all that Penn gets out of it is publicity.

Everytime I go down to Philadelphia and talk to Steve Izenour, Ed Bacon, Robin Friedenthal, or any of the other Penn people who have stayed in Philadelphia, I go into a kind

64 of culture shock. The shock is in seeing the parochial concentration on politics and promotion in the New York architectural community while there are extremely important things going on in the Philadelphia School that will never reach a larger public or professional awareness simply because the people involved have neither the gift for, nor the interest in, the kind of promotion that is cultivated in New York.

In sum, I think that as an historical phenomenon, as a model for creative synergy on all levels relevant to architecture, and as a survey of some of the most important architects, planners, and engineers of our time—the Philadelphia School warrants further attention.

**A Selection from Working Fables:
A Collection of Design Tales for Skeptic Children**

Emilio Ambasz ©1974

Texts in architecture are not merely a neutral agency serving as a register of useful information for the design and construction of buildings. They are a primary part of the *creative* and *productive* architectural apparatus taking a different role according to the place they have in the process of design and interpretation of architecture. Moreover, in extreme cases, these texts, like architectural drawings, become entities having their own theoretical or aesthetic value which corresponds to their own internal structure, establishing in this way a reality that is autonomous from the building seen as the “natural” product of architecture.

Emilio Ambasz’s fables neither aim to be part of the creative process nor to be theoretical explication. They belong to a literary gender characterized by a particular structure that encourages the reader to look for meanings hidden beneath the literal surface of the fiction. This metaphoric structure, in its play with the substitution of an absent meaning that has to be found, produces an aesthetic pleasure similar to the one produced by poetic texts. In this sense, these fables do indeed have a strong *poetic function* in that they form a discourse centered in itself without any obvious practical function. However, they do not possess a *poetic structure*. This is only discernible in *certain* discourses which are characterized by a play through which they create, in language, structural equivalences between expression and content. In other words, poetic discourses, unlike these fables, are not

just a new development of meanings or content but fundamentally a work centered in the parallel development of content and expression.

There is another potential role for texts which may perhaps help us to a better understanding of these fables; this is the ideological/political role. This role, often implicit and superimposed on the other functions of text, always has as its goal to maintain and reproduce the status quo, rather than to create a new situation. This is precisely the case of these fables. The gender “fable” implies that a general principle of conduct is suggested through the presentation of specific examples of behavior. Here, different ideological utopias developed in the sixties, be they formal, communicational or related to a systems approach, are implicitly presented as examples for the interpretation of some specific urban environments and their institutions. But this resultant interpretation also contains important political implications. In one instance, the difference between New York—the imperial metropolis—and Buenos Aires—the dependent city—seems to be erased; in another, the political content of the texts and the reasons for the violent actions of those living in “La Città del Disegno” are suppressed. Elsewhere we are confronted with the inevitable *conservative* role of the University, which is supposed to maintain an existent ideology.

Ambasz’s fables are published here as an example of the ideological use of

poetics. On the one hand, they might be seen as a witty and provocative view of the present; on the other, they might be seen as a metaphor of the way in which society uses the seductive force of poetry as a mask by which to facilitate the consumption of its economic, political or ideological products.

M.G.

Emilio Ambasz was born in Argentina in 1943 and received his architectural education at Princeton University. Since graduating he has taught at Princeton and briefly at the Hochschule für Gestaltung at Ulm. While a Fellow at The Institute for Architecture and Urban Studies, he directed a study into “Institutions for a Post-Technological Society”; a project co-sponsored by The Museum of Modern Art. In 1969 he became Curator of Design at The Museum of Modern Art and in this capacity he has been responsible for a number of major shows.

66 Italy has remained a federation of city-states. There are museum-cities and factory-cities. There is a city whose streets are made of water, and another where all streets are hollowed walls. There is one city where all its inhabitants work on the manufacture of equipment for amusement parks, a second where everybody makes shoes, and a third, where all its dwellers build Baroque furniture. There are many cities where people still make a living by baking bread and bottling wine, and one where they continue to package faith and transact with guilt. Naturally, there is also one city inhabited solely by architects and designers. This city is laid out on a gridiron pattern, all city blocks are square, and each city-block is totally occupied by a cubic building. Its walls are blind, without windows or doors.

The inhabitants of this city pride themselves in being each radically different from the other. Visitors to the city claim, however, that all inhabitants have one common trait: they are all unhappy with the city they inherited; and moreover, concur that it is possible to divide the citizens into several distinct groups.

The members of one of the groups live inside the building blocks. Conscious of the impossibility of communicating with others, each of them in the isolation of his own block, builds and demolishes a new physical setting every day. To these constructions the members sometimes give forms which they recover from their private memories; on other occasions, these constructs are intended to represent what they envision communal life may be on the outside.

Another group dwells in the streets. Either as individuals or as members of often conflicting sub-groups, they have one common goal: to destroy the blocks

which define the streets. For that purpose, they march along chanting invocations, or write on the walls words and symbols which they believe are endowed with the power to bring about their will.

There is one group whose members sit on top of the buildings. There they await the emergence of the first leaf of grass from the roof that will announce the arrival of the Millenium.

As of late, rumors have been circulating that some members of the group dwelling in the streets have climbed up to the buildings' roof-tops, hoping that from this vantage point they would be able to see whether the legendary people of the countryside have begun their much predicted march against the city, or whether they have instead opted for building a new city outside the boundaries of the old one.

Anthology for a Spatial Buenos Aires, 1966

The Mythological Foundation of Buenos Aires

It seems to me a tale that Buenos Aires ever started:
I judge her as eternal as the water and the sky.

Borges, *Cuaderno San Martin*

Limits

Buenos Aires has as limits the Rio de la Plata to the East, the Brook to the South, the Pampa to the West, and the Viceroyalty to the North. Two sides of water, one of past, one of future.

Sides? She has only four, for there are only four cardinal points. Four faces and two doors. Through the door of earth the country enters, through that of water, he goes out.

Martinez Estrada, *Las Cuatro Caras*

Sky

The Argentine sky? Yes, the sole great consolation. For I have seen this sky from the limitless Pampa, punctuated here and there by a few weeping willows, unlimited, shimmering in the day as in the night with a blue transparent light or swarming with stars. This celestial countryside is on the four horizons.

Le Corbusier, *Précisions*

Pampa

68 Pampa, Indian voice for space, land
where man stands alone as an abstract
being who would have to recommence
the history of the species—or to
conclude it.

Martinez Estrada, “Los Señores de la
Nada”

Yearning plain, dematerialized;
Metaphysical peace. Divine geometry
Of abstract horizons and stripped land.
Landscape of the space, dreams of the
firmament
Glory of solitude in savage ambits
Mane, wings, and clouds for the winds’
joy.

Larreta, “La Pampa”

River

First he was believed to be a sea: the
sweet sea; now we know that he is the
estuary where two rivers come
together. Tomorrow, it will be said that
he is still the Pampa that here becomes
water, in the same manner as in other
parts he becomes roofs or sky.

Martinez Estrada, *Cabeza de Goliath*

Other beautiful rivers
have various colors . . .

Other, are deeper,
other, bluer, run
along delicate gardens
and magnificent forests.

You, sea of dark waters,
wide pampa of copper,
give distance
to man’s daydream . . .

You, Rio de la Plata,
have the horizon.

Yunque, “Loa al Rio de la Plata”

The Memorable Horizontal

All at once, above the first illuminated
beacons, I saw Buenos Aires. The
uniform river, flat, without limits to
the left and to right; above your
Argentine sky so filled with stars; and
Buenos Aires, this phenomenal line of
light beginning on the right at infinity
and fleeing to the left toward infinity.
Nothing else, except, at the center of
the line of light, the electric glitter
which announces the heart of the city.
The simple meeting of the Pampas and
the river in one line, illuminated the
night from one end to the other.

Mirage, miracle of the night, the
simple punctuation regular and infinite
of the lights of the city describes what
Buenos Aires is in the eyes of the
voyageur. This vision remained for me
intense and imperious. I thought:
nothing exists in Buenos Aires; but
what a strong and majestic line.

Le Corbusier, *Précisions*

Twilight

The hour of Buenos Aires is the afternoon, the hour of the desert. It is then when the city acquires her cosmical aura.

Twilight of the dove
Did the Hebrews call the beginning of afternoon . . .

In that hour of fine sandy light,
My roaming met with an unknown street,
Open with the noble ampleness of a terrace
And revealing on cornices and walls
Colors as soft as that same sky
That stirred in the background.

. . . and the environs of the twilight!
Gigantic sunsets occur exalting the depth of the streets, scarcely contained by the sky. To have our eyes whipped by the sunsets' rigorous passion we must resort to the outskirts which oppose both "pampas."

Faced with the metropolis' indecision, the houses at its edge assume a challenging role in front of that absolute horizontal, where the sunsets' promenade gradiosely like wandering steamers.

Borges, "Fervor de Buenos Aires"

Roofs

London and New York are metropolises symbolic of two islands. Buenos Aires has been engendered and conceived by the plain. Horizontal surface: this is the key word. New York is all facades. Buenos Aires is all roofs. From the sky New York is a honeycomb of masonry icicles. Buenos Aires is plains and sky. In the same manner as one has to see the Pampa from below because it continues until it fuses with the firmament (and it can be said that it is more sky than land), one has to see the city from 1,500 kilometers high (for the real facade of Buenos Aires are her roofs).

The city is an immense roof, carefully gridded, as if it were a pavement. A floor was laid over the earth, on top of this another, and thus the land gets built resembling the layers of pampean earth.

Martinez Estrada, "Desde el Cielo"

Streets

Buenos Aires is the faithful image of the great plain that, encircling her, has its straightness continued in the rectitude of the streets and houses. The horizontal lines overcome the vertical. The perspectives—of one and two storey dwellings lined up and facing one another for miles and miles of asphalt and stone—are too easy to be believed. Each crossroad intersected by four infinities.

Borges, "Las Calles"

Streets of Buenos Aires, designed for the long vista, all the way to the horizon. Through those straight infinite streets, along those gutters, the country empties into the cities, the cities empty into Buenos Aires, and all of them empty into the river.

Martinez Estrada, "Pampa y Techos"

Plazas

70 I want to talk about the plazas. In Buenos Aires the plazas—noble pools overstocked with freshness, congresses of patrician trees, stages for romantic rendezvous—are the stillwaters where the streets resign their persistent geometrical flow, break formation, and joyously disperse.

Borges, "Plazas"

Patio

With the evening
the two or three colors of the patio
grew weary.

The huge candour of the full moon
no longer enchants her habitual
firmament.

Patio, channel of sky.

The patio is the window
through which god watches souls.

The patio is the slope
down which the sky flows into the
house.

Serene.

Eternity waits at the crossroads of
stars.

How beautiful to live in friendship with
the shade

of a porch, eaves, and a well.

Borges, "Patio"

Ideal City

The man of the interior has stripped Buenos Aires of any materiality and transformed her into a formidable emporium of the best that exists in our reality and in our imagination. Thus, Buenos Aires is the center of a circumference formed by the most populated points and cultivated by the interior. They are all at the same distance. They are periphery as she is center. As in Borges' "Pascal," where nature is space, Buenos Aires remained, "an infinite sphere with a center in all parts and a circumference nowhere."

She is a kind of "civic divinity," the federal district that twenty-one provinces have envisioned as the other city; the other life; the certainty of greatness; "the ideal city."

Martinez Estrada, "Civitas"

Manhattan: Capital of the XXth Century, 1969

Manhattan, unencumbered by permanent memory, and more interested in becoming than in being, can be seen as the city of that second technological revolution brought about by the development of processes for producing and controlling information, rather than just for energy. It has, after all, incorporated the worship of communication with the idolatry of the industrial product and, by so doing, provided the ground for supporting any infatuation with the now-as-the-ultimate configuration of reality. However, seen in a different light, Manhattan may reveal an unforeseen potential for conceiving of a quite different notion of city.

Manhattan is, in essence, a network. If beheld as an infrastructure for the processing and exchange of matter, energy, and information, Manhattan may be seen either as the overwrought roof of a subterranean physical grid of subway tunnels and train stations, automobile passages, postal tubes, sewage chambers, water and gas pipes, power wires, telephone, telegraph, television and computer lines; or, conversely, on the datum plane of an aerial lattice of walking paths, automobile routes, flight patterns, wireless impulses, institutional liaisons, and ideological webs. In any of these roles, the points of Manhattan's network have been repeatedly charged, on and off, with different meanings. Entire systems and isolated elements have been connected to and processed by these networks, only to be later removed and replaced by new ones.

Were we willing, for the sake of argument, to suspend disbelief, forget coordinates, and imagine that all present structures have been completely removed, Manhattan's infrastructure would emerge—in all the complexity of its physical

organization, the capacity of its input-output mechanism, and the versatility of its control devices—as the most representative urban artifact of our culture.

Freed in this manner from its current limitations, we may, to further this transfer operation, remove Manhattan's infrastructure from its present context and place it, for example, in the center of San Francisco Bay, on the plains of Africa, among the chateaux of the Loire Valley, along the Wall of China . . .

Manhattan's infrastructure, thus liberated, belongs to all. But an infrastructure, though necessary, is not sufficient to make a city. The next step is, then, for all to undertake the postulation of its possible structures. The methods may belong either to remembrance or to invention, for, conceived as the idea rather than as the actual configuration, Manhattan's infrastructure provides the framework in which all crystallized fragments rescued from the city of the memory, and all figments envisioned for the city of the imagination may dwell ensemble, if not by reasons of their casual relationships (since no reconstruction is hereby intended), then by grace of their affinities. The outcome of such undertaking may be agitational, and render, if not actual proposals of structures, at least an explicit Inventory of Qualities of urban existence toward a yet to be defined "City of Open Presents."

In a first, *retrospective* phase, we may, as one of many possible approaches, assemble in a piecemeal manner any surviving fragments of the memory of the infrastructure:

Bologna's arcades,
Osip Mandelstam's St. Petersburg,
John Nash's Regent's Park,

72 Gabriel's Petit Trianon,
Katsura's promenades to observe the
sunset,
Mies' Barcelona Pavilion,
Wallace Stevens' wind on a wheatfield,
John Soane's house,
Frank Zappa's Los Angeles,
Baudelaire's fleeting instants,
Debussy's submerged cathedral,
Michael Heizer's landmarks,
Joan Littlewood's Fun Palace,
Ray Bradbury's brown clouds,
Le Notre's Gardens of Chantilly . . .

This tearing of the fragment from its former context, this rescuing of the irreducible word from its decayed sentence, involves not only the usual process of design by discriminate selection but suggests, moreover, a process of bringing together where, instead of establishing fixed hierarchies, the fragments rescued from tradition are placed on the same level in ever changing contiguities, in order to yield new meanings, and thereby render other modes of access to their recondite qualities.

In a second, *prospective* phase, the form of any structure to be assembled on the infrastructure is to come from the domain of invention.

But envisioned qualities do not come in wholes. They are to be apprehended as they rush by—partial denotators of an inversed tradition, of possible states which may become; and once grasped, they are to be dialectically confronted with the many meanings which can be temporarily assigned to our fragmentary experiences of the Present.

As the meanings of these structures can only be interpreted in the context of the relationships they establish with other structures, this process would generate new meanings which in turn would require further interpretation.

It is by this reiterative process that the envisioned structure would assume constructive powers. Insofar as they would question the context of the Present, they would assign to it new meanings; insofar as they would propose alternative states, they would re-structure it.

To culminate this long tenure in a fitting manner, the Governor of the North-Eastern Region conceived of creating a new city. Intent on minimizing the political and financial struggles which in the past had invariably deformed the destiny of other cities, he proposed that the new city be designed and managed by the University of the North-Eastern Region.

This University had been established more than a century ago, to contribute solutions to the problems of an evolving rural society. Having fulfilled its task with a modicum of accomplishment, the University was, nevertheless, becoming increasingly aware that the main areas of intellectual speculation and artistic imagery had been shifting from an anxious observation of the natural milieu to an anguished inquiry into the nature and praxis of the man-made environment. The Governor's intentions suited the University's need for intellectual expansion, and the proposed task was accepted.

The new city was to be the University's laboratory for urban and institutional innovations. Preventive health care, personal and mass transportation systems, different forms of neighborhood government and communal living and new working and leisure patterns were just a few of the ideas the University intended to test there.

The Grant Act which once had sponsored the creation of the original University was unearthed. By carefully stretching some of its original meaning, the Regional Legislature granted the University large extensions of public land. The University's financial arm—the Bank of Univercity, as the city was to become known—issued bonds on this land to finance construction. To avoid

land speculation, Univercity and its surrounding countryside were to remain the property of the North-Eastern University. Land for industrial use could only be leased, while to further experimentation in social groupings, housing leases would be signed not by a family, but by each of its members as individuals.

Another branch of the University, its Urban Planning and Development Institute, was put in charge of designing the city, supervising its construction, and managing the new city's infrastructural services. It was also to supervise some of its superstructural aspects, especially as they pertained to educational, cultural and leisure activities.

The new city's physical plan was to be based on the concept of open-ended systems. It was to provide an urban system capable of interacting with its surrounding context, and of receiving new or removing old sub-systems without unduly affecting the rest of the city's processes. The technicians of the interdisciplinary design team hoped that the city resulting from such a dynamic model would foster the maximum of social communication.

A varied and representative cross section of the Region's population willingly settled there, once Univercity's concepts and goals became known. In a few years, the population became stabilized at 100,000 inhabitants, and in a relatively short time, it became the much talked-about showcase its founders had hoped for. Naturally, in its first stages, Univercity underwent the normal adjustment problems, but on the whole it prospered as had been projected.

However, as time passed by an indefinable yet perceptible shift in Univercity's goals and behaviors began

to take place. No one has yet been able to establish exactly in what manner and why, but it is suspected that some of the experiments on which Univercity was based got out of control, generating totally unexpected secondary and tertiary consequences.

It would seem that the beginnings of the change were subtle and, in turn, gentle. It is assumed that it all began when, in opposite corners of the city, altars to Revolution and Redemption were built. Although no one actually believed in gods, playing off the divinities one against the other was perhaps a useful device for gaining terrain for their own human goals.

Later, the citizens established a cemetery in the center of the city. The Future was buried there several times, only to be exhumed periodically by a few who felt they could not go on without its forwarding image. In another part of the city, members of a much different group devoted themselves to exorcising the guilt of history by making collective gestures endowed, they believed, with the power to obliterate individual memories. These seem to have been the same who decided their newborn babies should be considered 120 years old. It is surmised that they did so not so much hoping that the ever-present knowledge of the end would prevent their engaging in harsh longings or the pursuit of vainglory, but rather wanting their children to grow up with the awareness that any wager against mortality was an insane challenge.

As generations changed, uncertainty, which in olden times used to dress itself up as language, gave way to purposeful silence. Music and mathematics became Univercity's form of mystical experience and epistemological transaction. Words, forgotten and aimless, roamed the city, gradually

74 returning to the chaos to which they had once belonged.

On festive occasions, the days blended into the nights as the inhabitants gathered to promenade their feelings and dance their passions. The rest of the time they remained in the quietude of their places, making objects or turning thoughts. With these creations, they hoped to reconcile their desires with their fears. It was felt that the power of these creations depended on their meaning not becoming known until they had become form, and the most powerful constructs were assumed to be those which remained clammed up in their recondite condition until ready to reveal themselves. Stones and water — and all examples of real and imagined creation — were revered as inner forms which had not yet revealed their signs.

Those without a gift for numbers and deaf to sound dedicated themselves to architecture. At one end of town they delineated a parcel of land in the almond shape of an eye, digging until water level was reached. With the earth that had been removed, they built a square platform at the opposite end of town. On it they drew an orthogonal grid, building at every crossing square towers ten steps wide and one hundred steps high. The first tower was made of sandstone and the last of ice, but all seemed to be of the same material, so subtle was the series and so large the number.

At this point, however, even conjecture must stop, for none can claim to know how or why Univercity disappeared. It might have been possible to surmise some of the changes which took place in Univercity by observing transformations which also occurred around that time in some of the neighboring cities which survived the disappearance of Univercity; but the

task is severely hindered by the fact that almost all records of the history of Univercity itself have literally vanished.

Numberless hypotheses are brought up about the end of Univercity. There are those who maintain that the Regional Government at first tolerated the unexpected turns Univercity had been taking, rationalizing it as a useful experiment which they could well afford, as long as it remained circumscribed. But later, as its influence began to pervade the ways of perceiving and acting upon reality of the people of other cities in the Region, the Government decided that it was imperative to bring Univercity to a fast and thorough end.

The speculative variations on the possible reasoning behind such a decision are immeasurable. While some sustain that it came about because Univercity taught a subversive alternative to the prevailing conditions, others believe that it was becoming increasingly evident to the people of the region that Univercity could only remain the exemplary model as long as they were willing to continue toiling to maintain an ideal they themselves could never hope to become.

Whenever a few of us risk gathering in secret to evoke its unbearable absence, we quietly tell each other that Univercity is still somewhere in the Region, transparent and silent by its own will. For us, Univercity is still here, waiting for none, but willing to be turned once more into a fable by the passing shadow of those who may unite for a perfect instant to bring its image to light.

The Space Between

Alison and Peter Smithson

This poetic fragment was written shortly before the death of Louis Kahn.

As a gesture to Kahn, the Smithsons sent this article to us and it is printed here in that spirit. The Smithsons see the basic contracts of American urbanism as one of the space between buildings. Their thesis is that while the Modern movement in Europe and America stressed the object-like quality of buildings and that traditional European urbanism was concerned with the continuous quality of building, American urbanism has a tradition of the "space between." If modern architecture can have any effect on future building it must be looked at for the capacity of its ideas to be regenerative. One of those ideas is the potential mediation of new buildings with old through what can be called the "space between."

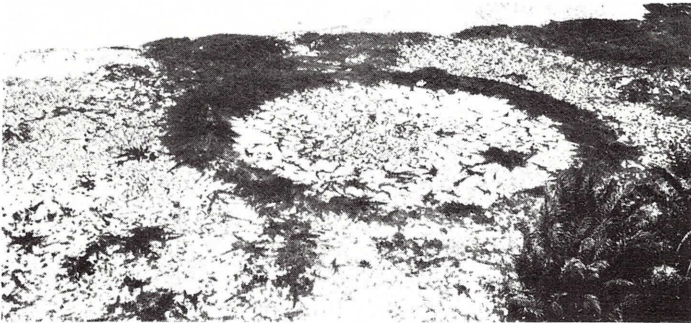
The implied lesson for Americans is that rather than looking to the European traditions for models of future urbanism, we might look to our own American spatial hierarchies for such clues.

P. D. E.

Alison and Peter Smithson were born and educated in northern England. Their past work includes Hunstanton School, Norfolk (1951-54); The House of the Future at the *Daily Mail* Ideal Home Exhibition (1956); the Economist Building, London (1960-64); and Robin Hood Gardens, Tower Hamlets, London (1963-72). Since starting their architectural practice in 1950 they have written

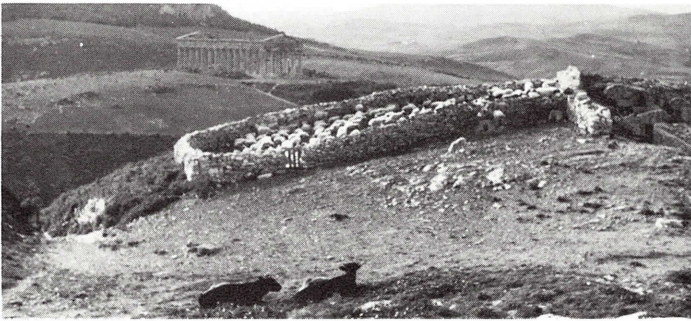
many essays, singly and jointly, and their books include *Portrait of the Female Mind as a Young Girl* (Chatto & Windus, 1966); *Urban Structuring* (Reinhold Publishing Corp., 1967); *The Euston Arch and the Growth of the London, Midland and Scottish Railway* (Thames & Hudson, 1968); *Ordinariness and Light* (M.I.T. Press, 1970); *Bath: Walks Within Walls* (Adams & Dart, 1971); and *Without Rhetoric* (M.I.T. Press, 1974).

Figure 1. *The Faery Ring, Djerba, Tunisia. Planting in the sand.*



1.

Figure 2. *Unfinished temple, Segesta, Sicily. 424-416 B.C.*



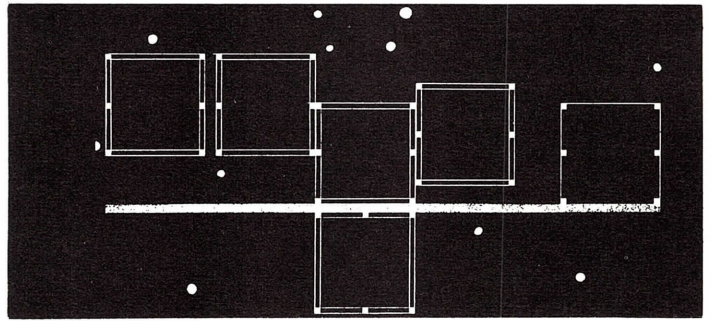
2.

Figure 3. *Empty barn, Low Middleton on the River Tees, County Durham, England.*



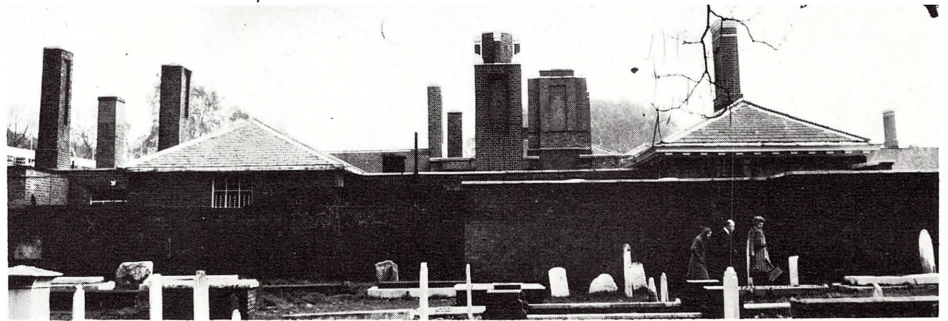
3.

Figure 4. *De Vore house, project. Louis Kahn, architect, 1955. Kahn house-like-a-barn.*



4.

Figure 5. *The Secretary's office, Chelsea Hospital, London. Sir John Soane, architect, 1818-19.*



5.

Figure 6. *Blenheim Palace, Woodstock, Oxfordshire, England. Sir John*

*Vanbrugh and Nicholas Hawksmoor,
architects, 1705.*

*Figure 7. Custom House, 1844, with
dock offices at right, c.1853, West
Hartlepool, County Durham, England.*

*Figure 8. Figures on a roof. Event
near Lincoln, Massachusetts.*

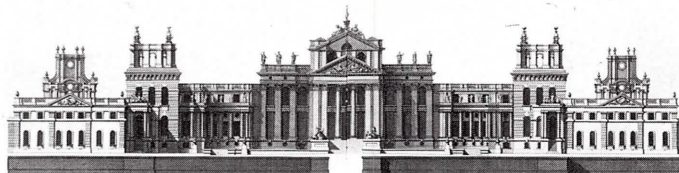
The most mysterious, the most charged of architectural forms are those which capture the empty air. The faery ring (fig. 1), Stonehenge, the standing columns of the temple whose cella walls have gone (fig. 2), the empty barn (fig. 3), the Kahn house of the square brick columns (fig. 4), the chimneys of the English Renaissance (fig. 5) . . . such forms are double-acting, concentrating inwards, radiating buoyancy outwards. The drama is set up by the ring of chairs at the round table before the knights arrive.

The chimneys of the English Renaissance can also be read as architecture's own break with Rome; the center simply gone, and in place of the all summing dome the play of almost-equals making magical emptiness in between and creating imaginary answering turrets beyond. In the case of Vanbrugh this may not be too fanciful a picture of the working of his geometric and symbolic imagination (figs. 6,7).

It is Whig architecture.

By this interpretation of the play of chimneys and of turrets and towers, the English Houses of Parliament are correctly housed. The feeling one has for the cluster as an ideal urban-form for the English city can be seen as one not unsupported by the fact of the common reading of the turretted form. For the Houses of Parliament form-decision was made by a politician not an architect.

To return to the list of those architectural forms which capture the empty air—leaving aside the faery ring and Stonehenge—the power of the groups of columns through which one sees the sky, or the landscape beyond, as at Sunion or Selinunte town, is entirely different from that of the complete ring of columns as at Paestum or Segesta. We are aware at once of the mysterious empty air inside the ring. Unlike Kahn we may not hesitate to enter, but we know as we pass between the columns that we break into a solemn and mysterious place. That a barn—a roof on open columns—should be mysterious too? Is it that we think of it as a temple, or that we feel that something that when full is a block, a solid, a mass, then suddenly a void, then a void anticipating a mass, is a mysterious event? For after all, the substance of house or office is very infrequently removed, the roof over



6.



7.



8.

78 only remaining, with clear air under and the landscape and the sky beyond. Or do we feel for the barn as we do for the renewal of a tree by the seasons? Perfect when in leaf—a mass—in summer, perfect when veined air in winter. Especially perfect if we feel winter and emptiness as a cleansing, and spring as a renewal, a miracle every year. Maybe a barn is like that.

But how do we see the Kahn brick-columned house-like-a-barn? Why did that seem so moving when it was first drawn (and not only to us)? Did we then feel it as temple, and temple as empty, and empty as barn, and barn as tree?

The Kahn house of brick columns was a brutalist place for the intellect . . . not barn . . . not temple . . . free of the wheel of seasonal labor . . . free of gods or ritual.

A frame in which a contemplative owner could camp out comfortably and appreciate nature, and by moving his screens see stars or moon as spectacle without himself becoming another's spectacle.

Before this house design, bricks had been unthinkable . . . and still were (even still are), but here and only here bricks became a brutalist tool. (Jaoul brickwork, for all its “naturalness” of Algerian laying, its texture could pass straight into decorative expressionistic Banham—brutalism . . . , “Banhamalism” or the Myopic’s brutalism.)

But it is not possible to read those chimneys so seriously (fig. 8). We are happy with them in a far more lighthearted way.

Figure Credits

Figures 1,2,3,5,7,8. Photographs by Peter Smithson.

Figure 4. *Perspecta*, 3, 1955.

Figure 6. Vitruvius Britannicus, Vol. 1, Plate 57.

**Karel Teige's Mundaneum, 1929
and Le Corbusier's In Defense of Architecture, 1933**

Introduction by George Baird

It is possibly no accident that the argument formulated by Manfredo Tafuri in his "L'Architecture dans le Boudoir" (*Oppositions* 3) finds a certain reflection here in this documentation of a forty-year old debate between the Czech critic and writer Karel Teige and Le Corbusier. These two texts, hitherto unavailable in English in their complete form and recently translated for us by George Baird and his colleagues in Toronto, set the stage for an argument that is by no means concluded. I am referring to this apparent opposition (ultimately denied by Le Corbusier) between industrial production and instrumentality on the one hand and composition and memory on the other. Formulated in these general terms of course, the more exacting aspects of this argument tend to become diffuse and in fact Teige's discourse only seems to become truly rigorous, in those infrequent moments, when he questions the necessary limits of formal manipulation in respect of the program. Rhetoric aside, Le Corbusier's response to this *sachlich* attack on the retrogressive monumentality of the Mundaneum is remarkable for the cogency of argument and the wit and poetry of its delivery. Despite the special pleading frequently involved, this is surely one of the most touching and frank texts of his whole career. And for all that the Mundaneum was evidently an idealization of an ideal program projected by the mind of a bourgeois intellectual, at once both cosmopolitan and liberal, a program and image more imaginary than "real," the paradox posed by Le Corbusier's last words

uncomfortably remains: "The *sachlich* I do not even discuss, conceding it to be evident, primary, inevitable, like the bricks with which one builds a wall. But what wall?"
K.F.

George Baird was born in Toronto in 1939. He studied architecture in Toronto, and in London, where he also taught at the Architectural Association School of Architecture and the Royal College of Art. He is co-editor (with Charles Jencks) of *Meaning in Architecture* and also of *Alvar Aalto*. He now teaches and practices in Toronto where his firm has recently prepared two major urban designs for the City Planning Board.

Architecture and Politics: A Polemical Dispute
A Critical Introduction to Karel Teige's "Mundaneum,"
1929
and Le Corbusier's "In Defense of Architecture," 1933

George Baird

80 Amongst the premiated submissions to the 1927 competition for the League of Nations at Geneva, were projects by both Le Corbusier and Hannes Meyer. It is well known that the jury's decisions were set aside, and that the building commission was instead awarded—by a committee of diplomats—to a group of Beaux-Arts architects. The storm of indignation which this event caused among the advocates of modern architecture, was one of the major factors leading to the founding of CIAM in 1928. Historically speaking, this well-known event has obscured, until recently, the fact that there also existed at the time, a profoundly important divergence of opinion within the camp of the modernists. The divergence surfaced at the 1928 CIAM conference, in which both Le Corbusier and Meyer played significant roles, but it was not yet divisive enough to prevent the conference from producing a unanimous manifesto. Still, it had been implicit in the work of those two figures, among others, for some time previously. Through comparative analysis of Le Corbusier's and Meyer's submissions to the League of Nations competition,¹ Kenneth Frampton has shown that this divergence, which he has characterized as "humanist" versus "utilitarian" was already manifest in the two celebrated 1927 projects.

In 1928, having succeeded Walter Gropius as Director of the Bauhaus, Meyer published in the *Bauhaus Zeitschrift*, the manifesto which began with the now-familiar words, "all things in this world are a product of the formula: function times economics." It is this declaration of Meyer's which is the point of departure for the dispute between Karel Teige and Le Corbusier which follows. Teige, although relatively unknown nowadays, was an important critic in the European avant-garde in the twenties and thirties. He was editor of *MSA*, a Prague-based international journal of modern architecture, and of *Red*, a radical monthly cultural review. At the same time, he served for several years on the editorial board of *Stavba*, a more locally oriented Czech architectural magazine. The specific occasion of Teige's dispute with Le Corbusier was the publication in 1929, in *Stavba*, of Le Corbusier's Mundaneum project—a "centre of world thought" proposed to be erected close to the League of Nations site. Although he had stood firm with Le Corbusier in 1927, in the modernists' protest against the Beaux-Arts take-over of the League of Nations competition, Teige decided in 1929 to make

a public issue of the divergence of opinion between himself, Hannes Meyer, Mark Stam, etc. on the one hand, and Le Corbusier, Sigfried Giedion, etc. on the other. Thus the Mundaneum serves as the vehicle for Teige's attack on what he sees as a reactionary formalism which threatens the future course of modern architecture.

That Teige's attack makes into a public split what had earlier been only a divergence of opinion amongst allies is interesting enough. That Le Corbusier decided to compose a reply² is even more interesting, given his characteristic tendency, throughout his long career only to engage in public polemic aloof, detached, and strictly on his own terms. Here we discover a tone which is not aloof, but intimate, not detached, but deeply implicating, even conciliatory (except in the firmness of the conclusions to which he finds himself "driven"), and which begins from terms of reference set up not by Le Corbusier himself, but by Teige's mentor, Meyer.

The explicit terms of criticism which the reader will encounter in the text are not political ones. Teige praises rigorous functionalism, an exclusive respect for material reality, and precise correspondence of program and building form. He attacks archaism, abstract metaphysics and formalism. In response, Le Corbusier accepts a large part of the thrust of Teige's argument, but insists that it doesn't really apply to him. To the extent that he rejects Teige's position, he relies on a highly rhetorical use of the term *sachlich* and tries to demonstrate the ultimate theoretical shortcomings of the concept of *Sachlichkeit* as the sole, and all-encompassing generator of architectural form.

Nevertheless, the politics of the dispute are not that difficult to discern between the lines. Teige's critique virtually makes explicit the leftist, materialist stance from which it springs. As for Le Corbusier, his *parti pris* is less clear (that this is so, is, of course, a part of Teige's criticism) but, throughout his text, there is apparent evidence of his vitalist, as opposed to materialist view of life, and of his inclination to invoke the "great man" conception of historical progress. (Paul Otlet, the cultural and political entrepreneur and promoter of the Mundaneum proposal, appears to have been another of the "great man" reformers, with which Le Corbusier sought to

associate himself throughout his career.)

Now this might seem to suggest that the dispute could be summed up as progressive versus liberal, revolutionary versus reformist, or simply as leftwing versus rightwing. And it is true that the political fate suffered by many of the protagonists of the modern architectural battles of the thirties would lend credence to these schemata. However, as noted above, Frampton preferred to characterize the split as “humanist” versus “utilitarian,” and this subtler schema would appear, especially in a long historical perspective, to be a more astute one, especially if our concern is with those political dimensions of human experience which arise in architectural form itself, and are not merely reflected through architecture. (This being, of course, one of the methodological points of difference between Le Corbusier and Teige in the texts which follow. Le Corbusier, incoherent though his political position may be, compared with Teige’s, places his central emphasis on architectural concerns which embody, but also transcend politics, while Teige’s commitment is to get the politics correct first, following which the architectural problem then becomes one of ensuring a perfectly precise correspondence between the ideological point of departure and architectural end product.)

“Instead of monuments, architecture creates instruments,” argues Teige. This is surely the key to the dispute, and to its ultimate political significance. For Teige assumes that “monuments” oppress men, and that “instruments” will liberate them. While there is some truth to this assumption, in the long perspective of two centuries of industrial society, it appears to be a truth of limited validity, both historically and conceptually. (It is surely worthy of note that pre-Marxist commentators on industrial society such as William Cobbett and Samuel Coleridge and late or post-Marxist ones like Jurgen Habermas and Hannah Arendt both view the potential of pure “instrumentality” in human affairs with profound reservations.)

Yet if “instrumentality” is a more ambiguous phenomenon in architecture than Teige acknowledges, the poignant progress of modern architecture since the thirties shows that “monumentality” is no less so. To appreciate the full irony of this

situation, consider how easy it is to imagine a left-materialist critic more militant than Teige in 1929 (someone, for example, in Moscow in 1931) mounting a critical exposé of Meyer’s Peterschule or League of Nations projects for secret “monumental” and formalist tendencies, notwithstanding their author’s functionalist avowals. On the other hand, one need not agree with the precise formulation of Teige’s critique of the Mundaneum to share his conviction that a critique was in order. For there *is* (in this observer’s view) about the Meyer projects done up to 1929, not a functional directness of expression, but rather a conceptual astringency which the monumental Mundaneum scheme clearly lacks. And reflection on the painful and problematical series of discussions of monumentality within modern architectural commentary during the thirties and forties only confirms one’s hunch that Teige’s conviction was sound.

Following the arguments of Arendt, we can say that the most important role of architecture is to create “a home for mortal men.” And this is a role which “instruments” by themselves are incapable of fulfilling. But the fact is that no architect, no critic, and no social commentator has yet formulated theoretical propositions which place monumentality and instrumentality in a satisfactory *architectural* relationship to each other. Ironically enough, we now practice in a period when the mainstream architectural vernacular comprises a thoroughgoing instrumentality which is itself monumentalized (think of any, average, corporate office block). And the putative leftist opposition to this mainstream tendency increasingly retreats to an anti-industrial craft building process.

For those among us to seek to re-establish a subtler, and more complex role for architectural thought, it seems eminently sensible to re-explore the substantive, detailed arguments of the protagonists in this historic, engaged, and reciprocally considerate dispute. By this means, it is intended to open anew a fruitful discussion of the kinds of roles the concepts of instruments and monuments might play in architecture and politics today.

- 82 1. Kenneth Frampton, "The Humanist v. the Utilitarian Ideal," *Architectural Design*, vol. XXXVII, n. 3, March 1968.
2. Although, according to Le Corbusier, his reply was written for *Stavba*, I have been unable to find it published in that magazine. The text which follows is a translation from the French publication which appeared in *L'Architecture d'Aujourd'hui*, 1933.

Mundaneum¹

Karel Teige

Translation by Ladislav and Elizabeth Holovsky,
and Lubamir Dolezel

Introduction

Mundaneum: it is a project to be built near Geneva, on international territory, on the lakeshore and at the foot of the Jura mountains—a city of world culture. It is a city which should, in the first instance, comprise the five traditional institutions of intellectual creativity: Library, Museum, Scientific Societies, University and Institute. Besides these, it is intended to be a center for professional, scientific, philosophical and artistic unions, social and artistic movements and the headquarters for educational and hygiene groups, and archives.

The Mundaneum, the idea of which was formulated and promoted by Paul Otlet, and the architectural design of which was prepared by Le Corbusier, is intended to be a center of the modern world, a home for a “wider and more realistic League of Nations.” It is supposed to be a great work of peace after war, “when the new epoch comes in the history of nations and civilization,” distinguished primarily by cosmopolitanism, internationalism, and mondialism, appropriate to a time when world-wide measures and opinions dominate the lives of nations and individuals more than provincial and personal ones do. The condition predicted by leading spirits for decades, and even centuries, has happened after six millenia of known development of mankind: the universal interdependence of collectivities and individuals across the borders of nationalities and states, an internationalism of culture and civilization, a victoriously progressing cooperation of the two billion people on the globe.

Concurrent with the development of mankind over and above natural physical and biological life, during the advances of civilizations, occurred the economic, political and intellectual life which is, today, entirely of an international nature. The League of Nations, which originated after the end of the greatest war in history, is an experiment in organizing and introducing order and permanent peace to a world-wide society. It is indisputably an incomplete organism. It includes only fifty-four of about sixty states, and it is a diplomatic and political organization. Great international professional societies and economic and intellectual unions have subsequently joined it. As only a political and diplomatic union, the League

cannot secure world peace and international cooperation. As Paul Otlet has shown, the League is a union of governments, not nations—an alliance of treaties, not of cultures. Its base is political, not cultural; it appeals to force, law, and compulsory means rather than to inner conviction and clear opinion. Peace, which is supposed to be the main occupation of the League of Nations, is a universal concern, not just a political one or, to put it another way, the preservation of security requires a “wider League of Nations,” of which the present League is perhaps just one part. Otlet understands by a “wider League of Nations” an “internationalist union” of scientific, economic and industrial associations and federations, several hundred of which currently exist throughout the world (the first international association was founded in 1842). The aim of these international unions would be to establish, in conjunction with the League of Nations, a center of world intelligentsia. This center would be the “Mundaneum.”

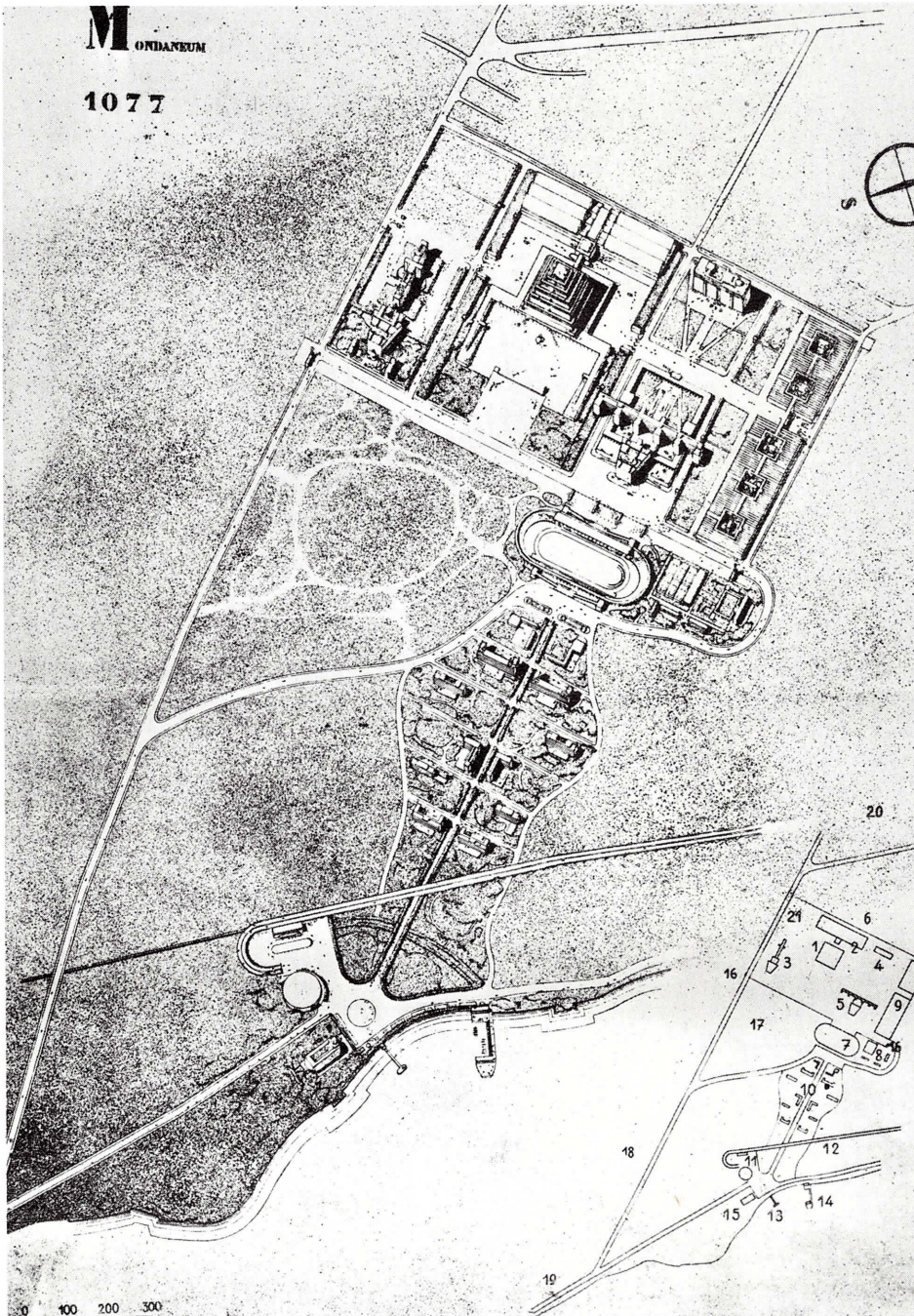
Otlet worked out an ideological outline for the Mundaneum which could be a monument to contemporary man. In his view, it would be the modern equivalent of what the Panathenaea, the Biblioteca and Museum at Alexandria, Ancient Chinese encyclopedias, medieval monasteries, abbeys and cathedrals, universities, kings' courts, escorials, Versailles, the French academy, the Russian academy of science, the encyclopedists and Port Royale were in their times. It could be an extension of the present highest institutions of intellectual and cultural life, such as the Institut de France or the British Museum, and the scientific institutions of Berlin, Leningrad and Washington. The Mundaneum as a center of modern world culture would be realized gradually; in the beginning, it would be necessary to build the buildings for the world museum and library, which could provide a temporary residence for the university and international unions. The existing International Labor Organization could join the Mundaneum (its present building on the Wilson Promenade of Lake Geneva could, according to Le Corbusier's plan, form an entrance to Mundaneum). The approach would be from Geneva. The Olympic committee, Society for Intellectual Cooperation, the Pan-American or Ibero-American Societies etc. could also be housed there.

The construction of the Mundaneum could initially be fi-

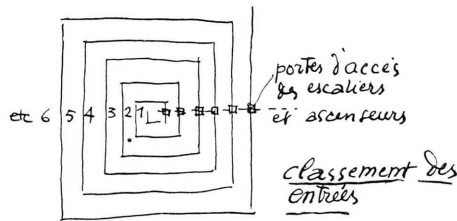
Figure 1. Mundaneum, Geneva. Le Corbusier and Pierre Jeanneret, architects, 1929. Site layout.

Figure 2. World Museum, Mundaneum. Conceptual sketch showing access points at each level to staircases and elevators.

Figure 3. World Museum. Conceptual sketch showing the free disposition of exhibition panels and the continuous spiralling circulation.



1. World Museum
2. The Halls of Modern Times
3. Buildings for International Associations
4. Library
5. University
6. University living quarters
7. Stadium
8. Sports center offices
9. Exhibition halls (continents, nations and cities)
10. Hotel and residential district
11. Railway: international terminus, parking and tourist center
12. Highway. Geneva-Lausanne, Bern, Zurich
13. Ferry port
14. Harbor
15. International Labor Organization
16. Light tower
17. Botanical and mineralogical gardens (extension of the Ariana game-preserve)
18. Highway to France through La Faucille, linking to Quai Wilson
19. Quai Wilson linking Geneva with the Mundaneum (Cité internationale)
20. Site for airport and radio station
21. Reserved site



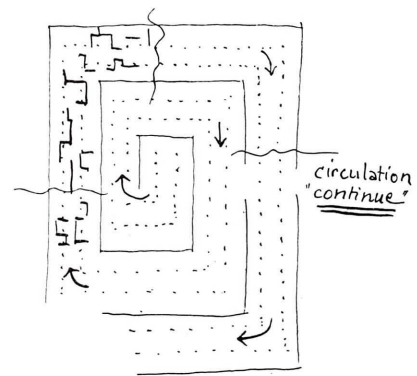
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nanced by donations from wealthy individuals, governments, municipalities, and from the funds of interested societies and institutions, in the same way as world exhibitions are created. The territory of the Mundaneum, an international city, of course has to be international. Switzerland could donate this territory and give the inhabitants of the Mundaneum permanent extra-territoriality, which would increase substantially the world significance of Geneva which, at present, as the seat of the League of Nations, and the International Labor Organization, is visited by 250,000 foreigners a year. It is now the seat of forty international unions and religious movements.

Description of the Project

The architectural and planning scheme for the Mundaneum was worked out by Le Corbusier (fig. 1). It is situated between Grand Saconnex and Pregny, on the plain which dominates the whole Geneva countryside and which offers a beautiful view in all directions. This plain slopes gradually to the lakeshore; there, a hotel district could be built which would adjoin the great game preserve of Ariana with its parks. The whole of Mundaneum could be an international park including the present park Mon Repos, the garden of the Palace of the League of Nations, and the International Labor Organization (ILO) and could be connected to Geneva by the Wilson Promenade. The Mundaneum not only offers beautiful scenery, but also can be seen from all directions—from Geneva, from the lake and the mountains. The plan involves the extension of the Wilson Promenade and a connection with the road to Lausanne, near the present ILO Palace. At a circular plaza, the Lausanne route would separate into two branches, a promenade along the present old road, and a highway for quick communication, which would ascend via a semi-circular ramp, up over a parking structure. This highway is designed as an elevated structure above and along the present Geneva-Lausanne railway.

The main approach to the Mundaneum goes from the ILO Palace through the middle of residential hotel districts towards the stadium and the Mundaneum precinct itself. The avenue is connected behind the hotel district to the original



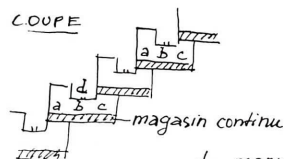
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road from Geneva to Pregny and Grand Saconnex—this road is being rebuilt, and leads also to Ariana, past the future mineralogical and botanical park. Finally, the highway through La Faucille, in the direction of France, will lead to the airport and to the radio station which will be built on the other side of Grand Saconnex. The railway station is proposed to be built on the open circular plaza in front of the ILO Palace. The railway passes underground through the Mundaneum. A round building for parking and autoservicing, a port for ferries, and a harbor for yachts and motor boats are located on the same plaza.

The Mundaneum itself is located on top of a plateau and has in addition to the main buildings, a large open area for future expansion. Light towers which illuminate the whole architectural complex at night are located at the corners of the south-east side.

The following buildings would be included within the Mundaneum precinct proper:

I. World Museum. The purpose of the World Museum, according to Otlet, would be to demonstrate the present state of the world, its complex mechanism, the community and interdependence of the individual phenomena of life, and the general and permanently important problems of life. Here the world would be divided into three categories according to location, time, and type. Besides these, there would be sections for the organization of the world, for art, and for education. The museum would be arranged as follows: (1) National and Geographical sections: a composite picture of the territories, topography, natural resources, population, economic and social circumstances of individual countries, politics and laws, and intellectual life; a picture of the contributions of countries to civilization and to culture and their borrowings from these; (2) Scientific sections: nature, man (physical, intellectual and moral), society, intellectual life, politics, infinity (philosophy, religion); all divided according to geographical and national types; and (3) Historical sections giving a synoptical view of the development of mankind: a short reconstruction of civilizations, a synthetic universal history, more detailed representations of the nineteenth century, ideas of revolution, industrial progress, colonization and the twentieth century, world war and revolution, and new social



d = manutention (chemin de fer) } lumière régulière
 a = objets } égale partout.
 b = lieux
 c = temps

4.

86 problems. The section concerning world organization would show the structure and a picture of the League of Nations and its activities. The section on art could show a universal history of artistic creativity, the development of aesthetic conceptions, the techniques and social mission of art. The section on education could show details of school systems.

The overall conception on which the World Museum would be based is completely new, differing from the programs of other museums; it would be a synthesis of existing geographical, historical, technical, commercial and social museums. The only things in common with the traditional idea of the museum would be that the collections would be on view at any time and would be accessible to everyone. The museum would collect vernacular and characteristic things, not rare and costly objects; copies, casts, facsimilies and reproductions would suffice. Its aim is not preservation, but systematic exposition and demonstration, an encyclopedic and composite museum, a tool and aid for research and scientific work, the collections of which are accessible at anytime (like school collections). It would be under continuous critical review and could be reorganized any time, so that its usefulness could really be maximized. This whole museum is supposed to be a sort of "idearium"; a picture of the thoughts that are hidden under facts.

Le Corbusier worked out the design of the World Museum in accordance with this program formulated by Otlet (figs. 2,3, 4). The basis of the museum is threefold in character (categories of place, time and kind), therefore a triple aisle unwinds in a spiral. The top of the spiral is the prehistoric epoch; descending, it becomes wider and so incorporates more and more space for the detailed collections of recent centuries. Designed in the shape of a graduated pyramid, the building has no staircase. Unless one uses the elevator, one enters by spiral ramps 2,500 meters in length from the ground level to the top. The visitor enters the museum from the top, and as he comes down, the collections unwind before him in chronological sequence. The museum halls open onto balconies which give a panoramic view of the mountains, of high and airy free space. Across from the doors to the balconies are located doors which open into the interior space of the pyramid—a great vault with bearing columns. Located at the bottom is

the "Sacrarium," something like a temple of ethics, philosophy, and religion. A great globe, modelled and colored, in a scale 1 = 1,000,000 with the planetarium inside, is situated in front of the museum building.

II. The Library of the Mundaneum is intended, according to Otlet, to be the world center of books; an institution to aid international cultural cooperation; at the same time it is supposed to catalog all "problems of ideas," to establish archives for all those problems, and to be a modern documentary encyclopedia (figs. 5,6). The Library is intended to contain a selection of the most important books of the whole world, stored in the safest place away from the thunder of wars, to be accessible in all its areas at all times, notwithstanding the fact that some of its books may be prohibited or confiscated by some states. Thus the Mundaneum Library could preserve for mankind books and ideas censored even in their own countries, and could give them an assured outlet. At the same time it would be a temporary asylum for the libraries of states whose territories are the scene of war. To be organized by international unions and scientific societies, it could collect the following: (1) all official state publications; (2) publications of scientific, social and pedagogical societies and institutions; (3) journals; and (4) the most important daily newspapers. The library could obtain these documents free of charge. In addition, it could require one compulsory free copy of every book for which exchange is made by the international exchange service; it could get authors' copies, duplications from libraries, bequests, gifts, etc. As well as collections of books, the Library could have records of laws, lists of inventions, statistics, manuscripts, modern archive material, sheet music, photography, phonograph records, films, etc. Le Corbusier designed the Library building as a large prism standing on pilotis, the main floor being entirely given over to two entrance halls, one for employees and one for visitors. The inside of the prism is empty, and there, steel shelves, glass cases, conveyors, a freight elevator, pneumatic chutes, etc. are installed. The elevator and ramp for visitors are located in a sort of glass cage. The reading rooms are located on the top floors of the building, as are the administration offices, changing rooms and a restaurant with a terrace.

III. The Building for International Associations is intended

Figure 4. World Museum, Mundaneum, Geneva. Le Corbusier and Pierre Jeanneret, architects, 1929. Sectional sketch showing the integration of the exhibition "spirals" with an external servicing track. Archive storage is incorporated under each gallery level.

to be a building to house the permanent secretariats of various international associations or their representative offices; it is a building for congresses, conferences and meetings. It is the palace of the "estates of culture," housing, at one and the same time, artists, scientists, educators—a building of peace and social work. During individual congresses, the Mundaneum could organize "world weeks." This building is a large structure with permanent offices and a hall for commissions and committees. The building is directly connected with a congress hall for 3,000 people, which is designed according to laws of acoustics (formulated by Gustave Lyon) and visibility. Here, Le Corbusier has taken advantage of his experience in working on the project for the Palace of the League of Nations at Geneva, and the theater hall for the Palace of the Soviets in Moscow. Interior circulation is provided only by elevators and ramps, not even this building has staircases.

IV. The World University is the center of international university studies; it is intended to be the world's highest educational institution, for the purpose of educating students from around the world. The idea of this university was proposed already in 1920 by the Confederation for International Student Cooperation. It could be a university of international vacation courses, open to all, without reference to previous education and certificates. The prime interest of the university would be science and education, with special emphasis on questions of international significance, such as diplomacy, economics, sociology, labor relations, journalism, and welfare. In addition to this university, it would be necessary to establish in the Mundaneum other international schools for all degrees, from preparatory school on up. Incidentally, there is at present in Geneva an International Institute for Advanced Studies and an interesting experimental international school for children.

Le Corbusier has situated the university in the middle of the Mundaneum precinct as close as possible to the museum, library, exhibition halls, congress and international association building, and stadium. The university has a large garden surrounded by a high wall, with a promenade which opens on to a large lecture hall. In addition to this lecture and theater hall, concert hall and cinema, the university building comprises a

sequence of small amphitheatrical classrooms which are located on several floors, one above the other. 87

V. Exhibitions (permanent and temporary) of continents, nations, and cities would be accommodated in five pavilions in parks surrounded by trees. These would be enclosed by another range of buildings containing study rooms, offices, etc. These pavilions are built in the center of sorts of courtyards, in the core of large exhibition halls which are covered by shed glass roofs. International exhibitions of various human cultural activities, for example, exhibitions of architecture and urban planning (up till now mostly incomplete and very expensive, arranged in the big cities of Europe and America) could here be put together economically, comprehensively, and in some cases permanently. For eventual expansion of these exhibitions or for semi-permanent pavilions, there are free garden spaces to the southwest of the exhibition buildings within the Mundaneum precinct. The Halls of Modern Times, which are designed for exhibitions of contemporary cultural creativity, and which are supposed to give a changing picture of present creative activity, are situated northwest of the World Museum.

In addition to these halls, in front of the university there is an oval space reserved for buildings, the need for which may appear at a later time, such as the Directory of World Security and Peace Service. In addition to the buildings designed by Le Corbusier, Otlet suggested a world institute which could be a synthesis of existing university institutes, technical laboratories and offices of social work. It would be a center of composite knowledge whose aim would be a synthesis of learning, bringing together the sciences, by means of comparative study and criticism of different research methods; it would study plans of social reorganization and transformation, searching for means of their implementation.

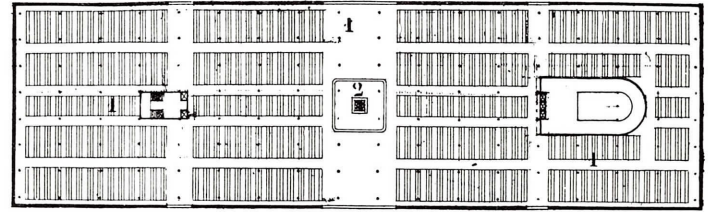
Outside the Mundaneum precinct itself, Le Corbusier located a stadium and playing field to be the center of physical culture, equipped for all eighteen sports which are included in the Olympic games. The offices of the Olympic Committee would be situated nearby; in addition, there would be a botanical and mineralogical garden (with eventual zoological pavilions), an airport and radio-telegraph station. Connected

88 to the Mundaneum would be hotel and university quarters. The hotel quarter is situated on the slope below the main precinct and is divided by the avenue which is the main approach. The hotel buildings are spread symmetrically through the gardens. Below them, not far from the lakeside, are communication points such as a railway station, a bus station, taxi stands and the harbor.

Criticism of the Project

When we study closely Le Corbusier's and Jeanneret's imposing project for the Mundaneum, we can recognize in the whole concept the many well-conceived architectural details of individual buildings (especially in the astonishing solution of the university with its amphitheatrical, tiered classrooms and large lecture hall), which have gained for Le Corbusier's work the admiration and esteem of an international public and have secured him a leading place in the history of international modern architecture. However, the whole conception, as we can read from the site plan, gives a puzzling, archaic impression. The museum building in the shape of a pyramid has no functional justification and produces an effect of an old Egyptian, or rather old Mexican atmosphere. The spiral organization of spaces, giving ever-increasing areas of space to more recent periods, is achieved at the cost of ending up with a dark interior hall (the Sacrarium makes a virtue of this necessity) and at the cost of extremely difficult access from the top, by means of long ramps, and inadequate elevators. Then too, the proposal gives light to the collections by slit windows which are disposed without respect for the compass points.

An axonometric view of the Mundaneum gives the effect of an aerial photograph of an archeological site—Egyptian, Babylonian, Assyrian, ancient American (Mayan and Aztec) or Peruvian. These historical reminiscences are striking. Remember the important building works of the Mayas, who were the zenith of ancient American civilization. These well-known ruins (Uxmal, Chichen-Itza, Palenque on the Yucatan peninsula, and Copan in Guatemala) represent a “metaphysical architecture” of special cities of religious cults and burial grounds, cities of rulers and priests; pyramids, cathedrals of



5. the sun, moon and stars; holy places of individual gods; graduating pyramids and terraced palaces with architectural objects conceived in basic geometrical shapes of cube, cylinder, prism and pyramid, the main axis of which is symmetry with emphasis on horizontality. Le Corbusier's architecture for the Mundaneum project is not, of course, decorated with masks, ornaments and sculptures as the Mexican ruins are. It uses, of course, modern construction techniques and apparatus; but how can a work of modern architecture so strikingly resemble an American “antiquity”? Where do the roots of the non-modern, and in fact archaic, character of Le Corbusier's Mundaneum lie? To what origin should we attribute this architectural error and delusion? Actually, in our view, the first root of this misconception of the program lies in the program, the idea and theory of the Mundaneum. This idea is not alive, it doesn't originate from a vibrant, felt need; it is the fruit of the abstract and rarified speculation of intellectual coteries within the League of Nations. The Mundaneum will not, for precisely this reason, be realized in this form. In respect to architecture, the League of Nations showed its real face with its controversial decision concerning the Palace of Nations, and rejected, against the protest of all international authorities, and against all sense of honor, of loyalty and law, Le Corbusier's design, consenting instead to the most impossible of academic monsters. Thus it isn't reasonable to expect that the project for the Mundaneum, even if designed in a more historical and archeological character, would be accepted today with greater enthusiasm.

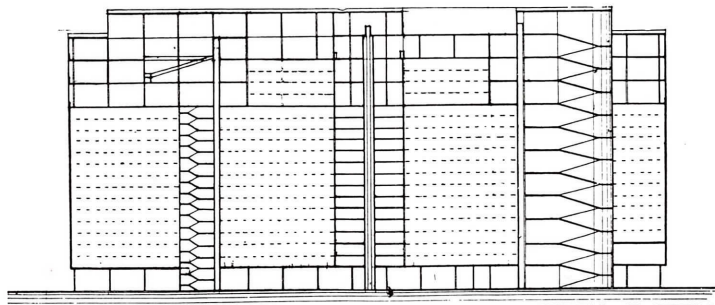
The whole ideological scheme for the Mundaneum, as explained by Otlet, is an illusion, a vain wish, a utopia; a music of the future about which the only certainty is that if it does happen, it will happen differently than Otlet and Le Corbusier have imagined. This is not the place to outline in detail the errors in the ideological program for the Mundaneum: To ask how a “Sacrarium” got into a town of modern science (could it just be that the idea of the pyramid led to the idea of a sanctuary?): To ask how Otlet imagines international cooperation to be a solution to questions of political, diplomatic and vested interests of individual governments, of military and national rivalry: To ask how a world institute under the supervision of the League of Nations, created from states having different social systems, could elaborate plans for the

Figure 5. Library, Mundaneum, Geneva. Le Corbusier and Pierre Jeanneret, architects, 1929. Plan of typical stack level.

Figure 6. Library. Section. Access into the Library is divided between staff to the left, books in the center and public to the right.

social transformation of the world. We can only mention that this ideological proposal of Mundaneum does not have a concrete rationale or a realistic chance of realization, as long as the League of Nations is a society of governments, powers, diplomacy and armies, and *not* a “wider league”; a union of nations, *not* a government built up on the basis of cultural work; above all, not an international political alliance of modern mankind, that being a conception which is completely unknown and which is probably not even in the program of the League of Nations, as Otlet and Le Corbusier seem to realize.

Not having an opportunity to analyze more closely the ideological program of the Mundaneum, I will try to analyze it as an architectural project. It is an oft-repeated and confirmed experience that the architectural investigation of problems and programs which are ideologically unclear, falsely stated, or moribund, cannot produce works of elementary clarity and purity. If the architect doesn't know what to make of a program, it cannot result in anything other than a half-baked product and compromise leading to mystification. Modern architecture was born not from abstract speculation, but from actual need, from the dictates of life, not the patronage of some academy or official group. Real need furnished programs: factories, bridges, railway stations, offices, housing for workers, schools, hospitals, hotels and apartments; from a fundamental understanding and shaping of these problems pure modern architecture was born. Today we have no architectural solutions for churches, palaces or castles, which, in the purity and precision of their creative construction, can match the architecture of modern needs (the Club for New Prague opposed the construction of a great new theater in Prague on the legitimate grounds that as long as the ideological program of the modern theater was not stated from the director's point of view, it was thereby unimplementable for the architect as well). Monumental and votive architecture, dedicated to whatever memorial of revolution and liberation; all present-day triumphal arches, festive halls, tombs, palaces and castles result in monstrosities. Examples of concrete and utilitarian architecture, as well as omens of a new metaphysical, monumental architecture both show clearly that, at the present time, architecture will fail in so far as it is not dictated by the actual needs of social and eco-



6. nomic life. The only aim and scope of modern architecture is the scientific solution of exact tasks of rational construction. An artistic solution of a metaphysical, abstractly speculative task, by means of monumental composition is the wrong approach, as is shown by the Mundaneum project. The error of Le Corbusier's proposal is the error of monumentality (a monumentality different from and less brutal than the German monumentality of the architecture of megalomania), the error of the “palace.” It reveals the danger (exposed already in Le Corbusier's book *Une maison, Un palais*) of the definition that a palace is a house, a “machine for living in” which is endowed with a certain dignity and architectonic potential. Le Corbusier sins against harmony; having formulated such a clear and comprehensible notion as the “machine for living in,” he depreciates it by adding vague attributions of dignity, harmony and architectonic potential, through which he can then embrace all aestheticism and academicism (I mentioned in a review of *Une maison, Un palais* in *Stavba*, VII, 6, that the slogan “house-palace” can lead to serious error, to the neglect of physical and concrete needs in favor of more or less fictional requirements). In its obvious historicism and academicism, the Mundaneum project shows the present nonviability of architecture thought of as art. It shows the failure of Le Corbusier's aesthetic and formalistic theories, which we, from the point of view of Constructivism, have always fought against: the theories of the Golden Section and of geometric proportion. In short, all those *a priori* aesthetic formulae which have formalistically been deduced from historical styles, in our times are unproven and unsupported.

Wagner and Le Corbusier, in spite of their understanding of the importance of practical and utilitarian requirements, see the ultimate aim of architecture, which they believe to be “queen of the arts,” to be to erect some cathedral or sanctuary; they ponder this cathedral whenever they are not employed in the solving of concrete problems. Or they ponder “palaces.” Poelzig wants to build “for the Lord”; there, it is said, is the beginning of architecture. Meanwhile, Gustave Eiffel, for example, despite his mistrust of all aesthetics, believes that he will equal Phidias, and that it is much more significant to be a great modern engineer than a craftsman of the past. In our century of machine civilization, which has no time for “art” and monumental architecture, any intention to

90 make art instead of houses, and monuments instead of schools, leads to hybrid shapes and impoverishes that work of natural and modern beauty which is characteristic of real, perfect things.

Measure the proportions of both sides of the rectangle of the Mundaneum's main precinct and you will find that they form a Golden Section. Moreover, all other proportions within this rectangle, for the sake of monumental unity and harmonic proportion, also form Golden Sections. Then too, the four corners of the World Museum's pyramid point exactly to the four points of the compass. The rational orientation of the windows of the museum halls, with respect to daylight, is sacrificed for numerical and astronomical symbolism—and this pyramid rises as dominant on the highest point of the Mundaneum. In its entirety, the Mundaneum is regulated by major axes whose point of intersection is the top of the museum pyramid; these axes again exhibit the proportions of the Golden Section. The university's great lecture hall is the symmetric equivalent of the volume of the congress hall of the ILO building. The university quarters are planned on the axis of the university, the reading rooms and the stadium, i.e., on the axis of the main avenue which symmetrically divides the residential and hotel quarters. The prisms of individual buildings in their proportions and the whole Mundaneum in its rhythm, are dominated by the Golden Section, the measurements of which, as current art history still believes, determined the harmony of the most famous works. Thus the Mundaneum is *Reissbrett-ornamentik*, a project born not from real and rational analyses of the program (because this program would not be capable of such an analysis and solution) but from *a priori* aesthetics and abstract geometric speculation, following a historic stereotype. It is not a solution for realization and construction, but a composition. Composition: with this word it is possible to summarize all the architectural faults of the Mundaneum.

Hannes Meyer wrote:

all things in this world are a product of the formula:
(function times economics)

so none of these things are works of art:
all art is composition and hence unsuited to a

particular end.

all life is function and therefore not artistic.

the idea of the "composition of a dock" is enough to make a cat laugh!

but how is a town plan designed? or a plan of a dwelling? composition or function? art or life????

The Mundaneum is composition; the expression of ideological and metaphysical imagination. For this visual metaphysics, which aims at "the highest things, the things of the spirit," at the "Godly mission of architecture," practical utilitarian aspects mean very little. The rectangular main precinct in the proportions of the Golden Section; major communication routes creating axes also in Golden Section; the pyramid marking symbolically and monumentally the points of the compass (the huge mass of the museum is supposed to have the function which can be performed by a pocket compass); all this shows that *a priori* aesthetic speculations were at the root of the architect's work, rather than analysis of real conditions. This is the composition of a city, not a solution of it. It is false to build a castle in the form of a hexagram, the plan of which constricts movement in the house and the lives of the people in it, which does not respect lighting and compass points, just because the wife of the contractor was the Countess Sternberg. But that is no more false than it is to solve the problem of a city of modern culture without regard for its practical functions, by means of the Golden Section, which art historians consider to be the formula of antique and Renaissance beauty.

Life is neither, of course, symmetrical nor triangular nor star-shaped, nor is it in Golden Section. Le Corbusier, by lengthening a side-front of the villa in Vaucresson, and projecting two small, non-bearing slabs on the front facade, so as to satisfy his "regulating lines," behaved just like Leon Battista Alberti (*De re aedificatori*) when he established the dimensions of the windows from the proportions of the facade and spaces without respect for their individually designated purposes; and when he described the staircase, for example, as an element of chaos in the good harmony of construction. Architecture as "art" cannot free itself from the *Hemmung* of antiquarianism. It remains in the tradition of Michelangelo. It looks to historical architecture for formal conceptions. It

uses the Golden Section and other compositional recipes, and draws these proportions in small reproductions with lines so thick that in fact they can make several meters of difference to the harmony of such proportions. This technique could have created the perfect schematic harmony of the facade of Notre Dame, but what if the present street in front is much higher than that for which this facade was composed? According to Le Corbusier, architecture as art believes that its mission begins where construction ends, namely with the rational solution and products of the engineer. It aspires to eternity, while the engineer responds to actuality. According to Poelzig, architecture as art begins where it does not submit to any practical purpose; building *für den lieben Gott*. In short, according to this argument, to become dignified as architecture, there must be added some “plus” to the rational solution. Now this “plus” can either help purposefulness and strengthen function, in which case it is simply purpose and function and is not a “plus,” or hinder it, in which case it is of course a minus. Further, it can neither help nor hinder, in which case it is superfluous and unnecessary, and that is a minus as well. The criterion of purposefulness: The only reliable criterion of quality in architectural production led modern architecture to discard “mammoth bodies of monumentality” and to cultivate its brain; *instead of monuments, architecture creates instruments*. If aesthetics intervene in the production of utilitarian results, there follows imperfection in architectural creation, and this is its mark. It obscures the material aspect, it is added to material values (such as comfort, temperature, stability); this being viewed as a necessary sacrifice which up until now people have felt obliged to make, due to cultural tradition, although it is proved that objects which mix practical function with an autocratic art form in one or other respect (more often both) are not gratifying. Only where no ideological-metaphysical-aesthetic intentions, but only the dictates of practical life direct the architect’s work, does the affection for art stop.

If we have occupied ourselves so carefully with the Mundaneum project, it is because we believe this work, whose author is a leading and foremost representative of modern architecture, should serve as a warning to its author and to modern architecture generally. The Mundaneum illustrates the fiasco of aesthetic theories and traditional prejudices, of

all the dangers of the slogan “house-palace,” and thus of utilitarian architecture with an artistic “addition” or “dominant.” From here it is possible to go all the way to full academicism and classicism, or on the other hand, to return to the solid reality of the starting point demonstrated so precisely by the motto, the “house as a machine for living in,” and from there, once again to work towards a scientific, technical, industrial architecture. Between these two poles, there is space only for half-baked projects and compromised solutions.

Note

1. “Mundaneum” was originally published in *Stavba*, vol. 7 (1929), p. 145. An edited version was published in *Le Corbusier in Perspective*, ed. Peter Serenyi (New Jersey: Prentice Hall, Inc., 1975).

Figure Credits

Figure 1. *L’Architecture Vivante*, Summer, 1929.
 Figures 2-6. Le Corbusier, *Le Corbusier et Pierre Jeanneret: Oeuvre Complète 1910-1929* (Zurich: Les Editions d’Architecture, 1964).

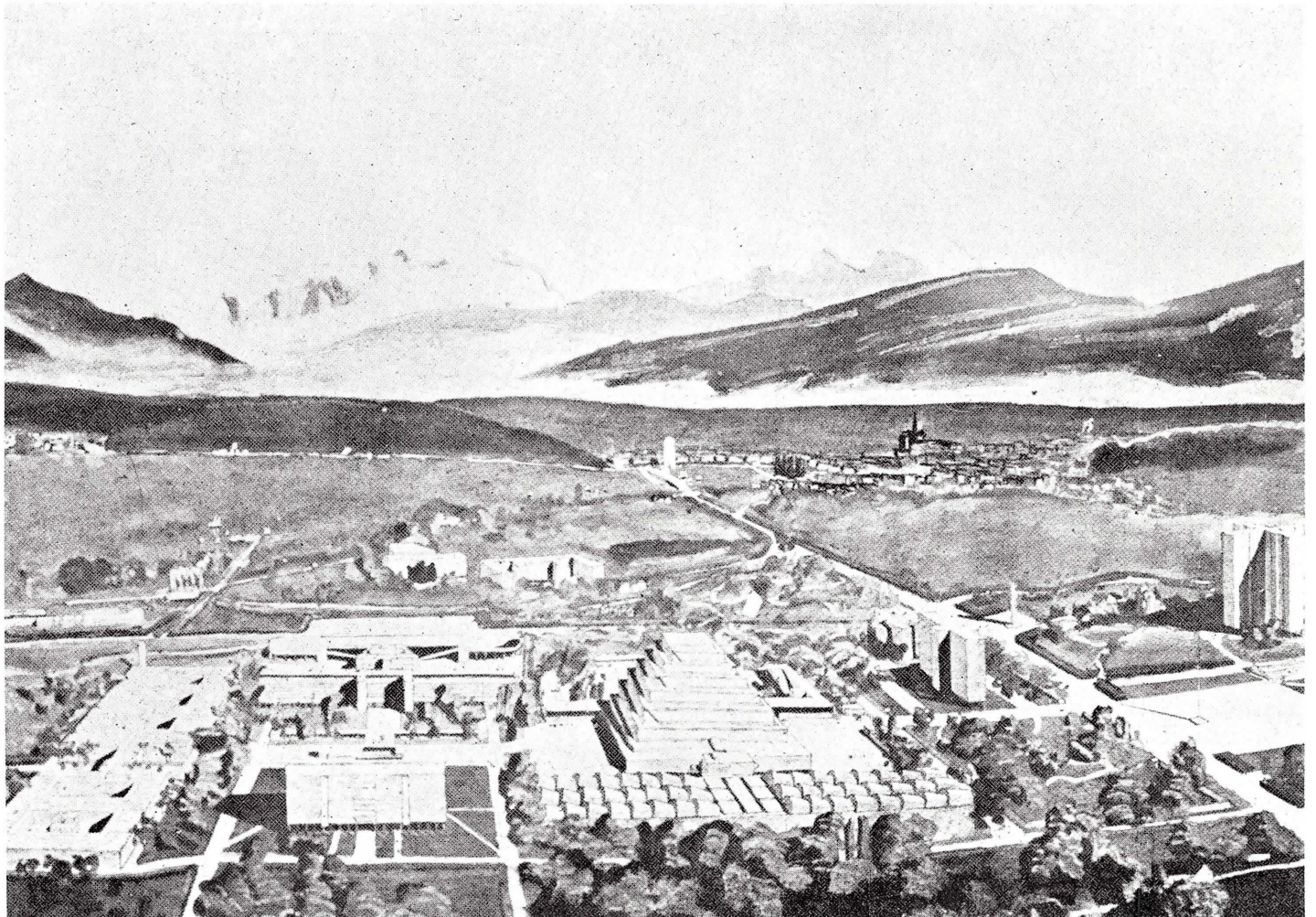
Figure 1. *Mundaneum, Geneva.* Le Corbusier and Pierre Jeanneret, architects, 1929. *Perspective.*

Figure 2. *Panoramic view.*

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1.



2.

In Defense of Architecture¹

Le Corbusier

Translation by Nancy Bray, André Lessard,
Alan Levitt and George Baird

*all things in this world are a product of the formula:
(function times economics)*

*so none of these things are works of art:
all art is composition and hence unsuited to a
particular end.
all life is function and therefore not artistic.
the idea of the "composition of a dock" is enough to
make a cat laugh!
but how is a town plan designed? or a plan of a
dwelling? composition or function? art or life?????*

Hannes Meyer

quoted by Karel Teige, *Stavba*.
1929

On the way to Moscow, 1929.

My dear Teige;²

I have decided to answer your long architectural dissertation which appeared on the occasion of the publication of my plans for the Mundaneum in *Stavba* in 1929. It is the first time that I have replied to criticism; God knows nevertheless that I am the target of it every day! I am taking advantage of the situation and am entitling these notes: "In Defense of Architecture," a very *Grand Siècle* title, I admit. Will you make *le Grand Siècle* synonymous with academicism too? (You wouldn't be entirely in error). I would like to show very clearly what have been my continuing motives and the reasons why I persevere in the researches which are truly the cause of the joy I experience daily in my work. Today, in the avant-garde of the *neue Sachlichkeit*, two words have been killed: *Baukunst* (architecture) and *Kunst* (art). We have replaced those by *Bauen* (construction) and by *Leben* (life). Two notions which have been refined by the effect of cultures and now need to be returned to an original mass infinitely vaster and more imprecise as well; there is in this a loss of clarity, but one accepts this, to tell the truth, in the desire to rediscover the pure origin of a line of thought that is considered to be distorted today. One would like to rectify this distortion. That having been done, it would then not be possible to talk objectively of the question without using the perfectly comprehensible terms "architecture" and "art." In 1921, in *L'Esprit Nouveau*, we too had gone back to zero in order to try to see things clearly. But if we did go back to zero, it was with the intent not to stay there, but only in order to reestablish our footing.

Your study, let me tell you, ought to have been directed to M. Nenot, a member of the Institute, and presently the architect of the League of Nations, rather than to me, because I believe I know the meaning of words in architecture and because your arguments, which (objectively speaking) having the same interest as my own as expressed in *L'Esprit Nouveau*, in my books and works, obviously find in me a convert. In taking up anti-subjectivity you indulge in a very fashionable game; and to tell the truth, you speak in a way that contradicts your thought and suggests the opposite of what you really are: a poet.

94 If since 1921, the Czechs have shone so brightly in the emerging sky of the new times, it is largely because of you people, your magazines, your manifestos, your poems, people such as Teige, Nezval, Krečjar, etc.; all of you who know so well how to make a stay in Prague captivating. And this not through erudite and profound discussions on the *sachlich*³ of existence, but by the vivacity of your reactions to the problems which preoccupy us all, and by means of this impulse—I would even say these wings—which lift the wellborn above the earth-bound, permitting them to distinguish, to predict, to draw the ongoing line of evolution.

Thus, I suppose that you, like many others among the best of the protagonists of the new architectural cycle, insist on playing hide-and-seek with words. If one deprives words of their meaning, no further dialogue is possible, and confusion results. In your case, it is dilettantism of a new romanticism, a romanticism of the machine. With the others (the practitioners), it is a police measure which is perhaps opportune (blinkers to keep people from losing their way, or better, blinkers with which to fix the eyes of the masses, so that they can be pushed like a flock of sheep into a new adventure with which they are not yet comfortable, but one which, according to the practitioners, will be good for them, even indispensable for them). And as with words, notions with an admittedly sentimental base which link those masses to the past, such as “architecture” and art”; there will be attempts to get them to admit that the machine age has ineluctably abolished art and architecture. Now if you adopt the attitude of the leader of the people, perhaps you are right also to acquiesce in measures of martial law. But as for me, I who claim fiercely to preserve my freedom in its entirety, my artistic or creative spirit, I intend to remain in my anarchy (in respect to your police measures) and to pursue day after day a passionate quest: the quest for harmony.

Let me tell you then, without further delay, that in my opinion, aesthetics are a fundamental human function.

I would add that this function surpasses, in its effect on the governing of our existences, all those benefits which have been brought by progress. Progress supplies tools. Tools are only weapons with which to overcome a competitor. In the

economy of a nation, progress is an event which is imposed and obligatory, an event from which one may escape only by starving to death. Essentially, progress is not an end but a means. It is in essence changeable, each day replacing the tools of the preceding day. Every tool of progress is perishable, especially any tool which is considered to be reduced to its specific utilitarian function. Hannes Meyer’s formula applies here very rigorously: function times economy.

Now, any tool, whatever it is, is conceived by a human brain. To facilitate the argument, let me adopt this concise classification: a man is a brain and a heart, reason and passion. Reason knows only the absolute of current science, while passion is the vibrant force which tends to attract whatever is at hand.

I think that any man in conceiving anything at all is moved in the search for a solution. Why is he moved? By definition, action equals movement equals impulse equals propulsion. To satisfy his fundamental egotism: to perform better than his neighbor, to create something which is less expensive, more beautiful. This notion of perfection (in any sense at all) is an aesthetic notion.

Let us talk about tools. Functions must be resolved, an end must be attained; that is to say, the functions must be realized; the manner in which they are realized will permit the formulation of an order among diverse solutions. Given equal efficiency, order arises in the realm of “elegance”—the “elegant solution” of the mathematician, the engineer. An exclusively aesthetic notion. I have written in *Une Maison — Un Palais* that all human acts tending toward the solution of a given problem imply the function of architecture; so that today, when mechanization has brought us to an enormous productive capacity, architecture is everywhere: in the battleship (Hannes Meyer), in the conduct of war, and in the form of a pen or of a telephone. Architecture is a phenomenon of creation which follows an order. Whoever talks of ordering talks of composing. A composition is the essence of human genius; it is there that man is architect and there indeed is the precise meaning of the word “architecture.” Why, since M. Nenot organizes modern functions badly, while insisting on using old tools, does it follow for you that composition is

the opposite of architecture? Is it because the obtuse exegetes have exhausted the term “composition” in designing these kinds of academic products? If the product is impure, it is the fault neither of the word nor of the function that it expresses.

Do you think that because of mechanization, born with the locomotive, man, who traces himself back to the pithecanthrope, has changed his basis? Do you think his basis is transformed because one day he suddenly acquired countless tools? Let us say simply that the harmonies to which man was secularly accustomed are now disrupted, and that he is himself disrupted and in confusion; that he doesn't see clearly any more and that you, yourself, are in the process of forging him a catechism which will enable him to cross to his destination; you are constructing him a pontoon bridge.

Right now I am crossing the plains of Poland. Peasants inhabit wood shanties as old as the world itself. Men and women, in certain places, are pushing plows similar to those of the time of the shepherds; they walk barefoot. They couldn't care less about *Sachlichkeit*, because, in their simple minds, they don't understand in what way it would be preferable for their country, defeated in international competition, to sow by machine ten times more crops than they would need for their own individual consumption. But they don't care about this; their houses are made as well as possible within their conception of beauty; the women even like to wear a scarf adorned with multi-colored flowers. You know very well that on Sunday they go to church (which is a form of aesthetics), to dances, and that they sing, which does them good because it serves no purpose other than expressing their passion by pursuits of a purely sentimental nature.

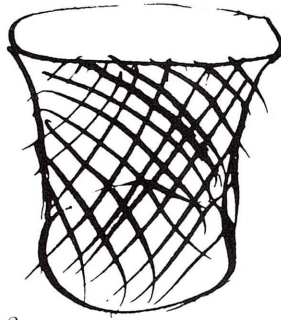
Sachlichkeit (an opportune police measure perhaps), implies in the spirit of its inventors an incompleteness. If one wanted to be completely *sachlich*, one would say: this works; but I expect it to please me, to satisfy me, to quench my thirst, to interest me, to titillate me, to overwhelm me, etc. Because, poet, I ask you: what is the motive that restrains men from throwing themselves into revolution, from pillaging everything and then starving to death in their ruins? It is that one can and one must consider as liberating only those tools which facilitate first, keep one abreast with competition, save time,

and finally, endow everyone, through an ordering of all their daily activities, with the capacity to think and dream about things. And you will grant me that it is this capacity, to eat every day his spiritual food—as meagre as it may be—which helps him to tolerate the hard life of *Sachlichkeit* and which gives him hope of a release, a sense of creation, a motive, which enables him to create, to conceive an idea. It is there that the reserve resistance of man exists, his human pride . . . or at least the illusion of it, if you want to be skeptical.

“Machine for living in” was the succinct term with which, in 1921, I challenged the academies. It is a reproach that I should address to M. Nenot, not one that you should put to me. Because, setting aside the dispute with the academies and returning to our own, I immediately ask myself the question: “for living in—*how?*” I pose here, simply, the question of quality. I can find it resolved only in composition, that is to say, in the manner in which the creation of *sachlich* objects has been conceived; such objects constituting the whole of my problem however small it may be.

Having thus defined architecture in this purely spiritual event of composition, I can see easily why the followers of the *Sachlichkeit* are so inaccessible to my arguments. It is that, in general, they operate at levels where it is thought admissible to be a great architect of music or of poetry but where, for some reason too complex to pursue in depth here, there is felt no imperative necessity of being *sachlich* in architecture, in respect to the objective conditions implied in plastic art (the whole visual question). You will grant me that architecture is a plastic thing, if for a moment, I limit myself to designating thus the ensemble of forms that our eyes perceive, because they are forms revealed by light. You know the statement with which, in 1920, in *L'Esprit Nouveau*, I opened a series of architectural studies; a statement as “cleansing” or as police-like as Hannes Meyer's definition. It is so on another level: “architecture is the masterly, correct and magnificent play of masses brought together in light.”

These forms are generated by a plan and a section. And we come here to the heart of the debate: the masterly, correct and magnificent play generated by the plan and the section.



3.



96 I am no longer speaking of the things that exist in a house, but of the way in which those things have been put together, that is to say, the way they have been “*architected*.” For we must not confuse an army with a battle. The army is made up of those things constituting the house. The battle is the architecture of the house. I grant that objects necessary and sufficient to make the house have been assembled, as I grant that soldiers, cannons and munitions have been assembled to join battle. But I don’t confuse my trade as an architect with those whose work it is to install heating, furnish materials, linoleum, or plumbing fixtures.

This is the crucial issue regarding the house. During these last decades, houses and palaces that are practically unusable have been built (and it is not my fault), but now an awakening has occurred: the “machine for living in” (a rectification of a moral order due to many heroic generations, from Ruskin onwards). It concerned itself with the revision of the basic functions of a house or palace, with the assembling of useful equipment. It was posing the problem. It was already a revolution. But you will, of course, agree that in our milieu these things are now understood and that this formulation of the problem no longer surprises us.

The current situation is this: what we now look to, what we now criticize or admire, is the resolution of a problem which has been posed.

It is there that the game is being played, that we gain ground, that we applaud or mock ourselves. It is there that the spirit takes delight. It is there that the shocking sensations arise, that matters of proportion emerge, that their inevitable influence operates on us, and that emotion bursts forth. We are gladdened or discouraged, merry or sad, enraptured or depressed. Are you going to try to convince me that your real sympathies do not lie there? That they are found instead in the objective equipment of your houses? In that case, take your argument to its logical conclusion: a millionaire’s house with all its technical opulence and its admirably functioning heating, lighting and appliances will easily thrill you.

Thus, you will destroy Diogenes’ bowl; Diogenes, who threw away his bowl because the hollow of his hand was sufficient.

This can serve as a summit of *Sachlichkeit*, but as a summit, also, of architecture.

And thus, there lies in this paradoxical example the solution which you and I search for sincerely: there can be no architecture until problems are posed; but there is architecture the instant a human begins to pursue a creative end, that is to say, to order, to compose the elements of a problem to create an organism. At this point, there opens before us the unlimited field of quality. You, poet, and I, architect, we are both only interested in the means that lead to the purest quality. Because—let’s not play hide-and-seek again—we know perfectly well, looking at ten solutions, the one which is elegant, and we will applaud it!

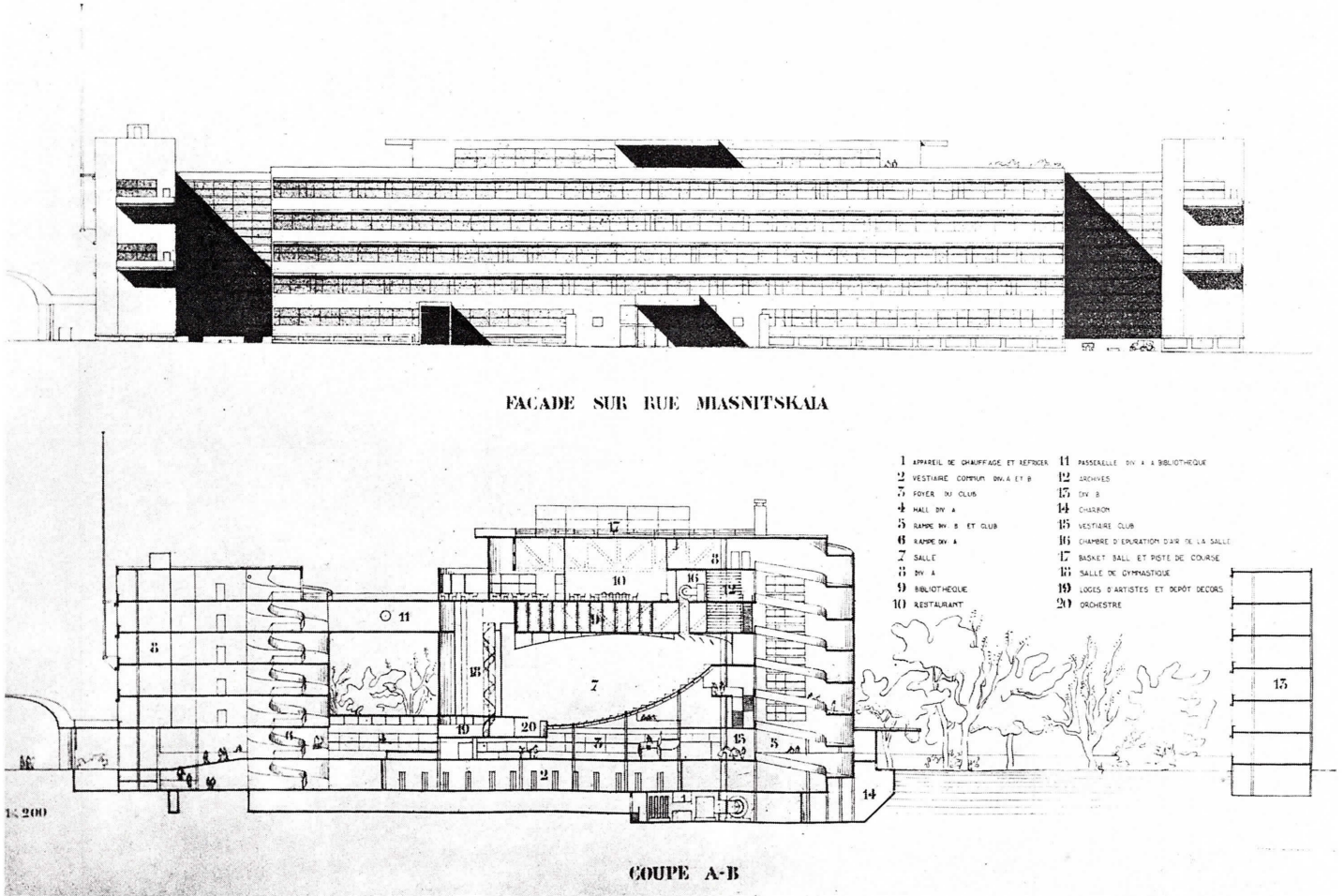
After all, let’s empty the bag of *Sachlichkeit* completely. Its equivocal basis rests on the postulate that is as affirmative as it is doubtful: “that which is useful is beautiful”—that same old refrain. (You will not contradict me if I reveal to any uninformed readers that such is one of the supreme rules of the *neue Sachlichkeit*.)

Last year, upon completion of the drawings of the Mundaneum project (which I will discuss further on), there was a minor revolt in our studio. The younger members of the group criticized the pyramid (which is one of the elements of the project). On other drawing boards, the drawings of the Centrosoyus for Moscow (fig. 4) were just being finished and had received everyone’s approval. They were reassuring because that scheme was clearly a rational problem of an office building. Nevertheless, the Mundaneum and the Centrosoyus both emerged from our heads during the same month of June.

All of a sudden the decisive argument popped out of a mouth: “what is useful is beautiful!” At the same moment Alfred Roth (of such impetuous temperament) kicked in the side of a wire mesh wastebasket which couldn’t hold the quantity of old drawings he was trying to stuff in. Under Roth’s energetic pressure, this wastebasket, which had a technically *sachlich* curvature (a direct expression of the wire netting), deformed and took on the appearance shown in the sketch above (fig. 3). Everyone in the office roared. “It’s awful,” said

Figure 3. Ironic sketches on the theme of form versus instrumentality; the wastebasket forcibly transformed from an object of mathematical elegance to a formless cage of increased capacity.

Figure 4. Centrosoyuz Palace, Moscow. Le Corbusier and Pierre Jeanneret, architects, 1927. Section and elevation.



4.

98 Roth. "Ah, but this basket now contains much more," I replied; "it is more useful so we could say it is more beautiful! Be consistent with your principles!"

This example is amusing only because of the circumstances in which it arose so opportunely. I immediately reestablished equitable balance by adding: "the function beauty is independent of the function utility; they are two different things. What is displeasing to the spirit is wasteful, because waste is foolish; that is why the useful pleases us. But the useful is not the beautiful." If we leave the realm of the plastic arts to investigate the effects of *Sachlichkeit* on the benefits of comfort, that is to say, to see to what degree we are satisfied by the progress of mechanization, I would argue as follows: mechanical luxury is not at all a direct function of happiness. Think of those rich people who possess everything; they automatically adapt, deriving no pleasure at all from their possessions. Those who lack everything are rendered slaves of their destitution; that is another matter altogether. The matter of *Sachlichkeit*, the present theme being proposed to contemporary architects, is obviously this: to equip a country with what is necessary and sufficient. A timely and urgent theme for which an immediate solution is indispensable; this is the socializing theme of the present age. But is architecture to be subsumed in this theme entirely? No! Granted that the leaders of some countries invite architects to apply themselves to it. Thus the question presents itself more clearly: an urgent and temporary measure. Yet, even then, there is no known way to avoid architecture altogether, since it is the quality brought to a solution containing precisely those potentials of architecture: order, composition, and so on.

As far as I am concerned I am personally deprived of all comfort. But I do create and I am perfectly happy. I appreciate this happiness even more, and I am tempted by other things even less, given that, carried along by life for such a long time now, I have suffered such deprivation.

If adaptation to the benefits of mechanization is automatic, and, following that, the joys that it procures, ephemeral, the fulfillment of spiritual joys is permanent, particularly those joys we owe to harmony.

On the way to Paris, returning from Moscow, 1929.

Let's come now to the "Mundaneum," which was conceived on all the most rational bases of modern architecture—of reinforced concrete and of steel, and in the strictest spirit of objectivity with respect to the individual development of each of its buildings.

To begin with, let me remind you that if today I declare myself for architectural lyricism, it is because my professional labor has driven me for fifteen years to the discovery of certain architectural laws drawn from the very source of technology, which I formulated in five concise points, in 1927. In 1914, I invented the Dom-ino houses (standardization, Taylorization, free plan, free facade, roof garden), but only in 1929 (the Loucheur Laws) could I put into practice the principles which I had clearly seen fifteen years previously.

In 1925, it was the Esprit Nouveau Pavilion that put forward (with the proofs of realization) a systematic architectural unity (technical and aesthetic), which could become an object for use in the plan for the Center of Paris. Note that I had transgressed (and how that cost me!) every rule of the exhibition, in rejecting any decorative art objects in our pavilion. But I included works by Picasso and Leger, considering them to be undeniable necessities. In keeping with works of architecture that manifested pure human creation, I also exhibited evidence of natural phenomena there: butterflies, geological and geographical documents, etc., as well as a number of "objective" objects, veritable standards of "reason" and of the "heart," with which to provoke thought. It was to this pavilion that Auguste Perret, vice-president of the Jury, refused to award the highest prize "because there," he said, "there was no architecture!" You see where we are in this battle of words and tendencies: it is with Perret's weapons that you today assault my Mundaneum.

In 1926-27 it was the Palace of the League of Nations. Accept this confidence: after three months of strenuous labor with ten draftsmen, three days before the project was to be shipped to Geneva, I designed the two elevations of the Palace, devoting exactly three hours to them—one and a half hours to each—all the plans and sections having already been

finished and inked. The elevations emerged quite naturally, the architecture being totally generated by the plans and sections.

In 1928 it was the Palace of the Centrosoyus in Moscow, an edifice housing the work and recreation of 2,500 people. But at that time, other desks in the studio had drawings of the Mundaneum on them. The same architectural germs inhabited the whole atmosphere of our studio. Yet you want to persuade me that the Centrosoyus, headquarters of the administration and soviet club, is modern architecture, while the Mundaneum, center of intellectual enquiry, is academic. Both of them were strictly based on the famous five points of modern architecture, that is, pilotis, roof garden, the independent skeleton, the free plan and the free facade. But of course, from your point of view, one is the essence of contemporary lyricism, the other merely the musty smell of old rulebooks. The Mundaneum is academic for two reasons: first, the matter of program, second, the matter of form!

Before going any further, let me remind you that in 1925, I published the book *L'Art Decoratif d'Aujourd'hui* in which I tried to break certain attitudes of that time, in chapters entitled: "The Lesson of the Machine," "Respect for Works of Art," "The Time of Architecture," "The Law of Pure White Paint," "White Wash," etc., and I ended with "The Spirit of Truth." Today one still encounters such attitudes. Remember that last year at Prague, seeking to counter your fears, your "mechanist" languors, I proposed a title to you for the conference that was improvised in the theater: "Technique is the Foundation of Lyricism." Before your compatriots, I covered a 7-meter long by 1.25-meter wide roll of paper with drawings in red and blue pastels. First I drew three circles. In the first one I wrote, "construction techniques, statics, strengths of materials, physics, chemistry"; in the second, I wrote, "sociology, changing needs, contemporary building programs"; and in the third I wrote, "economy, standardization, research on types, and Taylorization."

This fresco is kept, is it not, at the Architectural Academy of Prague? Perhaps, I can use several of those elements to clarify the present text for you, and to convince you that the "suspicious" project for the Mundaneum is really formulated

in accordance with the same principles. Do you remember how, at the close of that conference, at three o'clock in the morning, in a nightclub, Nezval, the poet, shouted from a table-top, "Le Corbusier is a great poet!" I was denounced!

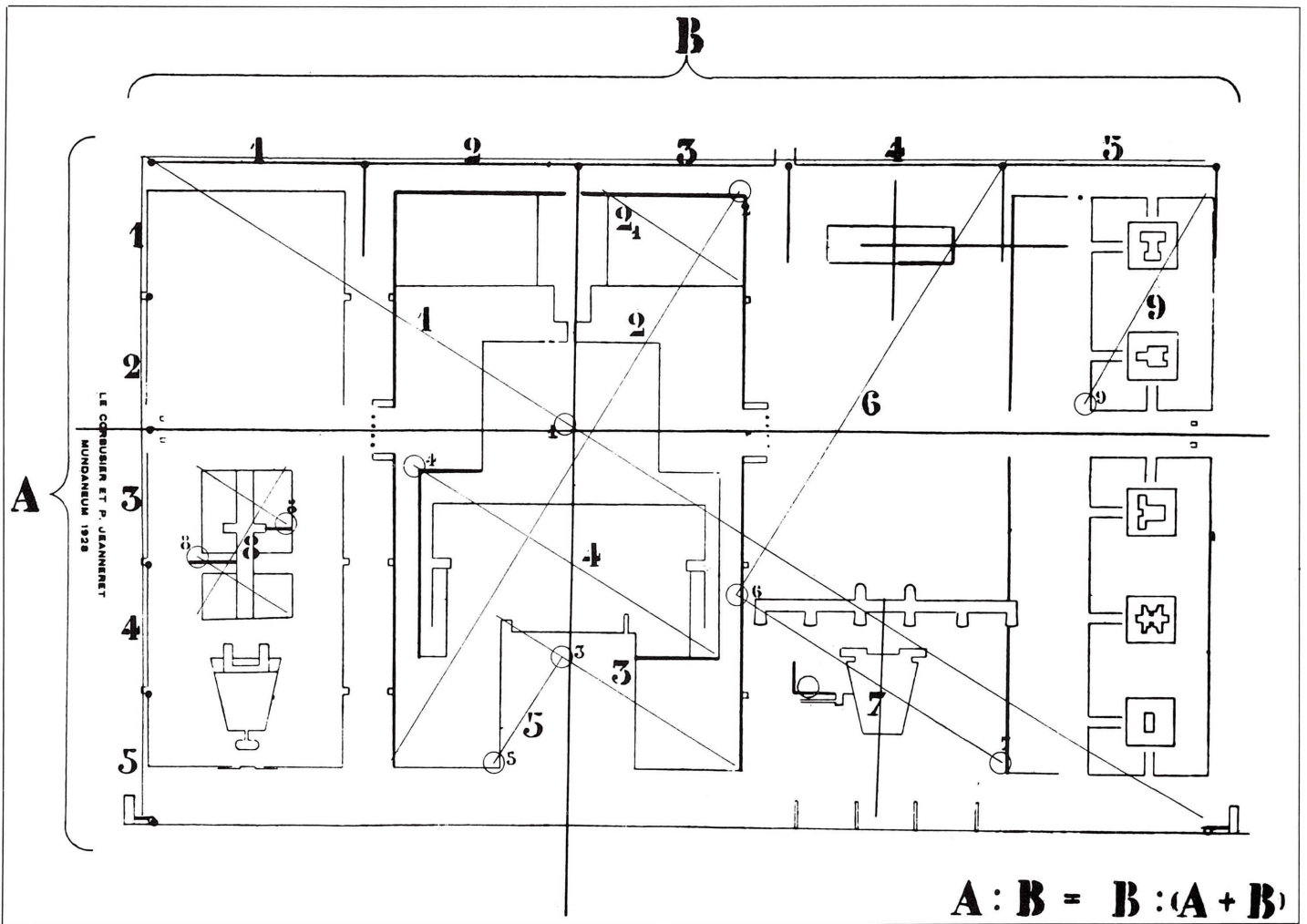
You have jumped to the same conclusion regarding the Mundaneum, and you exclaim, "How can there be a Sacrarium in the heart of a city of Modern Science?" The word, in effect, is awful. Modern science is made up of the knowledge of the past, and this Sacrarium, as conceived by its promoter (Paul Otlet) is designed to show (in what fashion, that is the key) how great geniuses have, in their time, incarnated the general current of ideas and have convulsed the world. For new things haven't convulsed the world, new ideas have: the things being merely the manifestation of the ideas. An idea is the evidence of a fire which, lacking explanation or science, agitates the multitudes. And as we are now right at the birth of a new agitation, the study of history is a useful activity.

You say "needs pose programs: factories, railway stations, and not churches or palaces; at the present time, nothing can become architecture which is not dictated by social and economic needs." I have never believed, nor written anything else; and to show you the subtlety which can animate this belief, let me tell you that last year I refused, very politely, to build a very big church, even though I was authorized to apply the most modern methods to the project. I felt that reinforced concrete simply couldn't become a true expression of a Catholic cult, which is formed by the dense stratification of secular usages which derive their vitality as much in the principle as in the form that has been conferred upon them, and which our memory has retained.

Let us now take a look at the promoter of my Mundaneum, and the reason why I could make common cause with him. He is one of those ardent youths with grey hair. His intellectual awakening dates from 1870; thus he has traversed the whole range of social and economic phenomena in which we, the young, find ourselves facing already formulated tasks.

These tasks, which we are already forgetting, others formulated before us. They were the visionaries, the organizers of ideas, the generators of magnetic currents, the receivers and

Figure 5. Mundaneum, Geneva. Le Corbusier and Pierre Jeanneret, architects, 1929. The layout of the main campus organized in accordance with the Golden Section.



emitters of waves. It was twenty years ago that Paul Otlet founded the Union of International Associations and drew up the statutes of the League of Nations. Last November, he submitted to Geneva a proposition regarding an international bank for the liquidation of debts. This spring, the principle of such a bank having been accepted, he submitted a list of projects which this bank could undertake, a program involving interpenetration of the entire world, dissolving obstacles wherever they are presently hidden. At Brussels, he created the World Museum, a stimulating assembly of witnesses of human history, visualized by methods devised by him, and which, in their moving material poverty, provoked fertile excitement among those who understood things, and above all, among those who wanted to learn, and among those who are destined to make decisions upon which depends the fate of the multitudes. It was a clear, quick, striking exposition of the facts of history which could elicit in creative minds a direction to follow or, at least, a lesson. This is philosophy? Indeed it is. The motivating force? But isn't this an architectural debate, if I grant that architecture consists in the manner in which the elements of a problem are assembled, if I admit that architecture is a battle, which can be lost or won, that it is a manifestation of order, a quality of thought?

The thesis of Paul Otlet is as follows: in order to heal a world being re-made (whereby mechanism imposes itself upon us whether we like it or not), it is indispensable to know the comparative states of nations, peoples, races, and cities which today participate in that worldwide process: "*continents, states, cities, buildings,*" that is, *urbanism*—all that men united in society, in peoples or in communes, have realized under the sign of cooperation, of solidarity. Following from this, it is necessary that organizational efforts, new theses, coalitions against egoism, and works of human collaboration become known, that their authors become known to each other and have an opportunity to work together, to share a common location as a condenser of ideas, a repository and center of action. Following from that, a Center of International Associations. At the moment, certain facts are known; certain desires, propositions, and contemporary tendencies have been demonstrated and brought together. Now it will be useful to review human history, to learn what man has done, to activate this knowledge, to endow it with courage, to

measure how high thought has led us, how low mistakes can drag us down. Man alone, creator, prestigious source of energy or light! That is what we want to understand; to get to know man well, to grasp his works, manifested across history in images, graphics, etc., and in the settings in which they were created and existed, through iconography.

Then, in anticipation of inevitable conflicts, would arise the study of a new international law profoundly rooted in a consciousness of both the historical and contemporary elements of our present situation—a "University of International Law."

Finally, brought together in a particular place, unique in the world, could be a bibliographical and reproduction center to assemble books, establish dossiers on diverse subjects (documented and indexed), and by modern techniques (photographs or microfilm) to make available the specific elements of documentation—a World Library.

A connection with the separate League of Nation's "Palace of Nations" would be acknowledged. To establish a relay-station, conceived like an international railway station, is simple good sense. A "hotel-city" would be realized, since the phenomenon already established at Geneva has now filled that city with visitors. In conclusion, a city in which to accommodate the workers of the Mundaneum, or better still, of the World City, would be built.

Since 1928, the date on which the plans of the Mundaneum were established, we have prepared schemes for the Cité Mondiale, planning for the urbanization of the district of Geneva, the creation of an airport, a vast railway station and finally the construction of a Cité Economique (trusts) and of a Cité Financière (the International Bank and its possible adjuncts).

Do you see a little, my dear Teige, to what extent these things are reasonable, *sachlich*, founded in technical, sociological and economic phenomena, and in no way academic?

But let us pass on to the academicism of forms, for which you reproach me personally. Let's go to the heart of the question:

102 the Pyramid of the Mundaneum. It is your most serious disappointment. Then let's go to the setting out of the Golden Section, another crime of "*l'èse-Sachlichkeit*."

In 1928, the concept of the Mundaneum was only a provisional image destined, through its iconography, to work its way into the minds of those who had the means or interest to occupy themselves with it. In 1929, the Cité Mondiale brought its complementary elements (particularly urban planning, and traffic organization). Nevertheless, from its beginning, it was concerned with pure building types rigorously appropriate to each specific function,⁴ and to their realization in the economics of development and construction.

How were these buildings brought together? By chance? Not at all! To start with, the site was chosen for many reasons, of which one (you can be sure) was the splendor of the views that it commanded. We thought that we would be able to take considerable advantage of these views in attaining our established goals. The site was divided on two axes; axes which represented something—they didn't just come out of nowhere—in that they established the four principal planes of the composition. The buildings were grouped in logical, reciprocal relationships that seemed normal. These relations having been established, the organization having been rendered "functional," coherent, we then overlaid upon it regulating lines based on the Golden Section (fig. 5). Oh, apostasy of *Sachlichkeit*! You really are peculiar in your hostility towards regulating lines. You see in them—and you are not the only one—a satanical power, a universal solvent. But look, you admit that an architect uses on his drawing board what we call a set-square and a T-square. These two instruments establish lines that are exactly parallel, and define angles that are rigorously true. They compensate for the inadequacies of the hand. They effect the most precise articulation. That much is admitted.

Well, I don't consider regulating lines to be any different. They are purifiers. They render composition precise and clear; they are tremendously *sachlich*. Consider the fact that the "*sachlichs*" accuse me of being a romantic because of my regulating lines, while the bohemians consider me as an engineer because of my regulating lines! Dilemma? Vicious

circle? I claim the right to do my work precisely and neatly by means of regulating lines.

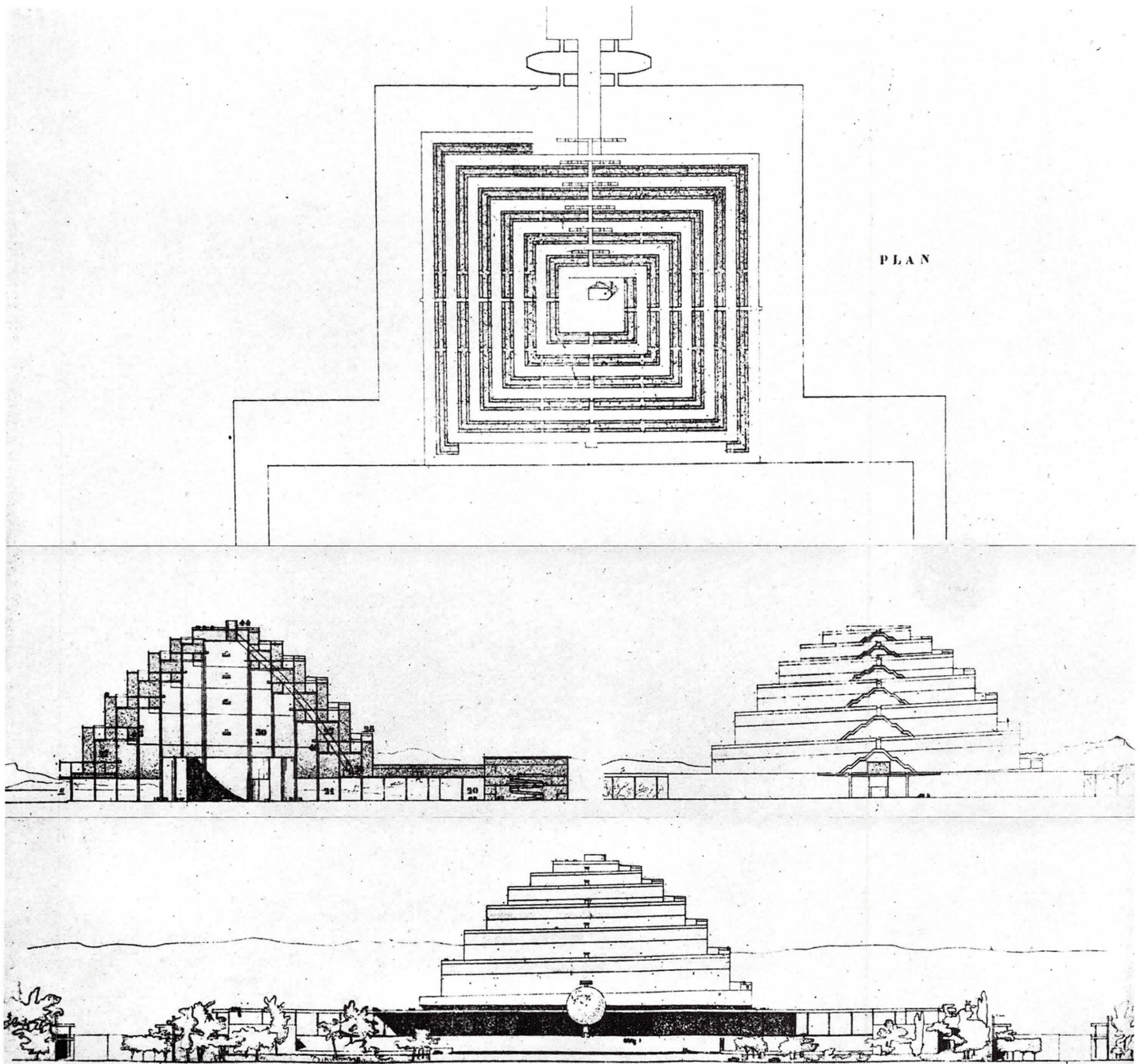
It is precisely those aerial views that you call puerile waste which will, on the contrary, be masterful, dazzling, beautiful like a pure crystallization. You must believe that the experience of architecture from an airplane exists; it is clarity itself, an impeccable reading; we have only just begun to go up in airplanes! I have in fact published notes on the regulating lines of the Mundaneum (and of other projects) in the volume that was devoted to us by *L'Architecture Vivante*⁵ and I described there my short thesis concerning the possible impact of regulating lines on horizontal space.

Now we come to the academicism of forms—the pyramid. No one accuses the cube of academicism; we consider it rather as the definitive contemporary expression of architecture. I share some responsibility for this, having designed roof gardens as early as 1914, having established the theory of flat roofs (with rainwater drainage via the interior), and having advocated the elimination of cornices (the conference of the "New Spirit in Architecture," Sorbonne, 1923).

The cube is modern because it maximizes the usage of a plan for a place of work or a dwelling. It is "contemporary" because, in our climate, only the recent advances of reinforced concrete have permitted its realization. In any case, it is a beautiful pure form.

But if a precise, undisputable function requires that spaces be organized along an axis that unfolds as a spiral, should I deny myself the architectural consequences of this function simply because the cube is contemporary? I have allowed a spiral staircase (very modern, and also timeless), spiral ramps (the same vertical circulation as the Centrosoyus in Moscow—very modern and also very old!); I have allowed the museum of human creation to follow a spiral, not to be "the last word in fashion," but to assure, through this unique means, the absolute continuity of events in history. I cannot see any other way of doing it. If, on this spiral, I raise the standard elements of a tri-partite nave to organize the programmatic elements of object, place and time, I am creating, by means of the spiral, a constant, continuous, and optimal overhead light-

Figure 6. World Museum,
Mundaneum, Geneva. Le Corbusier
and Pierre Jeanneret, architects, 1929.
Plan, section and elevations.



104 ing condition for all places. If my windows face north, south, east or west, it is easy to arrest light which, from time to time, is too bright. At the same time, underneath the whole floor area of the spaces enfolding along this spiral, I have gained warehouses, storage rooms, and areas for temporary sorting which will delight future curators. Each cell of the museum will have its own adjacent storage space below it; each of these storage spaces, thanks to the spiral, is in continuous contact with an access route on tracks outside, hidden from sight, thus permitting the handling of objects as easily as in a freight yard, without disturbing the visitors.

In the interior of the tri-partite nave, I will not, following established precedents, have walls placed between windows in a way that creates glare, or offers only one surface for display. Instead, I will have freestanding partitions arranged like screens or windbreaks. This will create spaces that are very small or extremely large, separated one from another, or directly or subtly linked. In this way I am free; I can do as I wish; I can create a museum with innumerable perspectives that are all different, and where each area can be sized to suit what it is meant to accommodate. Each partition or screen will offer two sides for hanging. Do you find these double surfaces in traditional museums? Given this arrangement, the building has taken the form of a pyramid. Its spiralling tiers recall Nineveh or Mexico. The spiral pyramid is academic. All the gains made by modern architecture so far are wiped out by this reactionary event: pyramidal form has occurred!

I note in passing that the dictionary of architecture has always been limited to the geometry of Euclidian forms, and that the cube, the sphere, the cylinder, the pyramid, and the cone, are our only, uniquely architectural words.

In fact, the rough sketches you know of the Mundaneum could not really have put you in the place of a spectator strolling in the Cité Mondiale. Imagine a mountain with its peaks, slopes and valleys spread out before you. The sterile plazas in the drawing are in reality undulating lawns scattered with magnificent trees. The palaces are up in the air, raised on pilotis, under which air and cooling breezes circulate, and where immense spaces take command. The ground is a rolling sea of lush greenery. There exist here no visions of those grand

avenues so dear to the Grande Siècle or to Rome. It is an intimate mingling of nature and geometry. There are unexpected views to the far distance, to the incredible horizon. Nature penetrates the core of this heroic, geometrical gesture. You know that I enjoy this stance; in the comfort of home, to reign in masterful geometry; then to cast a glance beyond, to the charm of nature in which we have imperishable roots. In *Urbanism*, and in the Plan Voisin, I have proposed to make the center of Paris into a garden for our eyes and our lungs. At the same time I have quadrupled the density in order to facilitate our business affairs. I wrote that when one builds one must plant trees (the lesson of the Turks): this shows how much I love nature.

If a visitor to the museum wishes to, he will be able to make his way outdoors in fresh air, up the 2,000 meters of spiral tiers following the route laid out on the roof of one of the parallel naves. What the devil will he do there? He will survey the countryside. He will appreciate the four aspects of this prestigious site. When he arrives at the top, he will have felt the force of those four views; on the elevated platform, he will have the whole territory to himself.

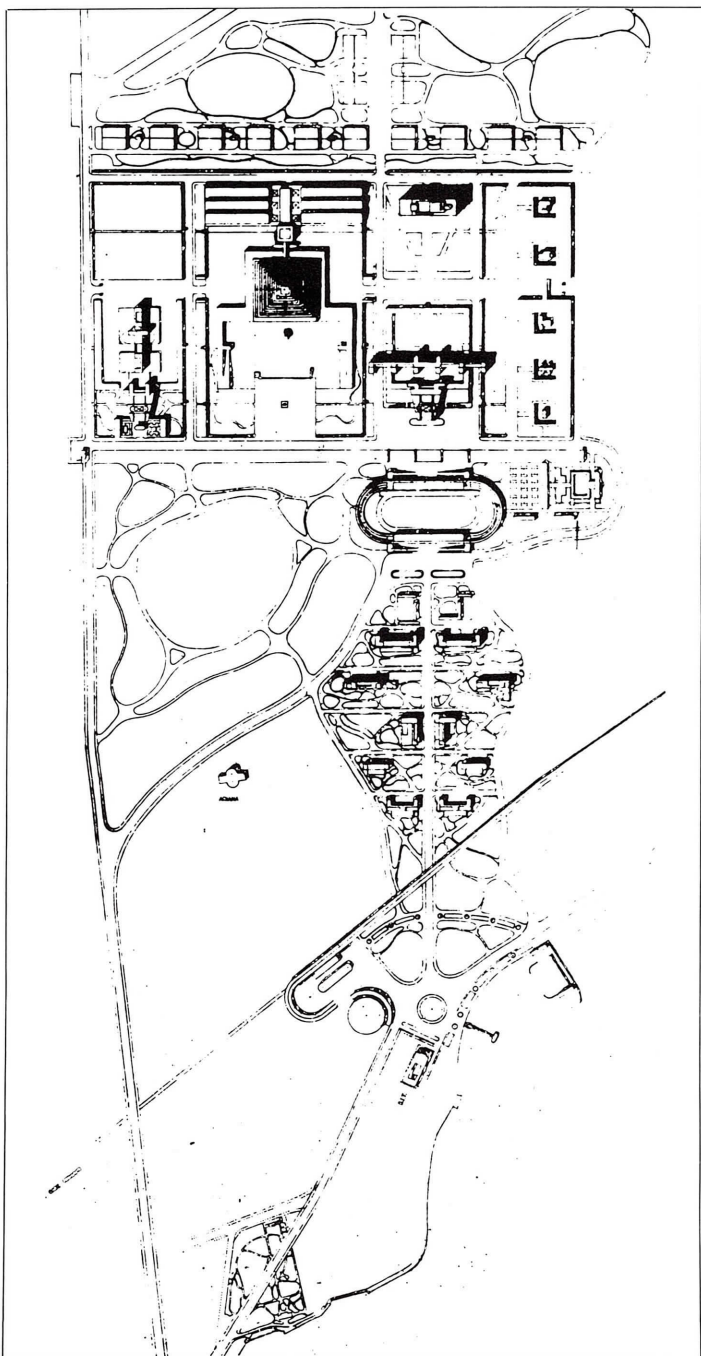
Listen, Teige, let's talk seriously. I think that this fellow will be prepared, made ready; during his ascent he will gradually have shed the small, expedient, and immediate preoccupations of his existence, he will have stopped worrying about the press of his pants or his digestion.

At the top he will enter the hall of pre-history. Teige, you are a poet. The *Sachlichkeit* of a poem exists in the manner of the placing of the words; not, exactly, of new words, of "the last word in fashion"; on the contrary, of timeless words with precise meanings, of pure words. A poem is successful (therefore *sachlich*) when the quality of the arrangement of words is good.

And there I am, where I always end up. You have led me there. There I am. . . .

But let us conclude. You have given me a pretext to participate in the architectural debate that has currently been opened in leftist circles. You have even given me the oppor-

Figure 7. Mundaneum, Geneva. Le Corbusier and Pierre Jeanneret, architects, 1929. Site layout.



tunity to reply; for I have for a while now been politely called a romantic, and less politely, an academic, by an avant-garde that is ten years younger than I am. I have just come back from Moscow; there I witnessed an attack conducted with the same intensity against Alexander Vesnin, the creator of Russian constructivism (a great artist). Moscow is torn between constructivism and functionalism. There too, intolerance reigns, sectarianism rages. If Leonidov, the poet and the hope of Russian architectural constructivism, in his twenty-five year-old's enthusiasm, calls for functionalism and rails against constructivism, I will readily explain to him why he does so. The reason is that the Russian architectural movement has been a moral shock, a manifestation of the soul, a lyrical outburst, an aesthetic creation, a credo of modern life, a pure lyrical phenomena, a clear and confident gesture in one sense, a decision.

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Ten years later, the younger generation, having raised a gracious, charming, yet fragile edifice of their own lyricism on the work, on the production of their elders (Vesnin), they now feel all of a sudden the urgent necessity to do their schoolwork, to learn techniques: calculations, chemical and physical experiments, new materials, new machinery, the approach of Taylorism, etc., etc. Absorbing themselves in these necessary tasks, they curse those who, having already mastered such things fully, are occupied in making architecture, that is to say, occupied with the manner of bringing such things together.

We are also *sachlich*! The drawing boards in our studio accept only disciplined construction drawings. But there reigns in the air there a will towards architecture which is the driving force, giving coherence, creating organisms. This will is the expression of a sentimental notion. It is an aesthetic. Reflect on the comment made by an American working on the Voisin plan for Paris in 1925: "In a hundred years the French will visit New York and see romantic skyscrapers, and the Americans will come to see rational Paris."

My dear Teige, would you also ponder on your own enthusiasm for the Eiffel Tower—a constructive phenomenon which you deem exclusively *sachlich*? Remember that in 1889, the Eiffel Tower was used for nothing; it was a temple

106 to calculation (a temple, a palace, a castle of calculation). It was an aesthetic manifestation of calculation. It was only the war of 1914 that gave it a use; the T.S.F.⁶

But more than this. Eiffel, whose recent death has turned attention to his pioneering work, is the subject of research, of biographical studies. Eiffel, whose skill in calculation was masterful, defended the tower as follows: as an exceptional manifestation of architectural beauty, of the aesthetic of iron. "The tower is beautiful!" he affirmed. And the biographers of Eiffel reveal that in all of his work, his superiority arises through the manifestation of his artistic sense, by the clear brilliance of his sense of proportions and by his plastic inventiveness (the Garabit bridge and others). Eiffel himself, at every point in his life, insisted on this.

I realize that the words I have used in these present notes will be exploited to launch accusations against me, will be put in quotation marks by academics here and by avant-gardists there. But I assert that we are driven by something other than material events; that we are led—led almost by the nose—by the imponderable. I assert also that in the end the vehement and gifted apostles of *Sachlichkeit* think and act the same way we do. If I am a little overwhelmed by systems of proportions, I find them a little overwhelmed by mechanism. In fact their attitude is very useful.

I pose a question: Why, all of you, why do you come to Paris, you, practical Americans, you others from the east, passionate devotees of *objectivity*? You come to breathe in the streets (the women, the shops, the cars), the beauty, the grace, the proportions, the plastic inventiveness. You come looking for the especially tender caress of the Parisian sky.

Not one of you will go to see the cruel places of hard work, of ruthless Taylorism, out in St. Denis, at St. Ouen. Modern labor is pleasant to watch only when a happy chain of circumstances has ordered all factors to the benefit of sensibility, only when a chain of circumstances, that is to say, architecture, orders the forces in effect harmoniously. A dam, an electrical substation, that is what you, yourself, call architecture.

Preoccupied with architectural phenomena, you come to Paris, seeking by instinct your well-being in places of harmony, and not in the places where ugliness reigns.

It is beautiful, is it not, when things are organized in deference to order? Where does organization stop? To exactly what necessity is this deference to order appropriate? Where is the definition, the basis, the axis of this question? In the conveniences of existence or in the emotion of the committed?

Organization is itself the key, virile substance that guides and corrects all that is *sachlich*, all that is muscle and bone. But what intention does this organization have? The *sachlich* I do not even discuss, conceding it to be evident, primary, inevitable, like the bricks with which one builds a wall. But what wall?

And I promise you sincerely—a fact that reassures me—we are all, at this moment, at the foot of the same wall.

Le Corbusier

1. "In Defense of Architecture" was originally published in *Stavba* 2, Prague, 1929, and reprinted in French in *L'Architecture d'Aujourd'hui*, 1933. Le Corbusier dedicated his essay to Alexander Vesnin, founder of Constructivism. —Ed.

2. This article, which appeared in 1929 in *Stavba* in Prague, is today very moving. What roads have been travelled! What adventures! What troubles—even more than ever!

In June 1929, I went to Moscow to defend my definitive scheme for the Palace of the Centrosoyus, the construction of which ought to have been completed in record speed.

By virtue of an enormous productive capacity, Germany dominated the architectural scene. The foundation of CIAM, the International Congress of Modern Architecture, at La Sarraz, in 1928, had been the occasion of a harsh battle. The German delegates were on the offensive, strong supporters of innumerable so-called modern houses. I led a combat in which what was at stake was a coherent line of force, a line which would lead the congress towards useful tasks. They blocked the way, calling us "poets, utopians"! And that was an insult! I spoke of "reason" and "objectivity," but I wouldn't accept definitions which left architecture under a shadow. Today, the resolutions of the fourth congress (at Athens, 1933) make appeal to the eloquence of architectural splendor.

The Germans created *Sachlichkeit* in 1928 because their efforts, which bore fruit and flowered too soon and too suddenly, prompted them to begin to sense technical uncertainty opening under their feet. . . .

But another factor emerged. After the insult to the modern world made in 1927, by the League of Nations allying itself with the academy (the controversy over the design of the Palace of Nations—crime of the *lèse-esprit* of which the League of Nations now in 1933 begins to feel the mortal consequences, and for which it now pays to a certain extent through its own disintegration), the USSR appeared on the eastern horizon, enacted the construction of the largest building undertaken by the new regime, a building which was supposed to manifest the spirit of modern times. In Moscow, this created great enthusiasm in the circle of the young. Everywhere, it was like a call to the Soviet Revolution. A famous propaganda strike, perhaps unconscious!

Three years passed, years of benefit to the USSR and to the architectural world. In 1931, Moscow addressed itself to the professionals of the world, to build its Palace of the Soviets, a giant edifice to crown the Five Year Plan. A monument that would become a symbol. . . .

Then—thunder clap, about-face, betrayal? The defeat of everything one would want (a simple, cruel demonstration of the fatal snail's pace of evolution): the Palace of the Soviets, chosen from among the three hundred projects submitted, will be constructed in Italian Renaissance style! A costly

decision quickly followed by explanations: "the genius of the people was definitively expressed by Athens and Rome." Henceforth, Rome and Athens will supply the models, not in spirit (but to the letter: columns, capitals and sculptured pediments). The Russian people reclaim sculptured pediments. The USSR also can build palace-palaces. Thus were resuscitated in revolutionary USSR, the dying forces of the academies! Even there! I was not disconcerted, I simply pondered the cold fact: the simple and cruel manifestation of the fatal snail's pace of evolution.

To older observers, it isn't an entirely unforeseen victory. The disarray is among the young. Even the author of the text at the beginning of this article, Hannes Meyer, coming to the West in 1932, puts to us the perfect coherence of the decision: "the people demand it!" *Panis et circenses!*

Now it is 1933. Now there is Hitler. Henceforth, in Germany all modern architecture is forbidden, regarded as a manifestation of Communism. There are martyrs, wretched victims.

But there are the Latins whose time has now come. Italy has made a great turn towards modern architecture recently. Then too, revolutionary Catalonia has consciously opted for the spirit of the times.

And France, having struggled for a hundred years (steel and reinforced concrete, aviation and automobiles), France now joins the final battle. The chambers of commerce and trades, now in decline, spend their last pennies on a campaign to discredit the endeavors of the older generation—Labrouste, Eiffel, Perret. Thinking themselves adroit, they even claim to take with them Auguste Perret, who was always against the status quo.

I asked Moscow three times for permission to go to defend and explain our project for the Palace of the Soviets. It was known that I was the troublemaker. The Marxists in Paris accused me of being an expression of the bourgeoisie and of capitalism. . . .!

People are crazy? No! Private interests, ignorance, technical failures, aesthetic doubts, the absence once again of an ethic, all these together block the way. The outcome is not yet apparent. The world is suffering a crisis of conscience. It is a profound individual verdict which is missing. We don't know which belief to commit ourselves to.

In the thick of these incoherent attacks, caught in the cross-fire between academicism and extremism, for five years, I have persisted in this unique declaration, "I am an architect and urbanist." Such is my profession of faith. My statement lies in my work. The plans are the dictator: the techniques of modern times and the lyricism of the eternal human heart.

3. *Sachlich* means "objective"; *neue Sachlichkeit* ("the new objectivity") is the recent banner behind which the avant-gardes of Germany, Holland and (in part) Czechoslovakia

- 108 have grouped themselves.
4. See how I am more *sachlich* than you are: For the Congress of Associations, for the University, and for the Assembly of the League of Nations, I needed three lecture halls. The laws of acoustics recently formulated by Gustave Lyon, brought me to this kind of room, a true biological organ (see: *Une maison — Un palais*, published by Crès). For this reason, I designed three similar rooms. For this you reproach me severely! But I disposed them with variety. Would you prefer that “for variety’s sake,” two of these halls should be acoustically inferior?
5. *L’Architecture Vivante*, Summer, 1929. — Ed.
6. T.S.F.: *Téléphonie sans fil*: Wireless telegraph. — Trans.

Figure Credits

Figures 1,4,5,6,7. *L’Architecture Vivante*, Summer 1929.
Figures 2,3. *L’Architecture d’Aujourd’hui*, 1933.

The Values of Profiles Structures and Sequences of Spaces

Luigi Moretti

Translation and Introduction by Thomas Stevens

It says something for the rough justice of history that Wolfgang Pehnt's *Encyclopedia of Modern Architecture*, with over thirty international contributors, carries no reference whatsoever to Moretti other than Giulia Veronesi's aside that he was one of the more whimsical members of the school of Rome. This northern viewpoint should not surprise us since the six Italian contributors to Pehnt's book were drawn from either Milan or Turin. But apart from the prejudices of historians there is no question but that Moretti was of considerable import not only for his work as an architect but also for his contribution as a theoretician. Thus while his Casa Girasole is assured of its place in modern architectural history—as the baroque counterpart to the rationalism of Como—his essays do not as yet enjoy even a fractional part of the reputation they deserve.

Apart from Moretti's magazine *Spazio* of the fifties, his thought vis-à-vis the semiological dimension of that which he called "parametric architecture" was given a succinct formulation in his essay of 1954, "Form as Structure" (*Arena: Architectural Association Journal*, June 1967). Twenty years ago Moretti envisioned a highly "structural" architecture relieved by "the absolute liberty of fantasy itself where the roots of the equations cannot be determined. . . ." At the same time, he looked to the evolution of a new rigorous criticism based on an analytical understanding of the processes of formation and transformation.
K.F.

Luigi Moretti (1907-1973) was an Italian architect and urban planner. His early work includes the urban plan of the Foro Italico in Rome (1934-40) and his entry for the E.U.R. competition of 1937. After the war he founded and contributed to the magazine *Spazio*. His postwar work includes hotels in Milan (1947-50); Casa Girasole in Rome (1950); the Watergate complex in Washington (1959-61) and the Stock-Exchange Tower in Montreal (1962-67).

Thomas Stevens was born in England and graduated in architecture at the Architectural Association School of Architecture, London. He has worked in the Housing Division of the Greater London Council and during the last ten years has taught in England at the Architectural Association and in the United States at Syracuse and Cornell Universities. He has also written numerous reviews and translated many articles for the *R.I.B.A. Journal* and the *Architectural Association Quarterly*.

"*The Values of Profiles*" was published as "*Valori della Modanatura*," in *Spazio* 6, Dec. 1951-April 1952.

"*Structures and Sequences of Spaces*" was published as "*Strutture e Sequenze di Spazi*," in *Spazio* 7, Dec. 1952-April 1953.

Introduction

Thomas Stevens

The author is indebted to Professors Mario Valmarana and Paolo Pollicea (Moretti's associates in the design of the Watergate building) for their help in providing details of his prewar and postwar activities.

110 Luigi Moretti's name is perhaps better known as that of the architect of Watergate and of a Montreal office block, than as that of an important Italian architectural critic. Nonetheless, between the late forties and the early fifties he edited and published the magazine *Spazio* from his office in Rome, in which a great many articles on the aesthetics of architecture appeared over his signature. The general import of these articles is summed up in a brief notice entitled "Researches in Architecture" which appeared towards the end of *Spazio* 4 and which runs as follows:

In recent years architecture, like painting and sculpture, seems to have become casual, and interesting only for the claims which it time and again makes for its validity. Its technical latitudes do not seem to coincide with clear, decisive, and above all exhaustive expressive needs. At a certain moment, for example, it strikes us that a Mies van der Rohe apartment block in Chicago is certainly an exact enough mechanism, but that its reasons for existence do not seem to be much more justified than those of any other more or less correct building; and so we must ask ourselves if that sense of *absolute necessity* we have in looking at earlier architectures comes, as we believe, from their different substance, or from our secular habit in looking at them, which has inadvertently transformed them into harmonious fossils.

From now on, modern architecture must be based on conclusive results, or have the strength to ascertain its limits, and in such cases, to forget and no longer invoke the lost paradise. *Spazio* in its next numbers will devote a series of articles to clarifying this problem.

The articles that preceded and followed this introductory note included the two final ones: "The Values of Profiles" and "Structures and Sequences of Spaces," which are here republished in English translation for the first time.

Moretti was born in Rome in 1907 and died there in 1973. He was trained there as an architect, and as a very young leading member of Mussolini's "Giovinezza Italiana" rapidly acquired, by contacts within the Party and the ecclesiastical hierarchy, a position of considerable importance, with the power to advise his patrons on the employment of other archi-

itects, a position for which he was doubtless both envied and disliked, and which did not exactly endear him to the powers that came to the fore with the ending of World War II.

He enjoyed the particular friendship of members of the mathematics faculty of Rome University; and pioneer work by these people in military operational research led to the formation by Moretti in 1943 of the Societa per un'Architettura Parametrica. Indeed, Moretti's understanding of exactly what Functionalism could mean also led him to attack the deductivist functionalism which is implicit in much left-wing German work of the twenties, especially that associated with the name and propaganda of Hannes Meyer, Gropius's successor at the Bauhaus.

Moretti's prewar architecture would seem to have oscillated between a "metaphysical" neoclassicism, for instance, in an unexecuted project for the 1942 E.U.R. which owed much to Roman monumental models—the term "metaphysical" here carrying the significance with which it was loaded when it was applied to the earlier work of Giorgio di Chirico and the later work of the former futurist Carlo Carra; and a somewhat heavy Mendelsohnian modernism, as in his 1937 Rome Fencing Academy.

His postwar work, which first brought him to the puzzled and worried notice of International Style architects and critics, included the luxury apartment block Girasole in the Parioli district of Rome, and the interesting low-cost apartment block Casa Astrea, also in Rome, as well as a number of more recent sumptuous private apartments and houses for various members of the Italian *haute bourgeoisie* and nobility. There are also two large blocks, one of apartments and one of offices, which represent Moretti's brief incursion—as head of a real estate venture which subsequently collapsed—into Milan, former stronghold of Italian "rationalism."

Of course, in all this activity, constructional no less than critical, Moretti was being not so much the political reactionary that his enemies have considered him, as the critic of that school of thought which treats all architecture in the twentieth century either as the automatic by-product of the zeitgeist, or as the ideally automatic by-product of a fully

socialized technocracy, these two frequently seen as one. Moretti's understanding with his colleagues in the Rome mathematics faculty led him to realize that the results of what we ideally regard as an optimization process frequently result not in one unique end-product, as in a purely deductive discipline such as Euclidean geometry, wherein necessity and sufficiency of the initial postulates determine a series of unique and uncontradicted theorems, but in a related family of end-products which may contain, theoretically, infinitely many topologically equivalent members, equivalent to all the points in a finite plane, rather than to just one of them. This means, quite simply, that after all the research has been undertaken to determine what kind of an entity the given program "wants" the building to be, we are still left with the onus, this time enlightened by manifold technical considerations, of choosing from among the family of possible solutions that one which its designer "wants" it to be. As Alan Colquhoun has made clear in his article "Lo storicismo e i confini della semiologia" ("Historicism and the limits of semiology," *Op.cit.*, No. 25, Sept. 1972), there can be no effective reduction of architecture to a merely accidental and temporary coincidence of functional index and natural sign, although in this matter functionalists and expressionists join hands round opposite edges of Alice's mushroom, neither growing much nor shrinking in the process.

A classical case in point, never mentioned by Moretti, is Le Corbusier's six or more sketch solutions for the Palace of the Soviets in 1931. These six solutions are seemingly economically and technically, very similar, since superficial inspection suggests that their constructional, running and servicing costs would be similar, but each solution "reads" differently, by the rotation of one or more auditoria, of which there were to have been four, through ninety degrees. In other words, we are not concerned with physical reality, but with ideal representation, and are unfortunately back with Alberti and Vitruvius, and the fact that, to quote Moretti, every building is both a physical reality and an ideal representation together, only if the will to form be present in the designer. The satisfying of necessity alone is a very small thing if the result should appear as a shapeless and ill-conceived mass, says Alberti; and the fact, however distressing to determinists, that one category of necessity can lead to several

categories of representation, also means that we can still 111
treat architectural end-products in terms of their "cosmetic" criteria, as Le Corbusier sometimes did, and as Moretti consistently tried to do.

The Values of Profiles¹

Luigi Moretti

Translation by Thomas Stevens

112 Provoked by the assertion of rational architecture, the beginnings of modern non-figurative art coincide in time with the exclusion from the world of living forms of cornices and profiles, the most evidently “abstract” elements of ancient architecture. At least two reasons may be relevant to this singular phenomenon: one is that by way of academic neoclassicism, or the contorted deviations of a still very robust Art Nouveau, profiles had been reduced to a stupid drawing of shapes, an empty repetition of forms; and those powerfully expressive complexes of long and straight, or incurved *chiaroscuro*, of flights of light and shadow, of the appearance and withdrawal of the material which were the antique profiles and cornices, represented no more than a verbal concept “cornice” by the first quarter of the twentieth century, and belonged no less than a tree or a figure to a tired objective landscape. The other reason arises from the peculiar type of modern artist or architect, especially in Europe, of prevalently intellectual cast of mind, who judged profiles and decorations in general in nineteenth century terms and values, and reasoned with literary logic and terminology on facts of architecture; thus formulating the as-though-irreparable opposition of “rational” and “decorative” without realizing what erroneous and banal meanings were being given these two phrases.

It is curious that in the various disputes on abstract art, no one, even afterwards, ever notices that profiles together with the corrugations of certain rusticated surfaces are the unique nonfigurative surfaces of ancient architecture. A pilaster, an architrave also represent and “figure” a function no less than a leg or an arm in drawing. A cornice only figures itself, it is a pure form, abstracted from objective references. The ancients had known that the form of a cornice, conditioned in its general design by the formal plan of the building, was resolved in detail by certain scale relationships among its elements, that is, as a pure *musical* form.² The abstractionists might very well have taken as the noblest ancestry for their works at least certain pieces of cornice which carry famous signatures. Neither should one object to a figurative derivation of profiles, leaning on those fin de siècle philologists who sought the origins and the framework and profiles of the Greek orders, by comparing them with archaic wooden constructions and analogous stone constructions in Asia Minor.

Even if it had been the case, this derivation from the objective must not mislead us, because its importance is that the initial starting figure was immediately surpassed and forgotten in the re-elaborations of the plastic imagination. Here an important fact is to be noted, a characteristic catalyzing process for all new forms in architecture: these forms arise from the energetic stimulus of an objective reality, they always need an impulse, however casual, which supports the category of their new structures and concordances. In architecture, it is extremely difficult to create new forms and spaces completely out of nothing. A starting scale, an objective support, is always necessary: the ruins of antique Rome for the Renaissance, Mannerism for the Baroque, Gothic and Greek for neoclassical architecture, and for early rationalism, industrial constructions and abstract graphic art.

The constant presence in ancient architecture of cornices and profiles shows us that these elements were required to carry out basic and unequivocal formal and expressive functions; for when in a language a mode of syntax stays alive and dominant for centuries, this is to say that it is congeneric with the intimate structure of the language itself. Certain of these tasks and functions, that is, of the values of profiles, seem to me to have been singled out, as I shall presently mention.

For clarity of the discussion, it may be as well to distinguish at the outset those profiles which dominate the principal figure of a building, running throughout it and embracing its entire structure; and which are the cornices properly so-called, from those profiles which are applied to discontinuous architectural elements, and thus have only a single part to play, such as pilasters, columns, structures of partial closure, windows, which are in fact called base and cap mouldings, etc., or even because of the contour of the aperture, equally cornices. Cornices of the first order have the principal aim of outlining and clearly stressing the geometrical skeleton of the building-figure, the “group” of maximum invariance for every possible viewpoint.³ To constitute the geometrical skeleton of an architectural space which is always metrically conspicuous means also, in live reality, to scan the temporality of its vision, outlining its single beats. Thus cornices have the value of elements of transition, of conjunction, between one time and another, among one space and another. Naturally,

VALORI DELLA MODANATURA

di LUIGI MORETTI

L'inizio dell'arte non figurativa moderna coincide nel tempo con l'espunzione dal mondo delle forme vive, provocata dall'affermarsi dell'architettura razionale, delle cornici e delle modanature, elementi palesemente « astratti » dell'architettura classica. Due ragioni almeno possono rilevarsi del singolare fenomeno. L'una si è che attraverso l'accademia del neoclassico o le deviazioni orecchiate del pure robustissimo liberty, le modanature si erano ridotte a uno stupido tirare di sagome, a una vuota ripetizione di forme; e quei complessi potentemente espressivi, di lunghi e rettilinei o incurvati chiaroscuri, scatti di luce e ombra, levarsi e ritrarsi della materia, che erano le modanature e le cornici antiche, nel primo quarto del Novecento non rappresentavano che la realtà del concetto verbale « cornice », appartenevano a uno stanco paesaggio oggettivo non meno di un albero, di una figura. L'altra ragione nasce dal particolare tipo dell'artista o dell'architetto moderno, specie europeo, a struttura prevalentemente intellettuale, che giudicò modanature e decorazione in genere nei significati e valori ottocenteschi e ragionò con logica e dizioni « letterarie » su fatti d'architettura; così da formulare come insanabile l'opposizione « razionale-decorazione », senza accorgersi quali errate e banali accezioni si davano a queste due voci.

È curioso comunque che nelle varie dispute sull'arte astratta non si sia mai, anche dopo, rilevato che le modanature, assieme ai corrugamenti di certe superfici « a rustico », sono le uniche forme plastiche non figurative dell'architettura antica. Un pilastro, un architrave, rappresentano, « figurano » anche una funzione non meno che, nel disegno, una gamba o un braccio. Una cornice non figura che se stessa, è una forma pura astratta da riferimenti oggettivi. Agli antichi questo era cognito: la forma di una cornice, condizionata nel suo disegno generale all'impianto formale dell'edificio, era risolta nel particolare con certi rapporti di misure tra i suoi elementi, cioè come pura forma musicale (1). Gli astrattisti avrebbero ben potuto assumere come ascendenza nobilissima delle loro opere almeno certi pezzi di cornice che portano firme famose.

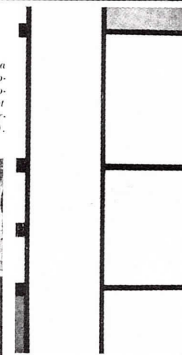
Ne si deve obiettare una derivazione « figurativa » delle modanature appoggiandoci a quei filologi *fin de siècle* che verificavano le origini delle membrature e modanature degli ordini greci, comparandole con le arcaiche strutture lignee e le analogiche strutture in pietra dell'Asia Minore o dell'Egitto. Questa, se ci fosse stata, derivazione dall'oggettivo, non deve trarre in inganno, perché l'importante è che fu subito superata, nella rielaborazione della fantasia plastica, l'eventuale figura di partenza. È qui da rilevare un fatto importante, un processo caratteristico di catalizzazione per tutte le nuove forme di architettura: esse forme nascono per lo stimolo energetico di una realtà obiettiva, hanno sempre bisogno di una spinta, come che sia casuale, che susciti la categoria delle loro nuove concordanze e strutture. In architettura è estremamente difficile creare nuovi spazi e forme, completamente *ex-nihilo*. È necessario sempre un sostegno oggettivo, una misura di partenza: le rovine della Roma antica per il Rinascimento, il Cinquecento per il Seicento, il classico per il neoclassico, le costruzioni industriali e i graficismi astratti per il primo razionalismo.

La presenza costante nell'architettura antica delle cornici e delle modanature ci indica che questi elementi dovevano assolvere funzioni espressive e formali inequivoche e fondamentali. Poiché in un linguaggio quando una modalità sintattica rimane viva e dominante per secoli, vuol dire che è conaturata alla struttura intima del linguaggio medesimo. Alcuni di questi compiti e funzioni, cioè dei valori delle modanature, sembra a me d'averli individuati come appresso se ne fa cenno.

È bene innanzi tutto distinguere, per la chiarezza del discorso, quelle modanature che dominano la figura principale di un edificio correndo continue e serrandone l'intera struttura, e che propriamente sono dette cornici, dalle modanature che si appongono agli elementi architettonici discontinui e quindi di ruolo



1. Michelangelo: Palazzo Capitolino in Roma (esecuzione di Prospero Boreaspidati e Tommaso dei Cavalieri). Particolare delle modanature superiori di una finestra. 2. Piet Mondrian (1872-1944): Composizione. 3. Arco di Settimio Severo in Roma (207 d. Cr.). Piedistallo e base di una colonna



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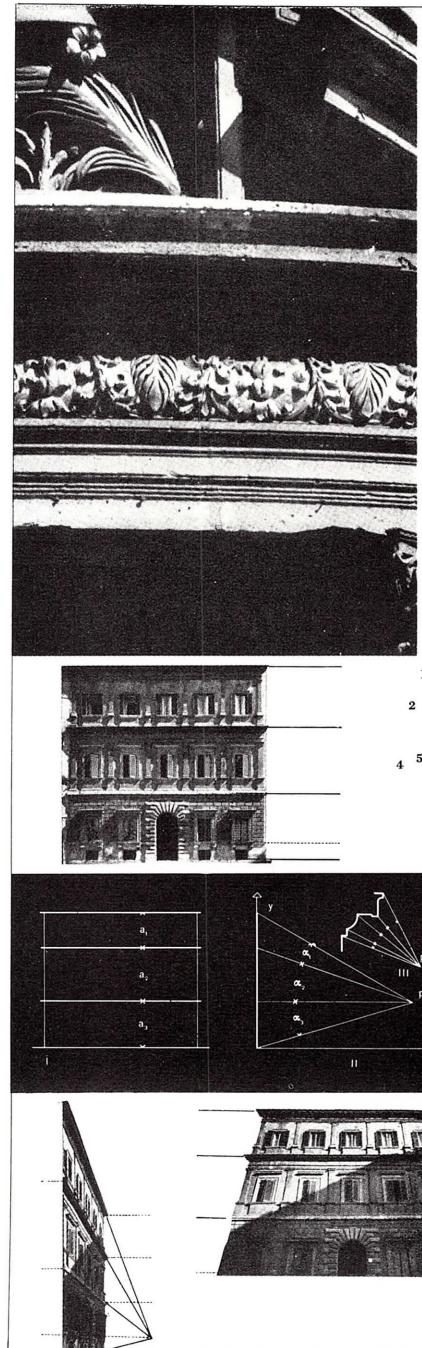
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114 the spaces/times of a building, not being only, as in a purely plastic work, determined by the lyrical logic of the form, but being conditioned *ab imo* by a substratum or at least a constructive suggestion, have also to coincide with the spacings of structural significance. Thus cornices outline a precise punctuation which determines the unique syntax of the architectural space.

In classic fabrics, the parallelism of the cornice bedding planes was always respected, evidently as expressing the law and unity of direction of gravity, and the ordering by levels of equal weight of the principal framework of a building; so that when in the Baroque a cornice breaks and unfurls in every direction, this only happens at the summit of a building (where the underlying material, being already laid out and locked in its order provides a residual kind of force) which, having no obligation to support extraneous weights, erupts as a pure plastic form, free of duty. Only a few artists, exceptional in their almost esoteric composition of ideal structures, broke and curled a cornice even in the heart of a facade (for instance, around the figure of a saint), as though to signify the collapse in a certain space, the almost magical disappearance there of the limiting forces and of the forms constrained by them.

The parallelism of the principal cornices, opposed as it is to the direction of gravity, allows the ascendant and basic rhythm of an edifice to be read with ease. The classical architects and writers, from Alberti to Guarini, seem to have in the mind's eye, as something absolute, the sequences of horizontal planes traversing the changes of form of the architectural figure: they worshipped a kind of metaphysical stratigraphy of forms.

But the cornices of an architecture have another and weightier office: the ability to condense to the utmost the sense of the concrete, of existence, of objective reality. Let me clarify this idea. After repeated observations and examinations, I believe myself to be fully aware of a phenomenon which, when announced, ought at once to seem obvious. That is, a work of art is such, inasmuch as it conveys and condenses in itself a sense of reality and concreteness that no other element in the world of nature succeeds in possessing; I should

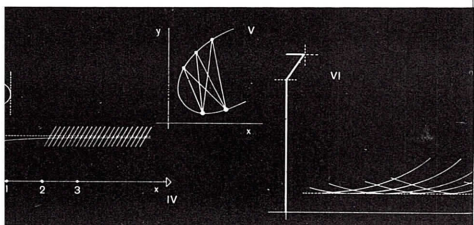


singolare, quali pilastri, colonne, strutture di parziale chiusura, finestre, che appunto sono chiamate modanature di base, di capitello ecc., o anche, per il contorno delle aperture, ugualmente cornici. Le cornici di primo ordine hanno lo scopo principale di segnare e ribadire con chiarezza l'ossatura geometrica della figura dell'edificio o dello spazio architettonico, di costituire, di certi rapporti di questa figura, il gruppo di *massima invarianza* per ogni possibile punto di visione (2). Costituire l'ossatura geometrica di uno spazio architettonico, che è sempre metricamente cospicuo, vuol dire, nella viva realtà, scandirne anche la temporalità di visione, segnandone le singole battute. La cornice ha così il valore di elemento di transito, di congiunzione tra un tempo e l'altro, fra uno spazio e l'altro. Naturalmente i tempi-spazi di un edificio, non essendo come in un'opera di pura plastica determinati soltanto dalla logica lirica della forma ma condizionati *ab imo* a un substrato o almeno a una suggestione costruttiva, debbono coincidere anche con le spaziatore di significato strutturale. Le cornici segnano così una punteggiatura precisa che determina la sintassi unica dello spazio architettonico.

Nelle fabbriche classiche il parallelismo dei piani di giacitura delle cornici fu sempre rispettato. Evidentemente come espressione della unità di direzione e di legge del peso e dell'ordinamento per livelli di uguale carico delle membrature principali di un edificio. Cosicché nel barocco quando si apriva e scrosciava per ogni direzione una cornice, questo avveniva soltanto al sommo dell'edificio, ove cioè essendo la materia sottostante già legata e chiusa nel suo ordine, residuava una specie di forza, uno slancio che non avendo obbligo di pesi estranei da sostenere, cromepeva, pura forma plastica, per ogni dove. Solo alcuni artisti eccezionali nel loro comporre, quasi esoterico, di strutture ideali, spezzavano e accartocciavano, anche nel cuore di una facciata (a esempio intorno alla figura di un santo), una cornice, come a significare in un certo spazio il crollo, la sparizione quasi per magia, della limitazione delle forze e delle forme da esse forze costrette.

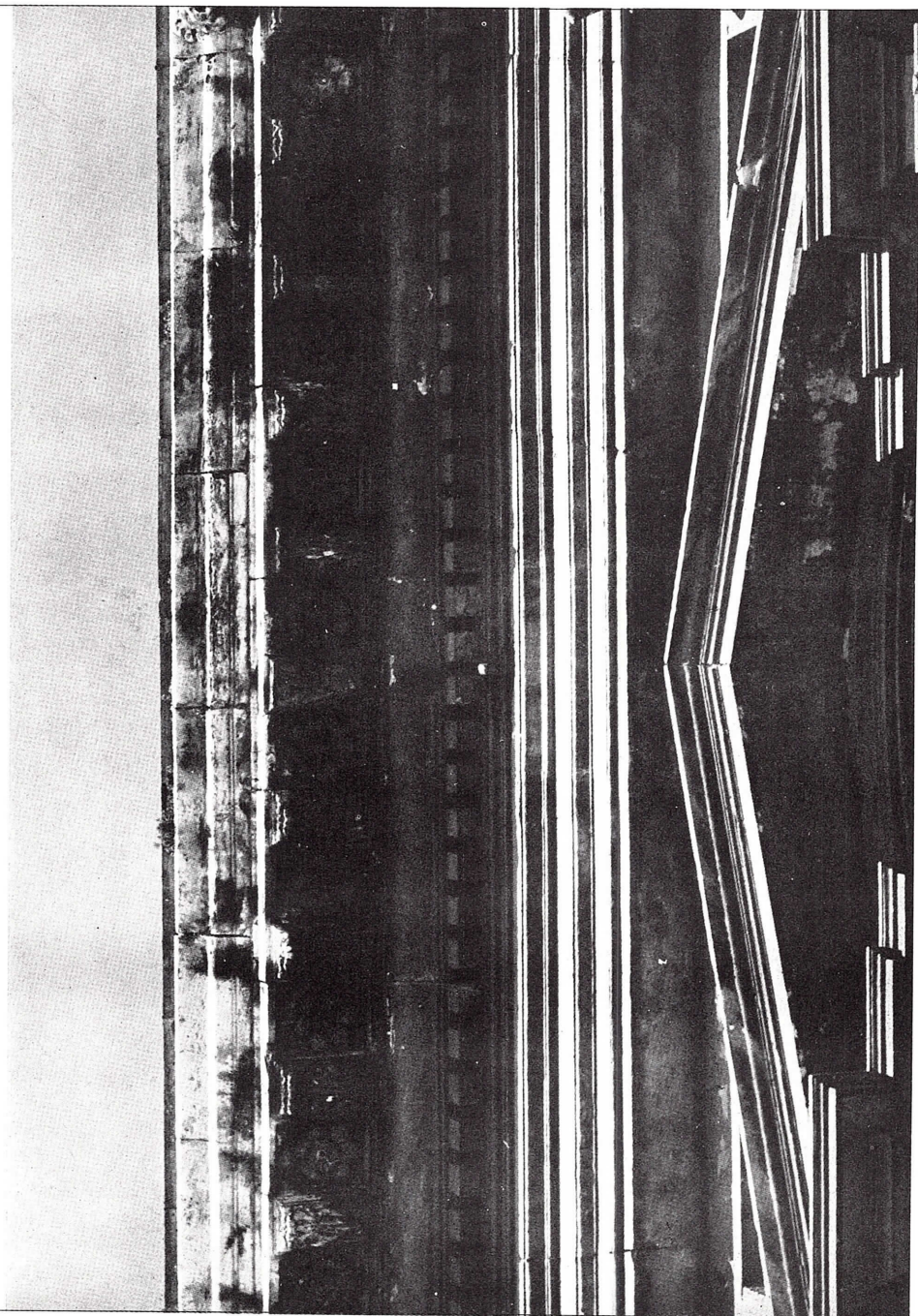
Il parallelismo delle cornici principali consente di leggere con facilità il ritmo ascendente di un edificio, il ritmo fondamentale, avverso come è alla gravità dei pesi. Gli architetti classici e i trattatisti, dall'Alberti al Guarini, sembrano avere negli occhi, come qualcosa di assoluto, la sequenza dei piani orizzontali passanti per i mutamenti di forma delle figure architettoniche; veneravano una specie di stratigrafia metafisica delle forme.

Ma un altro e più poderoso valore hanno le cornici in una architettura: la capacità di addensare al massimo il senso del concreto, il senso di esistenza, di realtà obiettiva. Preciso questo pensiero. Dopo iterate osservazioni e rilievi credo di aver piena coscienza di un fenomeno che detto dovrebbe sembrare subito ovvio: cioè un'opera d'arte è tale per quanto convoglia, addensa in sé, un senso di realtà, di concretezza, così acuto quale nessun elemento del mondo della natura riesce a possedere; ad eccezione direi delle figure amate.



Possono richiamarsi alla mente innumeri esempi; per tutti valgono il Bruto di Michelangelo, i profili dei banchettanti delle tombe tarquinesi, il volto della Gioconda, le rocce del Mantegna; che esistono, tutti, con una potenza che la visione diretta della natura non ci offre. Io stimo questa qualità di esistere potentemente, di

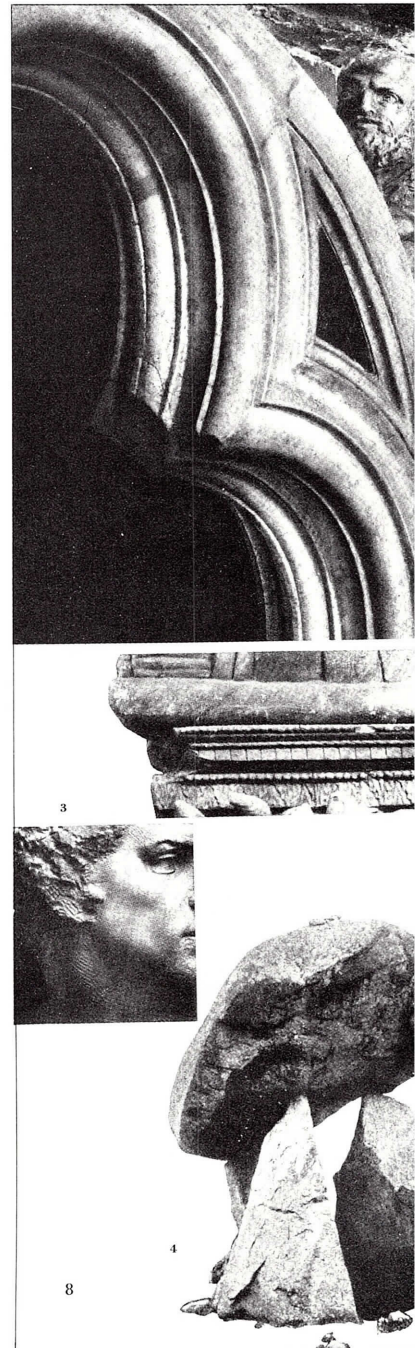
1. Francesco Borromini: Oratorio dei Filippini in Roma. Particolare del portale. 2, 4, 5. Baldassarre Peruzzi: Palazzo Ossoli in Roma, Via de' Balestrari. Proiezioni prospettiche della fronte. 3. Relazioni tra gli spazi individuati dalle cornici e tra le loro proiezioni (v. nota a p. 12). 6. Michelangelo: Palazzo Capitolino (esecuzione di P. Barcapaduli e T. dei Cavalieri), particolare del cornicione e fastigio del finestrone centrale aggiunto da Giacomo del Duca



116 say, with the exception of certain loved figures. Innumerable examples of this phenomenon can be recalled: Michelangelo's Brutus, the faces of the Tarquinian banqueters, the face of the Gioconda, Mantegna's rocks, can stand for all of them—all of them exist with a power which the direct vision of nature does not offer us. I regard this quality of potently existing, of condensing reality, as significative of art. A representation, in order to be justified as art in the economy of the mind, that is, outside didactic and contingent assumptions, must release a density of energy very superior to real life. Now, in architecture more than in any other art, the power and the will to exist beyond the natural and the useful is a fundamental quality distinct from the simple fact of building. Architecture arises as a terrible act of existence, and everlastingly remains and is justified only in this sense. Here it is enough to recall certain pieces of megalithic and Doric architecture: the Proleek Dolmen in Ireland, or the Taula of the Torre Trencada in Minorca, or the corner of the west front of the Temple of Poseidon at Paestum.

In ancient architecture it was known by sensibility and cultivated experience that a wall in itself is an usurious reality, uninspiring and dull, and that if one wants to quicken and express it, it is necessary to operate on it in some way, to excite and evoke its forces, to cause gestures and corrugations to erupt from it which exalt its presence. Cornices and profiles are in fact the elements where the reality and concreteness of an architecture seem to be revealed with the greatest force. They condense the sense of existence because they alert to the utmost our visual awareness with their neat and rapid sequences cutting bands of distinct frequencies and differences. Their space is vivid, packed with signs, and carries our attention to greater levels. Cornices erupt where material or wall structure seems most compressed, or in some way mute the direction of its forces, just as the sea disrupts in fragments upon the rocks or exhausts itself at last upon the shore.

The Greeks, because they were a people lively and sensitive to the real world, and, moreover, immersed in a very vivid nature, necessarily had to attain in their works of art the utmost density of the concrete. So they had the courage to superimpose colors—red, turquoise, orange and violet—on the stupendous marbles of their statues and temples, thereby



addensare la realtà, come la significativa dell'arte. Una rappresentazione per essere nella economia dello spirito giustificata come arte, fuori cioè da assunti didascalici e contingenti, deve sprigionare una densità di energie ben superiore al vivo vero. Ora nell'architettura, più che in altra arte, la volontà di essere oltre il naturale e l'utile, è una qualità fondamentale distinta dal semplice fatto del costruire. L'architettura nasce come atto terribile di esistenza e permane perennemente ed è giustificata solo in questo senso. Basti qui ricordare certi pezzi di architettura megalitica o di architettura dorica: il Dolmen di Proleek in Irlanda o la *Taula* di Torre Trencala a Minorca o l'angolo del frontone ovest del Tempio di Poseidone a Pesto. L'architettura antica seppe per sensibilità e coltivata esperienza che un muro di per sé è realtà usurata, non toccante, scialba, e che se lo si vuole far vivere, esprimere, fare denso di esistenza, bisogna operarvi sopra in qualche modo, eccitare evocare le sue forze, far da esso eromper gestì e corrugamenti che ne esaltino la presenza. Le cornici, le modanature, sono appunto gli elementi ove la realtà, la concretezza, di una architettura sembra rivelarsi nella sua massima forza.

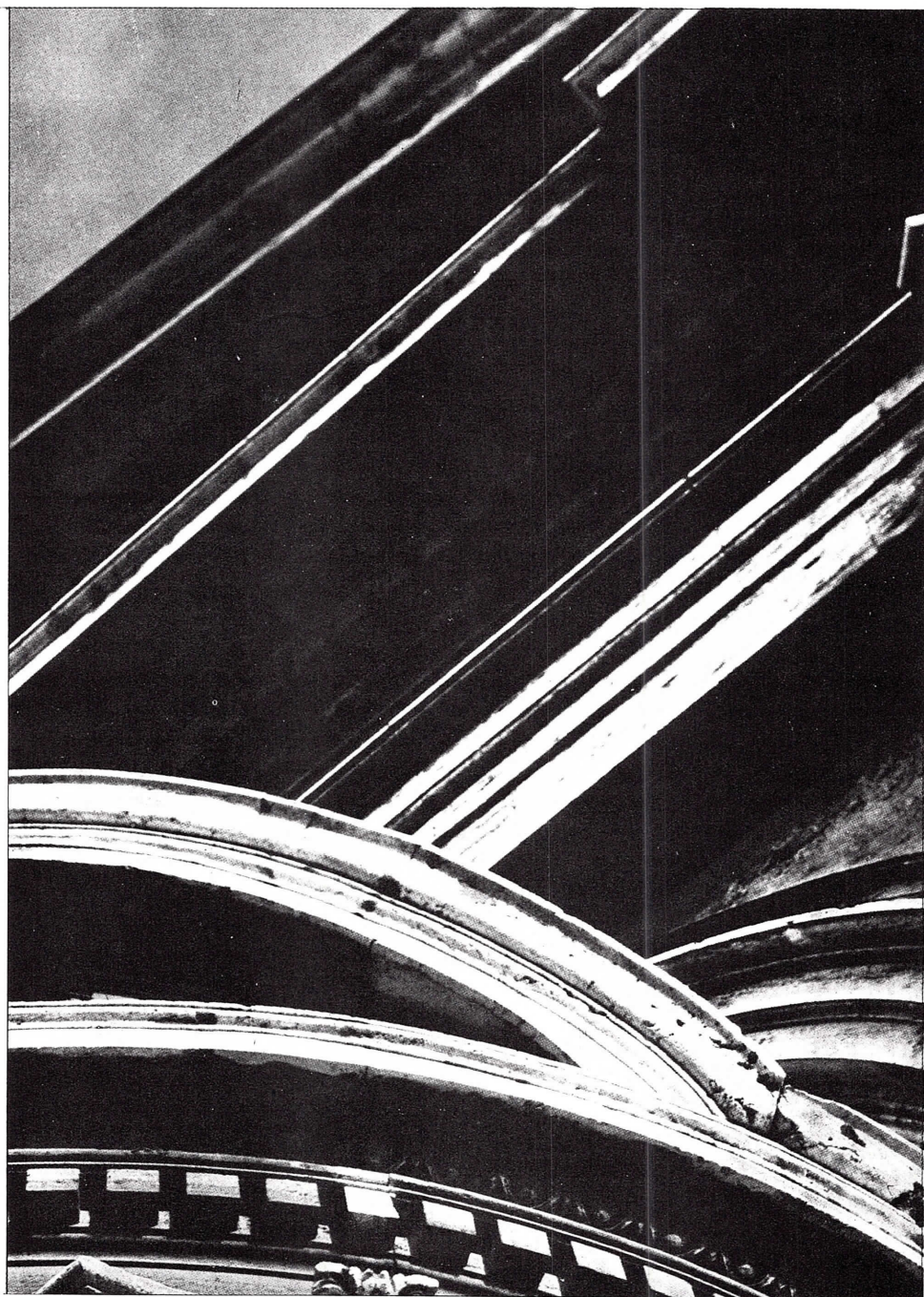
Le cornici addensano il senso di esistenza perché si impongono al massimo all'avvertimento del nostro senso visivo con la loro sequenza rapida netta tagliente di frequenze distinte e cioè di differenze: il loro spazio è vivido, denso di cenni, convoglia al maggior grado la nostra tensione. Le cornici scoppiano ove la materia del muro o della struttura sembra più compressa o comunque muti la direzione delle sue forze. Così come il mare che dirompe in frangenti contro le rocce o all'esaurirsi in fine sulla spiaggia.

I Greci, perché popolo fresco e sensitivo verso il mondo del reale e per di più immerso in una vividissima natura, dovevano per necessità raggiungere nelle opere d'arte la massima densità del concreto. Ebbero per questo il coraggio di sovrapporre il colore, rosso turchino arancio viola, sugli stupendi marmi delle statue e dei templi onde farne scattare la struttura plastica oltre il suo già altissimo limite, sino all'estrema tensione del possibile. A noi moderni con sempre nelle ossa la didascalica partizione delle arti secondo le materie espressive, incommunicabili e quasi ostili tra loro, sembra un fenomeno leggibile con difficoltà un pannello in viola, una trabeazione dipinta: rimaniamo stupiti nel sentire delle pitture di Nicia sulle statue di Prassitele o di apprendere dagli inventari del tempio di Delo le allusioni alla *zōnē* delle statue di Artemide e di Hera. Ma se riusciamo a liberare la nostra visione dal filtro dei pregiudizi, dalla opacità dell'abitudine, ci possono apparire pezzi abbinati di colore e plastica, di non comune bellezza. Certo è che le cornici dei templi greci scattate per aggettì violenti (la trabeazione rimase sempre di spirito omerico) per ombre dense, per colori puri e cantanti, dovevano raggiungere un grado di esaltante esistenza quale noi con difficoltà possiamo immaginare.

Le cornici sono gli spazi di una architettura ove la massima realtà si addensa, e ciò non solo per virtù della loro propria figura, ma in quanto contrapposte a spazi liberi privi di modanature. Naturalmente gli spazi quieti, ove la concretezza non è accesa ed esaltata, assumono l'aspetto, appunto per questa loro « diminuzione di densità » e specie se estesi, di realtà trasparente, cristallina.

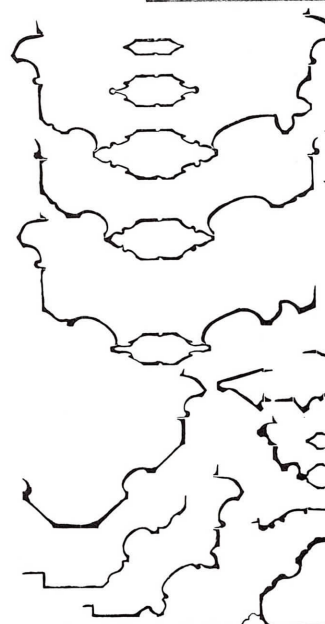
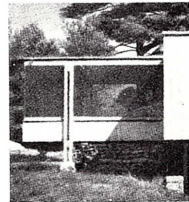
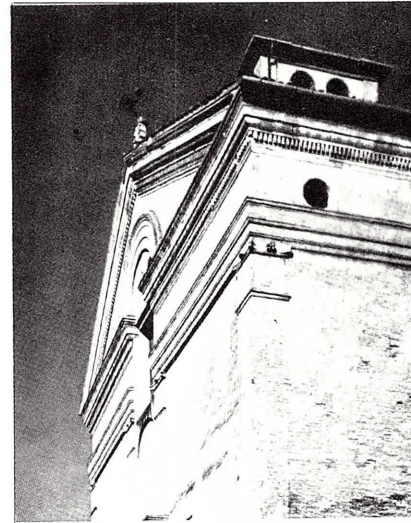
Solo così è spiegabile la straordinaria limpidezza, il nitore di diamante che hanno certe superfici e certi volumi architettonici del Quattrocento e del primo Rinascimento. Il nitore di questi spazi è assoluto, si pensi al fianco del S. Sebastiano in Mantova o alla fronte del S. Pietro in Montorio di Baccio Pontelli, ed è, si noti bene, un nitore *puramente formale*, non di materia. Alcuni maestri del primo razionalismo — e quanti diacepoli — credevano di raggiungere, esaurire o comunque risolvere la loro spinta verso un mondo puro, cristallino, con la materia stessa del cristallo, col vetro. Slittavano così inavvertitamente dalle esigenze del linguaggio plastico alle esigenze, per omonimia, della dizione letteraria. L'aspirazione a una implacabile nettezza formale che è vanto dello spirito moderno si confuse, nell'esprimersi, con la nettezza effettiva del materiale, con il lucido o traslucido delle superfici, ignorando il rigore di una legge formale per la quale

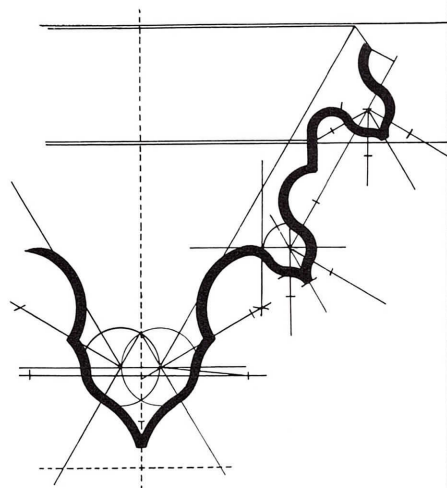
1, Nicola Pisano con Arnolfo di Cambio e aiuti: Pergamo del Duomo di Siena (1265), archetto trilobo, particolare. 2, Volterra, Museo Guarnacci: Urna cineraria etrusco-romana, particolare. 3, Michelangelo: Busto di Bruto, particolare (circa 1540), Firenze, Museo nazionale del Bargello. 4, Louth, Irlanda: Dolmen di Proleek. Nella pagina a fronte: Gian Lorenzo Bernini: S. Andrea al Quirinale in Roma (1678), Facciata, particolare



118 propelling their plastic structure beyond its already highest limit to its most extreme possible tension. To us moderns, who have in our blood a didactic partitioning of the arts according to expressive materials mutually uncommunicating and almost hostile, a phenomenon like a violet drapery or a painted trabeation seems legible with difficulty. We remain thunderstruck on hearing of the paintings by Nicias on statues by Praxiteles, or on learning of the Kosmesis of the statues of Artemis and Hera in the Delos temple inventory. But if we succeed in freeing our vision of the filter of prejudices and the opacity of habit, there may appear before us pieces of uncommon beauty worked in form and color. Surely, the Greek temple cornices, launched by violent projections, dense shadow (the trabeations always remained Homeric in spirit), and by pure singing color, must have reached a level of exalting existence which we can with difficulty imagine.

Cornices are the spaces of architecture where the greatest reality is condensed, and this not only in virtue of their own figure, but insofar as they are counterposed to the free spaces void of profiles. Naturally, the quiet spaces, where the concreteness is neither attained nor exalted, assume by this diminution of density, and especially if extended, the aspect of a transparent and crystalline reality. Only thus is explicable the extraordinary limpidity, the adamantine neatness of certain surfaces and architectural volumes of the *quattrocento* and early Renaissance. The neatness of these spaces is absolute, one thinks of the flank of San Sebastiano in Mantua or the front of San Pietro in Montorio, and it is, be it noted, a purely formal, not a material neatness. Certain masters of early Rationalism, and how many disciples, thought to attain, exhaust or somehow resolve their drive towards a pure, crystalline world, with the very material of crystal itself, glass. They thereby inadvertently tumbled from the exigencies of plastic language into the exigencies, by homonymy, of literary diction. That aspiration towards an inexorable formal neatness, which is the pride of the modern spirit, became confused in its expression with the effective neatness of the material, with the lucidity and transparency of the surfaces, ignoring the rigor of a formal law whereby the most flayed of Palladian walls may be neat. The changeable *chiaroscuro* of the profiles, the eruption of splendid streaks and the clouding of the bands in shadow are alive, and attract as do the rapid





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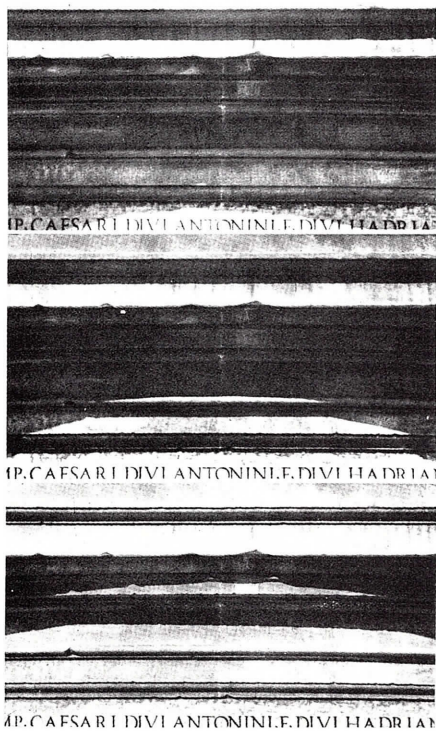
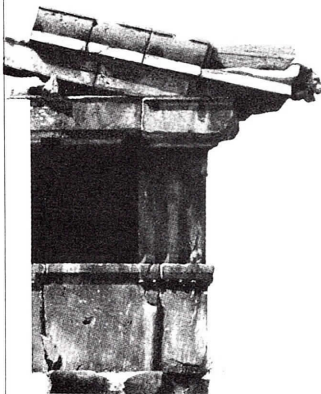
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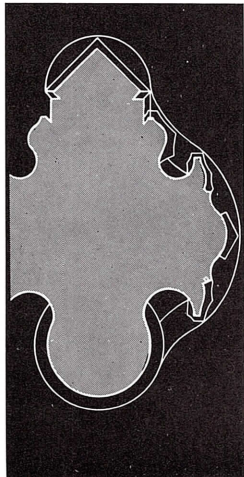
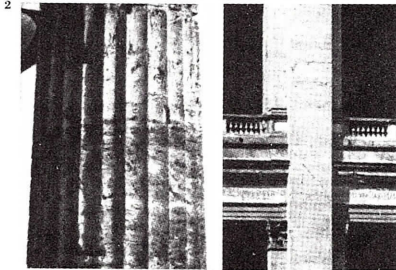
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1. Leon Battista Alberti: S. Sebastiano in Mantova (iniziato nel 1460 da Luca Fancelli, su disegno dell'Alberti, ripreso più tardi e compiuto nel 1499 da Pellegrino Ardzizoni). Particolare del cornicione e del fastigio sulla facciata. 2. Walter Gropius, Marcel Breuer: Casa Chamberlain a Weyland, U.S.A. (1940), particolare. 3. Arco doppio, del coro della Chiesa Collegiata d'Eu, Fécamp (XV sec. in.) Costruzione del profilo su tracciati a 60° e 30°. (Viollet-le-Duc). 4. Edington, Wiltshire: Chiesa monastica (1352-1361). Modanature. 5, 6, 7. Michelangelo. Base della statua equestre di Marco Aurelio A. P. in Roma. Cornice superiore, lato di ponente. Variazione delle ombre (marzo, ore 13, 14, 15). 8. Esempio teorico di una dipintura di trabeazione greca. La trabeazione qui presentata a sostegno dimostrativo del colore e del Partesone, angolo a destra della fronte. 9. Tempio di Athena Nike sull'Acropoli di Atene (450 circa-432). Base di una colonna, modello in gesso





1. Giulio Romano e seguaci: Palazzo Colloredo, ora di Giustizia, in Mantova. Bugne del basamento. 2. Tempio di Poseidone a Pesto, prima metà del V sec. a. Cr.: Fusto di una colonna d'angolo, particolare. 3. Alessandro Galvani: Facciata della Basilica di S. Giovanni in Roma, particolare. 4. Base di pilastro proveniente dal portico dell'Hotel de la Trémoille a Parigi, fine del XV sec. (Viollet-le-Duc)

il nitido può essere nel più scortecciato dei muri palladiani. Il chiaroscuro mutevole delle modanature, l'erompere delle strisce splendide e l'abbuiarsi delle bande in ombra, è vivo e attrae come il gestire rapido di un giovane. Le variazioni di luce su una cornice rivelano la palpazione perenne di una facciata antica, in ogni ora diversa, che si atteggia col corso del sole, in armonia col mondo. Ogni singola cornice diventa un canto straordinario con diverso tono da mattutino a sera. Vi sono pezzi eccezionali che stupiscono per il loro mutevole carattere: le bibliche passionali cornici di Michelangelo, scavate in magma primordiale, i tagli neri e bui, la irrequietudine eterna delle sagome del Borromini, i distesi, stillanti, impassibili modani dell'Alberti — impassibili poi veramente in quella serenità così grave da essere malinconica, da Porfirio? — la prepotenza panica degli aggettii del Bernini, la puntigliosa, fremente, continua sensualità e logica dei profili gotici. La forma delle cornici convoglia le ragioni di una facciata e le rivela veementemente.

Le modanature apposte agli elementi architettonici discontinui — pilastri, colonne, portali, finestre — assolvono la funzione di precisare, di scandire l'individualità dei singoli elementi e di coordinarli in una legge spaziale comune. Se si immagina un edificio classico spoglio di sagome nelle sue membrature cade il suo ordine armonico in confusione plastica e struttiva. Con le modanature di base e di capitello il pilastro è staccato visibilmente dalla parete, pure se ne aggettii di poco, e assume il suo ruolo distinto di sostegno; il corrugarsi delle ombre, in una cornice attorno a una finestra, solidifica formalmente lo spigolo e taglia il vuoto con maggiore veemenza. Le modanature acquiescono o esaltano l'elemento singolo sempre in funzione di quella struttura ideale che governa l'intera rappresentazione architettonica e che levita, corruga e addensa le superfici per mezzo delle quali si rivela. Naturalmente l'espressività plastica di una modanatura può esaurirsi nel suo compito di scanditrice di forme come può spingersi a partecipare in pieno all'ideale travaglio struttivo dell'elemento cui appartiene. Così come in una pittura antica può trovarsi un pannello estraneo alla tragedia della figura o tormentato come se vi partecipasse. Le sagome gotiche, quelle di Michelangelo e di Borromini, hanno un pathos che va alle radici del ruolo delle membrature; i frontoni dei templi greci hanno l'estranietà, la serenità della fronte di Zeus. Infine una modanatura antica dichiara nei suoi elementi metricamente più minuti le possibilità estreme di lavoro della materia in cui è tagliata: quindi la qualità, la compattezza, la resistenza di questa medesima materia. La dichiarazione di rado è coerente alle reali qualità fisiche della materia; più spesso, e nei grandi maestri, il grado delle qualità è esaltato così da far confluire nell'intero edificio energie eroiche, ideali. Si hanno in tal modo, con i listelli di tre millimetri, i marmi sonori come corazzi d'acciaio, della Cappella dei Medici.

Ogni cosa è visibile e con noi comunica per la sua superficie. E il discorso o il canto di una superficie di architettura antica si concentra, tra le pause dei quieti spazi, nelle modanature e in quei corrugamenti geometrici, come le scanalature di un fusto dorico, o di forme liberissime quali le bugne, mirabili, ove la materia corrosa s'agita come torrente scuro, del palazzo Colloredo in Mantova.

Luigi Moretti

NOTE

(1) «... il finimento appreso di noi è una certa corrispondenza di linee infra di loro, con le quali sono misurate le quantità... Caveremo adunque tutta la regola del finimento di music, a chi sono perfettissimamente noti questi tali numeri». Leon Battista Alberti: *Della architettura*, L. IX cap. V.

(2) Le parallele godono delle proprietà dei fasci di rette; perciò tutte le sezioni condotte su di esse e tra loro parallele mantengono le stesse relazioni lineari e gli stessi birapporti, e tutte le sezioni in qualunque direzione condotte conservano gli stessi birapporti.

Si notino, in generale, alcuni comportamenti delle relazioni tra gli spazi a_1, a_2, \dots, a_n (vedi pag. 6, fig. 3, 1) racchiusi tra le cornici principali di una fronte di edificio, e tra i relativi angoli visuali $\alpha_1, \alpha_2, \dots, \alpha_n$ (fig. ibidem, II e III). Intercorrono tra gli spazi ∞^{n-2} relazioni lineari, che, nel caso $n=3$, sono $c_1 a_1 + c_2 a_2 + c_3 a_3 = 0$ (ad es. $a_1/a_2 = r, a_1/(a_2 + a_3) = R$, ecc.), e i cui coefficienti sono: $c_1, c_2, -(c_1 a_1 + c_2 a_2)/a_3$; nonché ∞^{n-2} relazioni armoniche, del tipo $\frac{d_1}{a_1} + \frac{d_2}{a_2} + \frac{d_3}{a_3} = 0$ (ad es. nel caso $\frac{1}{a_1} + \frac{1}{a_2} - \frac{2}{a_3} = 0$, a_3 è media armonica tra a_1 e a_2); per $n \geq 3$ sono inoltre da considerare i birapporti, e le loro funzioni o relazioni, la cui importanza sta nella loro invarianza su ogni rappresentazione prospettica; una delle espressioni più significative del birapporto è $L = \frac{(a_1 + a_2)(a_1 + a_3)}{a_1 a_3}$.

Quello che nella realtà è importante, ed è questo un mio preciso pensiero, sono le relazioni degli spazi non di per sé ma in quanto determinanti rela-

(Le note continuano a pag. 122)

movements of a young man. The variations of light on a cornice reveal the everlasting palpitations of an ancient facade, diverse from hour to hour, as the sun's course shapes it in harmony with the world. Each single cornice becomes an extraordinary song in a different key, from morn 'till night. There are exceptional pieces which astound us by their volatile quality: the passionate biblical cornices of Michelangelo hewn out of primordial magma, the black and dark edges, the everlasting restlessness of Borromini's shapes, the impassive mouldings of Alberti, extending and exuding, impassive perhaps in a truly Porphyrian calm so grave as to be melancholy, the panic lordliness of Bernini's projections, the punctilious throbbing and continuous sensuality of the Gothic mouldings. The form of a cornice conveys the reasons for a facade, and reveals it vehemently.

Profiles applied to the discontinuous architectural elements — pilasters, columns, doors, windows, etc. — take on the function of clarifying and scanning the individuality of the single elements, and of coordinating them in a common spatial law. If one imagines a classic building despoiled of mouldings in its frameworks, its harmonic order would fall into plastic and structutive confusion. With its base and cap mouldings, the pilaster is visibly detached from the wall, even if it scarcely projects, and it assumes its distinct role of support. The corrugations of shadow in the cornice around a window formally solidify the edges and cut the void with greater vehemence. Profiles quieten or exalt each single element always in virtue of that ideal structure which corrugates or condenses the surfaces by which it is revealed. Naturally the plastic expressiveness of a profile can be exhausted in its task of scanning the form, just as it can be driven to participate fully in the ideal constructive effort of the element to which it belongs: just as in an old painting one can find draperies extraneous to the tragedy of the figure, or tormented as though partaking in it. The Gothic mouldings, those of Michelangelo and Borromini, have a pathos which goes to the root of the role of the framework: the fronts of the Greek temples have the extraneity and serenity of Zeus' forehead. Finally, an ancient profile will declare in its metrically smallest elements the utmost possibilities of working the material in which it is cut. This declaration rarely corresponds with the real physical qualities of the material. More often, and with the great

masters, the level of quality is so exalted as to flood the entire building with heroic ideal energies. In such a way do marble lintels three millimeters thick in the Medici chapel resound like steel cuirasses. 121

Everything is visible and communicates with us by its surfaces: the chant or discourse of a surface of ancient architecture is concentrated between the pauses of the quiet spaces, in the profiles and in those geometrical corrugations, like the flutes of a Doric column, or in very free form as in the wonderful embossments of the Palazzo Colloredo at Mantua, where the corroded material swirls like a dark torrent.

- 122 1. This text may legitimately be treated as an extended footnote to Le Corbusier's chapter in *Vers une Architecture*, entitled "Architecture: a pure creation of the mind." I have translated "Valori della Modanatura" as "The Values of Profiles," but while "valore" can mean "value" or "virtue" according to context, and is almost synonymous with "purpose" or "function" on the one hand, and with the ancient Greek concept of "arete" or the Roman use of "virtus" on the other; "modanatura," here translated simply as "profile," is a romance language technical term for which the English language provides no exact equivalent. Mr. Frederick Etchells, in his translation of Le Corbusier's *Vers une Architecture* translates the French equivalent, "modernature," as "profile and contour." Both Le Corbusier and Moretti seem to be here concerned with ontology than with either novelty or antiquity. In their architectural writings, Le Corbusier's English and German translators have considerably furnished him with an implied interest in newness, rather than suchness, which is not to be found in the title. I was under no temptation to do the same with Moretti. In general I have sought to reduce somewhat the rhetorical prolixity of Moretti's original text, without losing the substance of his many adjectival qualifications. Had my text been French, I should have had the opposite problem for a literal translation of Le Corbusier's ironical, laconic and peremptory French would read like a telegram or a military command.—Trans.
2. "A *finimento* as we know it is a certain correspondence among lines among themselves by which quantities are measured. We shall take the whole rule of accomplishment from music for the benefit of those perfectly acquainted with these numbers." L. B. Alberti, *Della Architettura, della Pittura e della Statua*, Chapter V, Book IX.
3. The parallels enjoy the properties of straight bands; so that all sections conducted on them and parallels between them maintain the same linear relations and the same cross-ratios. In general, certain behavior of these relations should be noted: between spaces A_1, A_2, \dots, A_n and L_1, L_2, \dots, L_n , there occur 00^{n-2} linear relations, which in case $n=3$ are C_1A_1 plus C_2A_2 plus C_3A_3 equals 0 (for instance a_1/a_2 equals r , $a_1/(a_2 + a_3)$ equals R , and the co-efficients are $C_1C_2-(C_1a_1 C_2a_2)/a_3$) as well as $n-2$ harmonic ratios of the type d_1/a_1 plus d_2/a_2 plus d_3/a_3 equals 0, as for instance $1/a_1$ plus $1/a_2-2/a_3$ equals 0, where a_3 is a harmonic mean between a_1 and a_2 . For $n=3$ there are also to be considered the cross-ratios and their functions or ratios, whose importance resides in their invariance in every perspective representation; one of the most significant expressions of the cross-ratio is $(a_1 + a_2) (a_2 + a_3)/a_1a_3$.
- The above formulae refers to enumerative geometry and projective geometry respectively. H. S. M. Coxeter's *Introduction to Geometry* and Hilbert and Cohn-Vossen's *Geometry*

and the *Imagination* may be consulted by those who wish to pursue these matters further.—Trans.

Structures and Sequences of Spaces ¹

Luigi Moretti

Translation by Thomas Stevens

An architecture is read by means of the diverse aspects of its figure, that is, in the terms in which it is expressed: *chiaroscuro*, constructive fabric, plasticity, structure of the internal spaces, density and quality of the materials, geometrical relations of the surfaces and others more remote, such as color, which may from time to time be asserted according to the ineffable laws of resonance. Every one of these terms has such a conjunction with the others that one cannot easily remain satisfied with it alone and only in its terms traverse the building, in that vivid, unstable and oscillating but always identical act, which is the vision of an architecture.

All the facts, and, I would say, all the metaphysical entities which compose it, intervene in our colloquies with an architecture, each one chanting in its own tongue, whether of light or of weight or of scale or of matter, or of empty space, now calling the others, now repeating them and now contrasting with them, with an ever changeable expressive concatenation like light and men, but with a final congruence, an immutable destiny which is then the created order of their relations, *the* structure of the work. Naturally, if in an architecture each expressive aspect, every aspect of its figure is coordinately bound to the others, for instance, the tissue of the *chiaroscuro* to the plastic organism or to the apparent organism of the construction, it would seem permissible as a basis for the critical analysis of a work to take one of these aspects in abstraction from the others, and consequently conduct on that basis reasonings valid for the entire architectural reality. It may seem allowable, but in fact the results of such a critical process are occasionally excellent as they are often disastrous. It suffices to think of the exact points and also the gross errors criticism has perpetrated, in disserting on pictorial or plastic language, or on the constructive organism of a work. Certainly, the one or the other result depends on the fineness of analysis with which the chosen aspect is evaluated, but above all on one's being aware or not that one is working with the symbol of a terribly much more complex reality. However, even these unilateral critical soundings do sometimes finish by flourishing that famous integral reading of the work, whatever may have been their starting point.

There is, however, one expressive aspect which resumes the architectural fact with such notable latitude that it seems it

could be taken with greater tranquility than the others, even in isolation: I mean the internal and empty space of an architecture. Indeed, it is enough to observe that the other expressive terms—*chiaroscuro*, plasticity, density of material, construction—are each formal or intellectual aspects of the material in its physical concreteness that is put into play in an architecture, and they thus form a “group” of a certain homogeneity, and in their complex are strongly representative. Now it is known that the empty space within an architecture is exactly counterposed to this “group” as its mirror, symmetrical and negative value, like a true negative matrix, and as such is capable of resuming both itself and its opposite terms. Especially where the internal space is the principal or even the direct reason for the birth of the fabric, as it is for most, it can be defined as the richest seed, mirror, and symbol of the entire architectural reality.

This was very clear to the ancients; for centuries, from the Roman to the Romanesque, from the Gothic to Brunelleschi, from Bramante to Guarini, the conquest and resolution of internal spaces coincide with the conquests and with the very history of architecture itself. Modern criticism has many times pointed to internal spatiality as the determinative, resumptive and uniquely directive (and in this it is in error) aspect of architecture. It is sufficient here to think of Friedrich Ostendorf, Schmarsow and the limpid Brinkmann; more recently, it has been Bruno Zevi's merit to declare the question neatly, in spite of the nebulousness of much recent architectural criticism, navigating most uncertainly between opposite points of view. It is also true that critical enunciations on internal stereometry have never been deepened into a true analytical research, neither as pure theory nor as philological analysis of determined works of architecture.

The bonds between the internal space and the other elements of an architecture are infinite and very rigid; it is enough here to recall that an internal space has, as surface limits, that integument on which are condensed and legible the facts and energies which consent to it, and whose existence the space in its turn generates. But the internal volumes have a concrete presence on their own account, independently of the figure and corposity of the material embracing them, as though they were formed of a rarified substance lacking in

124 energy but most sensitive to its reception. They have, I repeat, qualities of their own, of which four are defined: the dimension, understood as quantity of absolute volume; the density, depending on the quantity and distribution of permeating light; and the pressure, or energetic charge, according to the more or less incumbent proximity at every point of the space of the bounding constructive masses, and of the ideal energies they set free: a quality, this, comparable to the pressure in a moving fluid, varying in function of the obstacles and restrictions it encounters, or even comparable to the field potential in a space, in virtue of the electric charges influencing it.

But in these short essays, it is not my intention either to sound the bonds and the order between an internal space and the entire work of architecture, nor to analyze in a space considered in isolation the permutations of combinations possible among the four qualities mentioned; still less to seek from among these combinations those privileged for presumed expressive excellence. One would risk falling into that metaphysic of absolute values to which not much consistency can be attributed, just as it cannot be attributed to discussions concerning a surface more or less beautiful in itself according to its proportions. Although actually this assertion in respect of the internal volumes would seem to be contradicted by a long series of observations by writers of treatises from Vitruvius down to Alberti, Palladio, Serlio, Viola, Guarini and Milizia, who defined or clarified the geometrical relationships most appropriate to the beauty of a surrounding. It is however to be well noted that these observations did not leave the didactic ambit in which they were rightly formulated for the purpose of guiding architects of less foresight towards solutions balanced as structures and moderately secure in their formal order.

But leaving this field of researches, I want to limit the essay to the spatial unity formed by the internal volumes which compose it in a certain order, and which constitute in their succession with the changing perspective effects and in relation to the routes and times possible and necessary for viewing them, a true sequence in the actual meaning of the term. Of these volumes coordinated into unity, I mean to clarify the modality of their succession and thus the structure of their

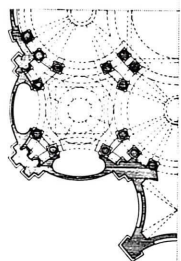
composition; that is, their type and the reason for the differences among the volumes and their enchainment. This differential research has a fully justified logical basis, because it does not descend from absolute interpretations of the spaces, but from their comparison by means of parameters which once assumed always remain the same, exact or not as they may be. However, once having fixed the four qualities or parameters of the internal volumes, the analysis will turn solely on them. That is, we shall examine the sequences among the component volumes as they are revealed by geometric form, absolute quantity of volume, and "pressure" or energetic charge. We are alerted to the first two by intellectual routes, the second two we are aware of by their intellectual and psychological order.

If we think of the *Thermae* of Diocletian, of Brunelleschi's *Santo Spirito*, of St. Peter's, it will seem clear to us that the internal spaces of these fabrics in which the great act of architecture is summed up, an act destined for the widest number of men, should be by this their very premised universality cut into the quick of the human spirit, the more they have of the elementary and constituent. And so a study of the composition of these spaces, and the emotional trends their sequences excite in us, can perhaps bring to light certain points of that obscure law that universally guides the human spirit, thus driving great minds in the composition of such extraordinary architecture that it even moves the minds of the simplest beholder. From this, the sovereign morality of architecture comes to mind, its unique social and human example, which is that of communicating equally with all men, both humble and powerful.

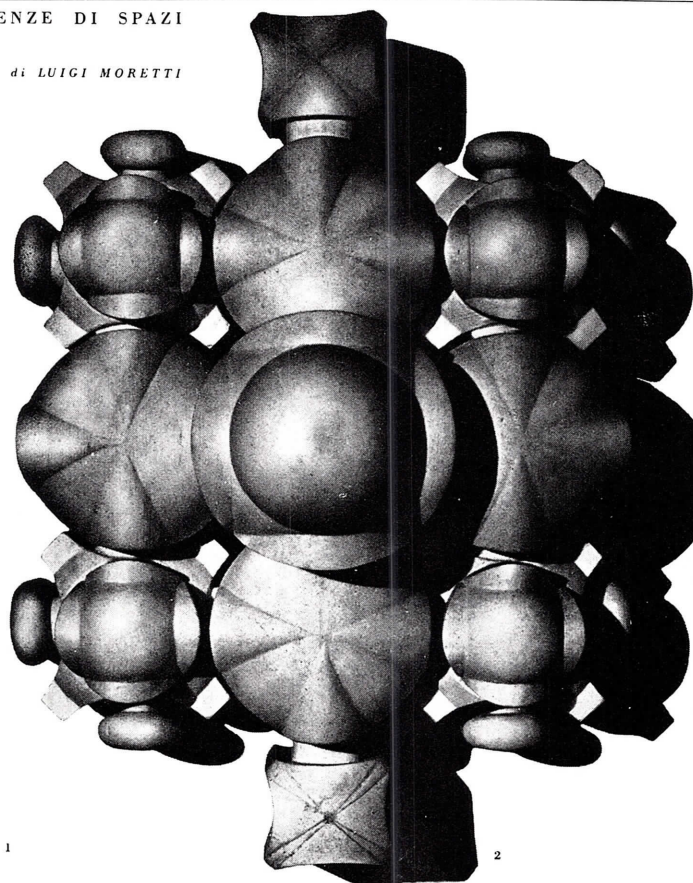
Greece did not have in her architectures internal spaces of the scale and significance that the Romans promoted. The columns of the Greek temple enclosed rectangles with their blades of shadow, which seem to surround and form inviolable cells, born of the bowels of the earth. Greek architecture was an algorithm of light and also of the shade of unknown forms where the gods hid. The high plane and the luminous vault of the heavens are the marvellous extraverted spaces which the colonnade pylon of the temple supports. The Hellenic house, on the elementary framework of repose and shade for man, distributed in its domestic surroundings various densities of

STRUTTURE E SEQUENZE DI SPAZI

di LUIGI MORETTI



1



2

Una architettura si legge mediante i diversi aspetti della sua figura, cioè nei termini coi quali si esprime: chiaroscuro, tessuto costruttivo, plasticità, struttura degli spazi interni, densità e qualità delle materie, rapporti geometrici delle superfici e altri più alieni, quali il colore, che di volta in volta possono affermarsi secondo le inafferrabili leggi delle risonanze. Ognuno dei termini ha una tal congiunzione con gli altri che difficilmente in quell'atto vivido, instabile, oscillante, mai identico, che è la visione di un'architettura, è possibile quietarsi su uno solo di essi e quello solamente percorrere.

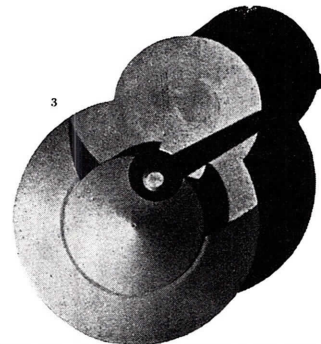
Intervengono nei nostri colloqui con una architettura tutti i fatti e diremmo tutti i personaggi metafisici, gli enti, che la compongono: ciascuno recitando nel suo verbo, o di luce o di peso o di misura o di materia o di vuoto spazio, ora chiamando gli altri ora ripetendosi ora scomparendo, con una concatenazione espressiva sempre mutevole, come la luce e gli uomini, ma con una congruenza finale, un destino immutabile, che è poi la creata ordinanza dei loro rapporti, la struttura dell'opera.

Naturalmente se in un'architettura ogni lato espressivo, ogni aspetto della sua figura, è legato coordinatamente agli altri, a esempio il tessuto del chiaroscuro all'organismo plastico o all'organismo apparente della costruzione, sembra lecito, in sede di analisi critica di un'opera, assumere uno di questi aspetti in astratto.

I modelli degli spazi interni sono stati realizzati considerando matrici di forma le superfici interne delle architetture esaminate.

1. Guarino Guarini. Progetto per la chiesa di S. Filippo Neri in Casale Monferrato. Elemento planimetrico. (Guarino Guarini: «Architettura civile». Torino, 1737). 2. Volumi degli spazi interni della chiesa di S. Filippo Neri. modello costruito sul progetto. (G. Guarini, opera citata). 3. Frank Lloyd Wright. Casa McCord. Rappresentazione dei volumi interni del piano terreno

3

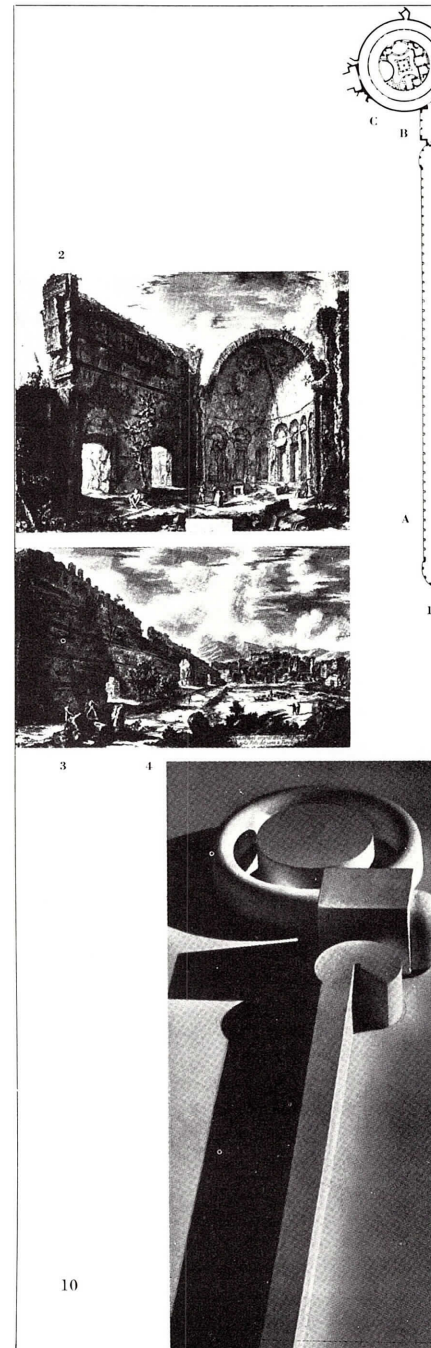


126 light, from the obscure Oeci to the penumbra of the Peristyle and the brilliance of the Viridarium, scanned in that meter on which was to be extended for centuries the Roman and Renaissance verse of the house no less than that of the Baroque and the nineteenth century; that is, wherever a grey entrance opens onto a bright courtyard. In the penumbra of the Greek house, there flashed at every ray and reflection domestic objects or the crests of helmets, the Chlamydes and the bronzes of Alceus, like the glasses, the red hangings and the black and white pavements in Vermeer's Flemish houses.

The great spaces of architecture arise with Rome and are the magnificence of it. United with superhuman vaults, and with walls of incredible strength, instinctively breathing the indestructible military works that ruled them, they express the conscious power of a community. These sovereign spaces open up and are bound to proud theories in which the measured order seems to render sensible that clarity of mind and the consciousness of that clarity that is the majesty of the Roman people. The sequences of volumes in the basilica, and especially in the Thermae of Titus, Agrippa, Diocletian and Caracalla, must have reached unsurpassed effects by the variety of their components and the routes possible through them. On the ruins of the walls indicating these volumes, from Brunelleschi to Michelangelo, Renaissance and Baroque space was born, and with it the sense of the grandiose in the new polity of the west.

In order to evaluate in their complexity the sequences of volumes in the Thermae, it is opportune to begin observations on some more elementary sequences which can be met with in certain examples of the same Roman architecture, and in certain Renaissance constructions. Among the fabrics of the Villa Adriana, most silver mirror of all the inflections of an imperial eclecticism, interesting models can be picked out from the simplest to the most elaborate. The triple group of the Poekile entrance, square aula and circular natatorium, can be taken as an example of a sequence of volumes whose vividness and solemnity are exclusively based on differences of geometrical form between the elements of the group.

The three volumes follow one another in the natural order of traversing them: a rectangular prism with a dominant



zione dagli altri, come indice dell'opera stessa e, in conseguenza, su esso condurre ragionamenti validi per l'intera realtà architettonica. Sembra lecito ma di fatto i risultati di un tale processo critico sono alcune volte eccellenti, come tante altre pessimi. Basti pensare a quali punti esatti e insieme a quali grossolani errori è pervenuta la critica che discetta sul linguaggio pittorico o plastico o anche sull'organismo costruttivo di un'opera. Dipendono gli uni e gli altri risultati certamente dalla finezza di analisi con cui è vagliato l'aspetto prescelto, ma soprattutto dall'aver o non coscienza che si opera su un simbolo di una realtà terribilmente più complessa. Comunque anche questi approfondimenti critici unilaterali, qualunque ne siano gli approdi, finiscono per giovare alla famosa lettura integrale delle opere.

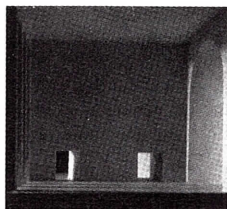
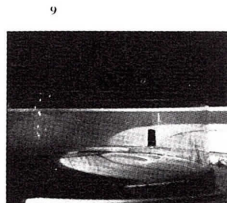
Vi è però un aspetto espressivo che riassume con una latitudine così notevole il fatto architettonico che sembra potersi assumere, anche isolatamente, con maggior tranquillità degli altri: intendendo accennare allo spazio interno e vuoto di una architettura. Infatti basti osservare che alcuni termini espressivi — chiaro-scuro, plasticità, densità di materia, costruzione — si palesano quali aspetti, formali o intellettivi, della « materia », nella sua fisica concretezza messa in gioco nell'architettura e formano perciò un gruppo di una certa omogeneità e nel suo complesso fortemente rappresentativo. Ora si noti che lo spazio vuoto degli interni di una architettura si contrappone esattamente a questo gruppo come valore speculare, simmetrico e negativo, come una vera matrice negativa, e in quanto tale capace di riassumere insieme sè stesso e i termini suoi opposti. Specialmente ove lo spazio interno è la ragione principale, o addirittura ragione di nascita della fabbrica, come è per lo più, esso si palesa come il seme, lo specchio, il simbolo più ricco dell'intera realtà architettonica.

Ciò fu per gli antichi chiarissimo e per secoli; dai romani ai romani, dai gotici al Brunelleschi, da Bramante al Guarini, la conquista e risoluzione degli spazi interni coincide con le conquiste e la storia stessa dell'architettura. La critica moderna ha più volte puntato, direttamente o non, sulla spazialità interiore come aspetto determinante, riassuntivo, addirittura unico (e questo è un errore) dell'architettura: basti qui ricordare Friedrich Ostendorf, lo Schmarsow, il limpido Brinkmann. Più recentemente, Bruno Zevi ha avuto il merito di dichiarare nitidamente la questione, pure nella nebulosità della critica architettonica di questi ultimi anni, navigante incertissima fra i più opposti caposaldi. È anche vero però che le enunciazioni critiche sulle stereometrie interne non furono mai approfondite in una vera ricerca analitica né come pura teoria né come analisi filologica su determinate opere di architettura.

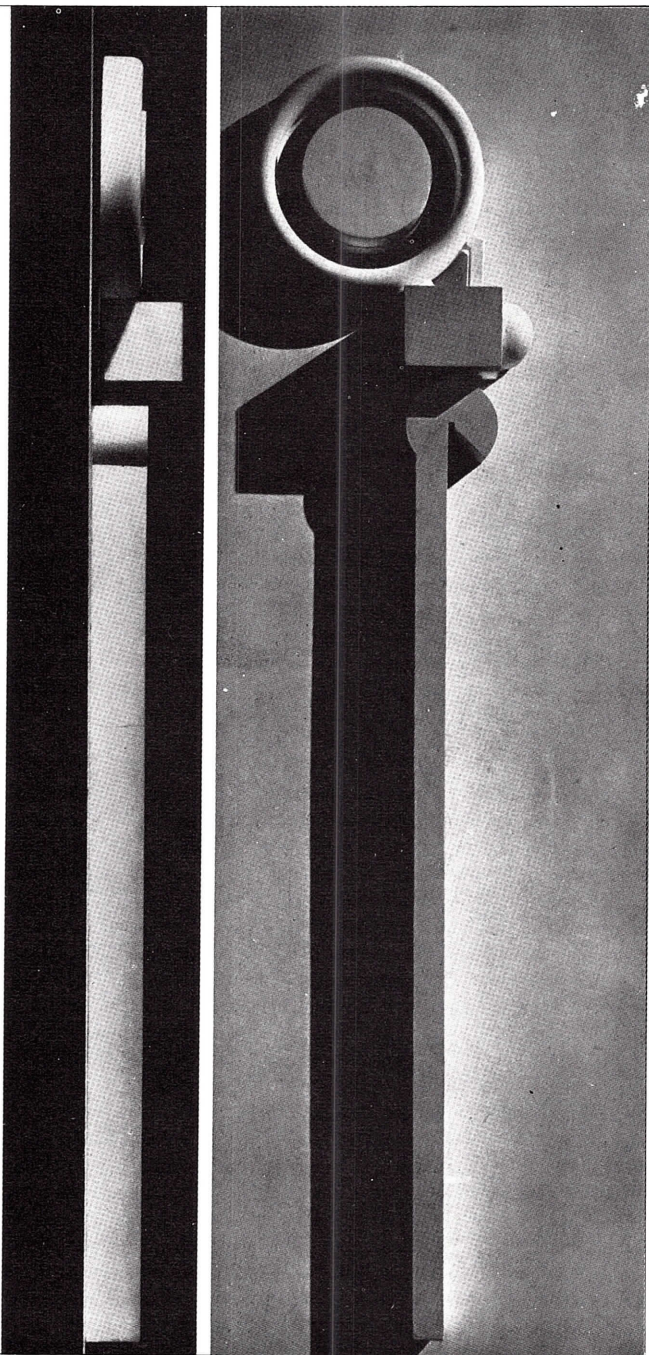
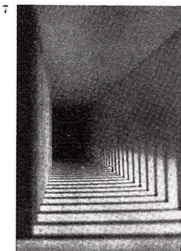
I legamenti fra lo spazio interno e gli altri elementi di un'architettura sono infiniti e rigidissimi; basti pensare che uno spazio interno ha come superficie limite quella scorza su cui si condensano e si legano le energie e i fatti che lo consentono e lo formano e dei quali esso spazio a sua volta genera l'esistenza. Ma i volumi interni hanno una concreta presenza di per se stessi, indipendentemente dalla figura e compostità della materia che li rinserra, quasi che siano formati di una sostanza rarefatta priva di energie ma sensibilissima a riceverne. Hanno cioè delle qualità a loro proprie di cui, ritengo, se ne palesano quattro: la forma geometrica, semplice e complessa che sia; la dimensione, intesa come quantità di volume assoluto; la densità, in dipendenza della quantità e distribuzione della luce che li permea; la « pressione » o « carica energetica », secondo la prossimità più o meno incombente, in ciascun punto dello spazio, delle masse costruttive limitari, delle energie ideali che da esse sprigionano. Qualità, questa, comparabile alla pressione che in un fluido in movimento costante varia in dipendenza degli ostacoli, opposizioni, rastremazioni che incontra; o anche al potenziale di uno spazio in funzione delle masse elettriche che lo influenzano.

Ma in questi brevi cenni non si intende né approfondire i legamenti e la loro ordinanza fra lo spazio interno e l'intera opera di architettura né analizzare in uno spazio isolatamente considerato,

1. *Tivoli, Villa Adriana. Pianta del complesso: A portico doppio del «Pecile». B aula quadra detta dei filosofi, probabilmente basilica. C natio circoletto (Rilievi di Blondel e Winnifeldt). I tre elementi costituiscono una caratteristica sequenza per differenze di forma. 2. 3. G. B. Piranesi, Villa Adriana. Aula quadra e muro di spina del doppio portico, acquedotti. 4. Villa Adriana. Sequenza degli spazi interni: portico, aula quadra obliqua e natio circoletto composto dal peribolo porticato, dalla piscina anulare, dall'isola. Modello. 5. 6. Vedute ortogonali in pianta e in alzata dei volumi della sequenza. 7. 8. 9. Presumibili valori reali dei tre spazi della sequenza, modelli. Portico dall'ingresso ovest, aula quadra dal passaggio di congiunzione col portico, natio circoletto.*



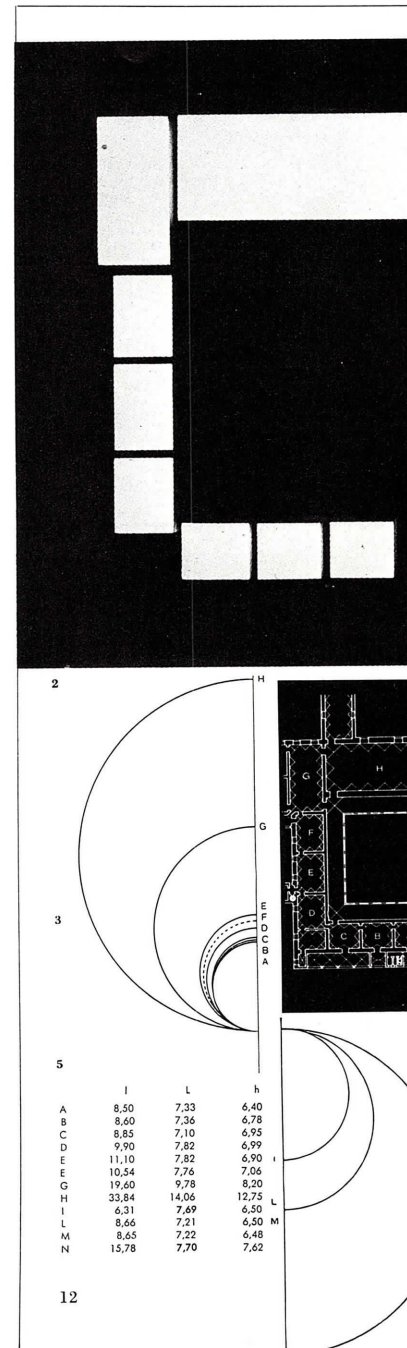
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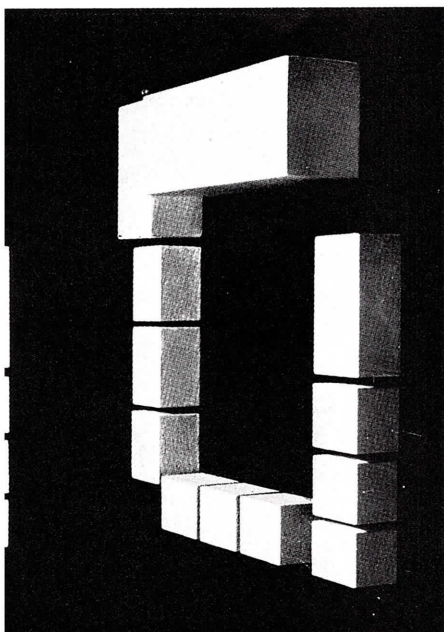


128 longitudinal axis, cube and cylinder. The volume of the portico, a true gallery with an inexorably long flight, is broken at its end by a lightly curved wall, and flows by the vein of a passage of limited dimensions into the very high square aula. The cubicity of this, after the subtle fracture with the portico and its very long and human flight is raised to an empyrean, abstract and most solemn scale. From the majesty and dignity of the aula, you proceed through two narrow passages excavated in the thickness of the wall (one of them, like a true unforeseen iris closure, long and dark) into a very vast aerial portico of limited height, which embraces a great piazza of sky and surrounds a basin of water within which, isolated, arises a fragile round island, enchanted with niches, columns and friezes.

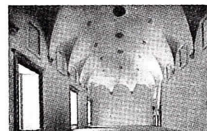
The cylindrical space after the cubicity of the great room must have seemed vivid by reason of the succession of circles of peristyle and islets mirrored and refracted many times in the water in an incandescent gyration, which to us today does not seem remote from the vortex of the *tempietto* of San Pietro in Montorio, with the intended resonances of its portico about it.

The sequence of the three surroundings is played out on three forms as elementary as they are precise and sure in their effects: the long flight of the portico, the aulic pause, and the cylindrical rotation of the natatorium. The diversity of geometric forms is scanned by the double *stretti* of the passages, which are like sluices to the waves generated by one's traversal of the surroundings, a rhythmic pause, one of those terminal verse cadences of equivocal duration which the Greeks placed in order to shorten or lengthen the gap between two verses. The *stretti* arise as passages, forcibly limited in metric scale through being hewn out of the wall; but gradually one becomes aware of them also, even in their mysterious and suggestive dimensions, in their natural and exasperated counterpoint with the very vast spaces. There thus arise those adits of human dimension whose spatiality suffers a maximum of compression through being excavated in the nuclei of energy in buildings, lyrical caesuras between spaces: passages which the Gothic was to exhaust or forget in another direction, and which the High Renaissance would deny, but which, after Michelangelo, the sixteenth century





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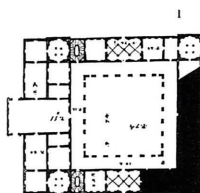


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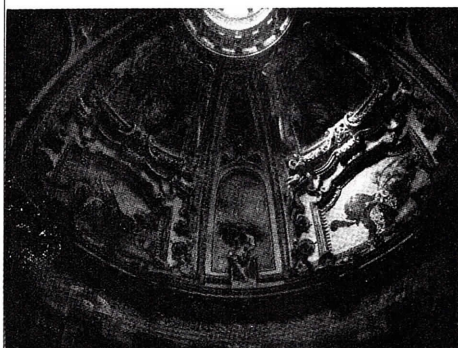
1. Luciano Laurana e Francesco di Giorgio. Palazzo Ducale di Urbino. Particolare della pianta. L'appartamento degli ospiti e la sala del trono (gruppo AH) e l'appartamento della Iole (gruppo IN) costituiscono due sequenze articolate per differenze di volume. 2. Rappresentazione schematica delle due sequenze di volumi. 3-4. Grafici dell'allungamento progressivo delle sale nelle due serie AH e IN. Le sale F e M non seguono il ritmo crescente delle altre. 5. Valori metrici delle due serie di sale: l = lunghezza, L = larghezza, h = altezza. 6. Palazzo Ducale di Urbino. Sala del trono

la casistica delle combinazioni possibili tra le quattro qualità enunciate, e tanto meno ricercare, di queste combinazioni, le privilegiate per presunta eccellenza espressiva. Si rischierebbe di cadere in quella metafisica dei valori assoluti, cui non è da conferire molta consistenza, come non è a darne ai discorsi intorno a una superficie più o meno bella di per sé, a seconda delle sue proporzioni. Benché proprio al riguardo dei volumi interni questa affermazione sembri contraddetta da una lunga serie di notazioni di trattatisti, da Vitruvio all'Alberti, al Palladio, al Serlio, al Viola, al Guarini, al Milizia, che accennarono o precisarono i rapporti geometrici più acconci alla venustà di un ambiente. Ma a ben guardare, queste notazioni non escono da quell'ambito didattico nel quale erano formulate, e giustamente, per guidare gli architetti meno avveduti verso soluzioni mediamente sicure nell'ordine formale ed equilibrate come strutture.

Pertanto, tralasciando questo campo di ricerche, si vuol limitare l'indagine sulle unità spaziali formate da volumi interni che si compongono in una certa ordinanza e che nel loro seguirsi, costituiscono col mutare delle prospettive, in relazione ai percorsi e ai tempi necessari e possibili per la loro visione, una vera sequenza nel significato attuale della voce. Di questi volumi, coor-



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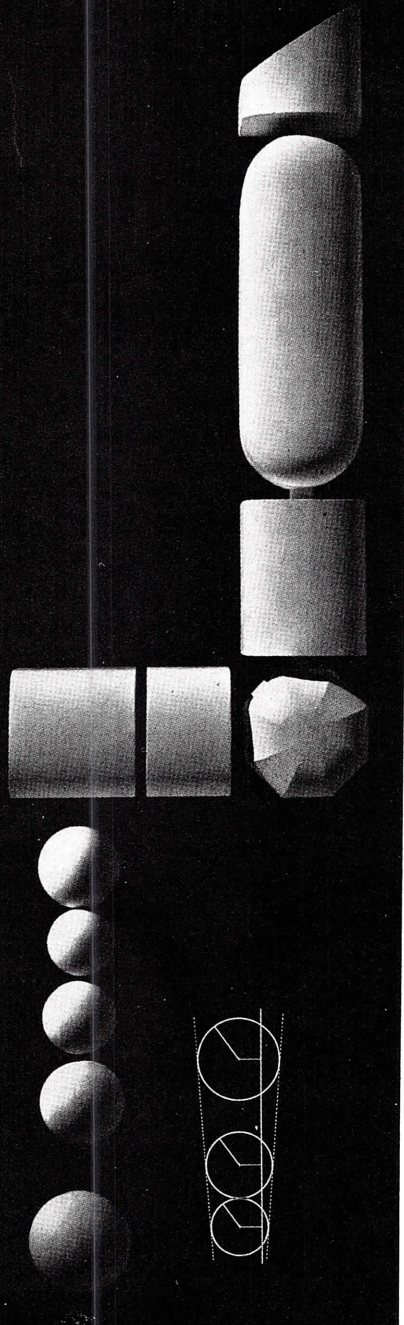
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1. Andrea Palladio, Vicenza, Palazzo Thiene. Pianta (da A. Palladio: «I quattro libri dell'architettura»). In colore è indicata una delle sequenze per differenze di forma geometrica e di volume. 2. Rappresentazione della sequenza indicata. 3. Sfere equivalenti ai volumi della sequenza a partire (dall'alto) dalla sala successiva all'ingresso. 4. Sezioni delle sfere corrispondenti ai volumi della sala absidata (in alto), della mediana e della ottagonale. Le sezioni hanno due tangenti comuni cioè i volumi corrispondenti sono in proiezione prospettica. 5. A. Palladio e altri. Vicenza. «La Rotonda». Cupola della sala centrale

dinati in unità, si intende chiarire le modalità del loro seguirsi e quindi la struttura della loro composizione, cioè tipo e ragione, delle differenze tra i volumi e del loro concatenamento. Questa ricerca «differenziale» è in sede logica pienamente giustificata poiché non discende da interpretazioni assolute degli spazi ma dal paragone di essi mediante parametri che una volta assunti permangono, esatti o meno che siano, sempre uguali. Pertanto fissate le quattro qualità, o parametri, dei volumi interni su esse soltanto verterà l'analisi. Esamineremo cioè le sequenze nelle differenze che, tra i volumi che le compongono, si rivelano per forma geometrica, quantità assoluta di volume, densità, «pressione» energetica. Le prime due sono differenze avvertite per via intellettuale, le seconde due per un ordine intellettuale e psicologico.

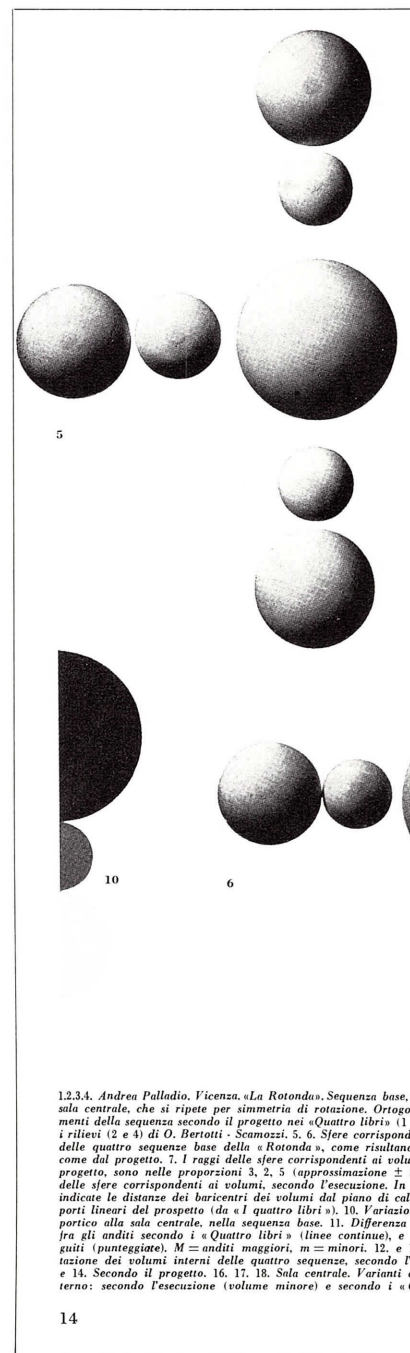
Se pensiamo alle terme di Diocleziano, al Santo Spirito del Brunelleschi, alla Basilica di S. Pietro, ad alcune chiese del Guarini, ci sembra chiaro che gli spazi interni di queste fabbriche in cui si assomma il grande atto dell'architettura, atto destinato al più esteso numero di uomini, siano, per questa loro premessa universalità, tagliati sul vivo dello spirito umano in quanto ha di più elementare e costitutivo. E allora uno studio sulla composizione



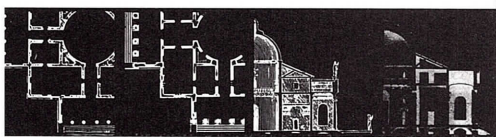
130 was to re-elaborate in all their drama, in the junctions between the chapels and the large spaces of the churches or in the vestibules of the palaces.

If the Poekile, the aula and the natatorium can be taken as an example of a sequence played out principally on differences of geometrical form, in the Renaissance one can pick out sequences sculpted with extreme subtlety by differences of dimension alone, among volumes which maintain similar or identical geometrical forms. Here I want to indicate two examples of this sort of sequence in the Ducal Palace at Urbino, precisely one which runs from the guest rooms to the throne room, and the other which takes in the four surroundings of the Jole apartment. The pure rectangular prisms of the rooms, rendered vivid in the vaults by the diamond shaped squinches of the lunettes, succeed one another in both the sequences of spaces by constant dilations of their volumes through always increasing in length and height. This continuous increase on a constant formal monotone scans the two most lovely crescendi of sequences which reach their triumphal maximum in the throne room and the Sala della Jole. It is interesting to note that the sequences are not by constant but by always greater differences, a sort of premature logarithmic scale, until the final and decisive movement of the two terminal volumes; and that in both sequences there is a room which arrests the rhythmic precipitation. It is unthinkable that this volumetric dilation should be accidental. It is fairer to consider the two sequences as a rare example of purely quantitative spatial modulation; perhaps even as the first instance in which space is considered as something real in its own right, formed of a substance as labile as it is sensitive and concrete. The volumes of the Ducal Palace in limpid perspective inversion—are they one more bivalent signature of Laurana and di Giorgio?—define a research into a growing emotivity up to the attainment of an acme, which is what it is by its very high tone and by its conclusive position in the discourse.

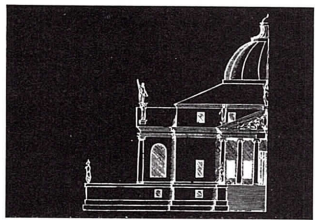
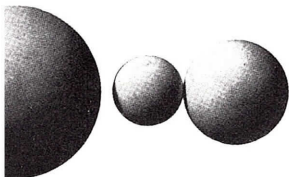
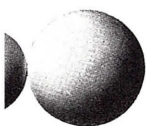
The Renaissance had, as its ideal, spaces which by their form and density of light should give that sense of happy rapture, of contemplation, which only the world of closed structures, withdrawn from every contingent element, allows. The research was focussed on the famous central plans whose



1.2.3.4. Andrea Palladio, Vicenza, «La Rotonda». Sequenza base, p. sala centrale, che si ripete per simmetria di rotazione. Ortogonalmenti della sequenza secondo il progetto nei «Quattro libri» (1 e i rilievi (2 e 4) di O. Bertotti - Scamozzi). 5, 6. Sfere corrispondenti delle quattro sequenze base della «Rotonda», come risultano come dal progetto. 7. I raggi delle sfere corrispondenti ai volumi progetto, sono nelle proporzioni 3, 2, 5 (approssimazione ± 5 delle sfere corrispondenti ai volumi, secondo l'esecuzione. In 7 indicate le distanze dei baricentri dei volumi dal piano di calcoli lineari del prospetto (da «I quattro libri»). 10. Variazioni portico alla sala centrale, nella sequenza base. 11. Differenza c fra gli anditi secondo i «Quattro libri» (linee continue), e g gulti (punteggiate). M = anditi maggiori, m = minori. 12. e 13. Variazioni dei volumi interni delle quattro sequenze, secondo l'esecuzione e 14. Secondo il progetto. 16, 17, 18. Sala centrale, varianti d'angolo: secondo l'esecuzione (volumi minore) e secondo i «Q



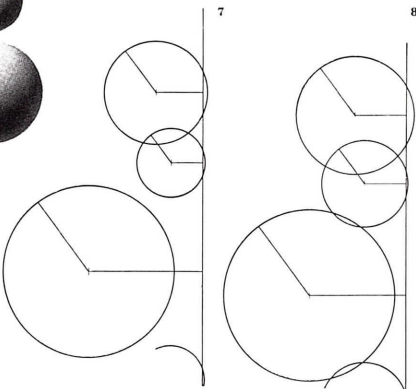
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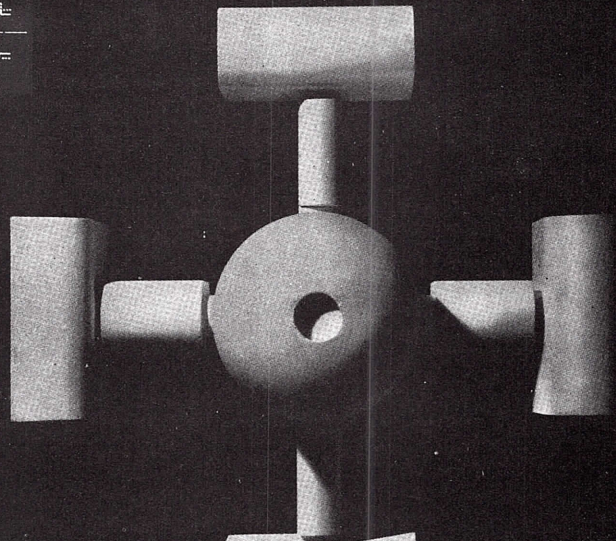
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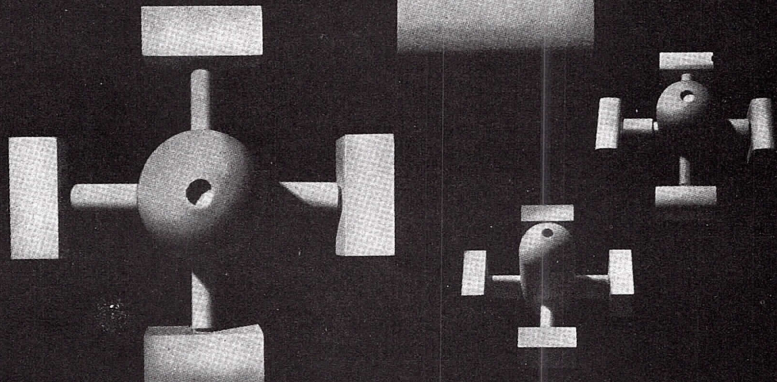
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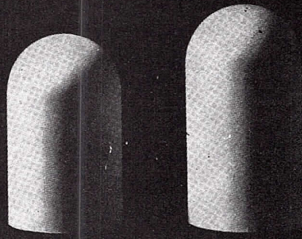
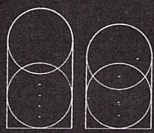
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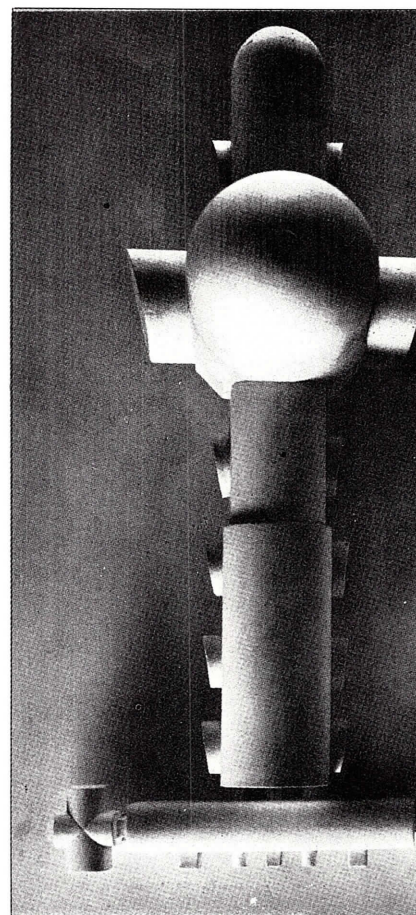
132 symmetrical, undifferentiated and imperturbable spaces, like crystalline essential organisms, satisfied the dialectic of pure relations. But in the sequences at the Palace of Urbino, a second and unmentioned mode of spatial abstraction seems to be revealed, by exhaustion, after a growing rhythmic cadence, by a kind of exhausting of every residual visual desire. It is the quiet contemplation which supervenes when a crescendo attains a definite weighed level of power, a limited tension in miraculous suspended equilibrium.

Sequences obtained by growing volumetric dimensions can also be brought to light in, among others, a project of Palladio for a building at Verona. But one must (and would expect to) find the most complete examples of musical geometry of internal spaces in the genius of this architect, infallible measurer of abstract relationships; neither is it otherwise imaginable.

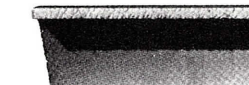
A sequence by differences of geometric form, and also by differences of volume, is delineated by the chain of volumes in the Palazzo Thiene at Vicenza; a chain which unknots with the splendor of a necklace of variously cut diamonds; a most pure chain, whose differences rebound mirrorwise in four nodes of symmetry as the cadences continually advance and invert.

In their pure dimensions, the sequences can be represented graphically as circles whose radii are proportional to the sphere corresponding in volume to each surrounding, and whose center coincides with the center of gravity of the volume itself, and is marked at the distance which in proportion this center has from the base plane of the spaces, that is, from the level of the plinth. Now it is really surprising to note that in the Thiene the sphere volumes corresponding to the central oblong and apsidal room, the intermediate room and the corner octagonal room, have a common tangent, that is, they are in a quantitative perspective as abstract as it is rigid. The three volumes dilate according to a precise geometrical law.

But in that mirror of architecture, the Rotonda, the lyrical concatenation of the internal spaces, as it is legible in the engravings of the *I quattro libri dell'architettura* which

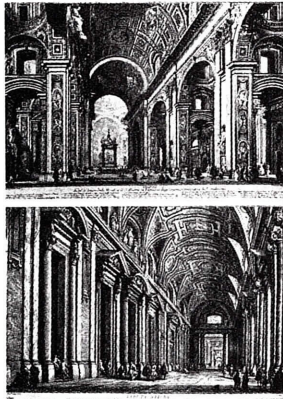


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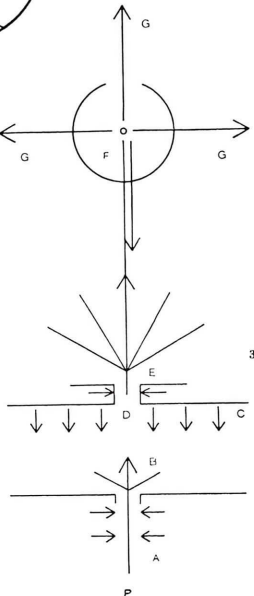
1. Basilica di S. Pietro in Vaticano. Rap-
sequenza maestra (atrio - navata - tribu-
nole). Elementi iniziali della sequenza; accessi
sono leggibili la funzione di sbarramento
dimensioni costruite degli accessi. 2. St.
P. piazza; A. costrizione (parte di acc.
C. costrizione (muro trasverso dell'atrio
accesso alla navata); E. espansione (navata
del sistema centrale). 3. Distribuzione
delle cariche elettriche che lo
tro in Vaticano. Vista dell'atrio e de-
cisioni di D. Montagu e G. Vasi. 7.



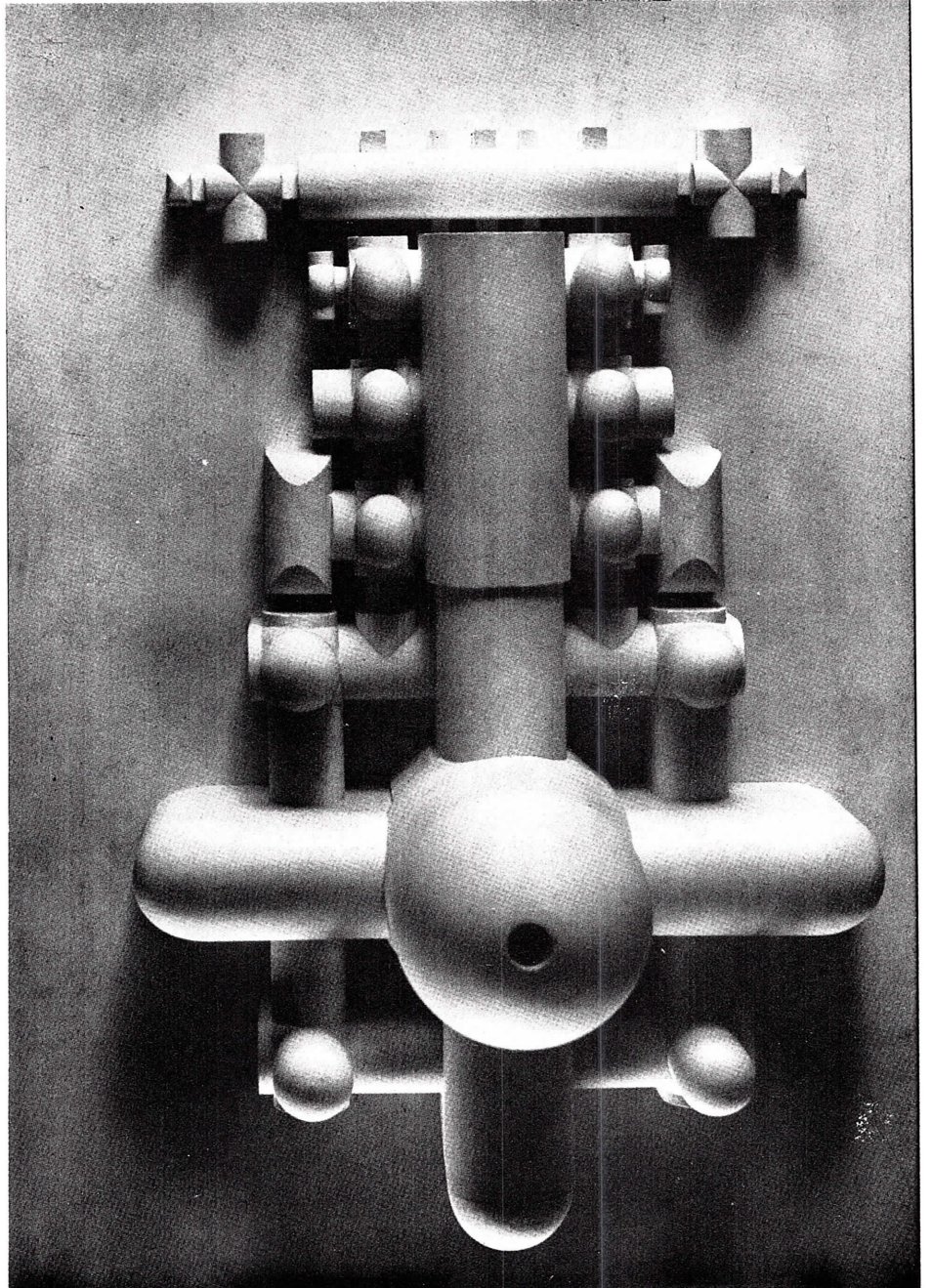
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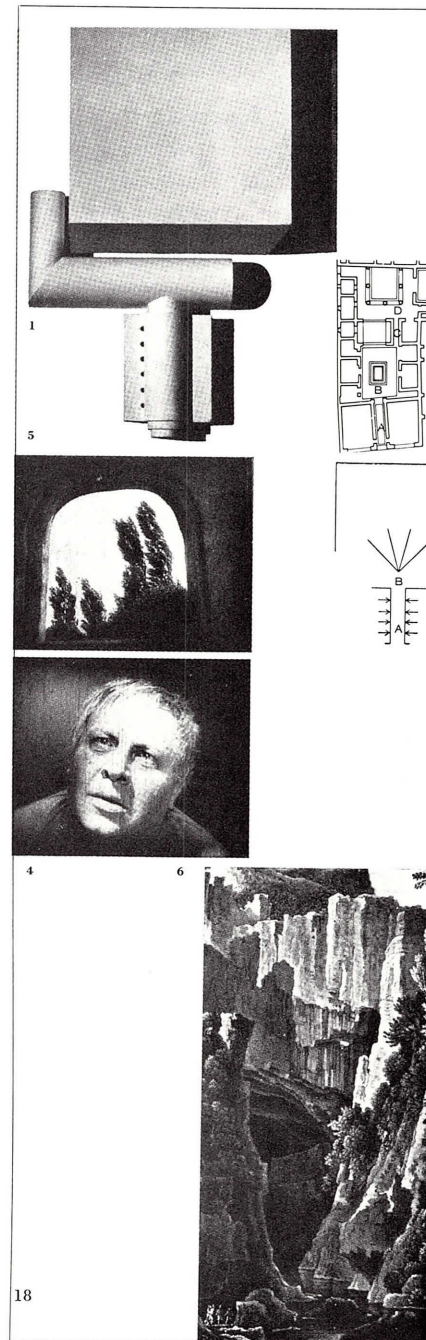


zione dei volumi interni della
sbitorio). 2. Modello dei tre
io, atrio, accesso alla navata;
parete frontale dell'atrio e le
lla struttura della sequenza:
, espansione limitata (atrio);
ostrizione limitata (porta di
, espansione massima (spazio
nziale in un campo, in fun-
no, 5-6. Basilica di S. Pie-
o, disegni di F. Panini, in-
entazione dei volumi interni



134 reflect more closely Palladio's original idea, reaches a degree which the ancients would have had the courage to call sublime. Scamozzi profoundly upset the scheme of the internal volumes, lowering, as is well-known, the cupola, and what is equally serious but less noticed, enlarging and heightening the adits which lead from the four porticos into the central hall. Thus the quantitative differences between the round room and the vestibules became diminished in the act of execution, thereby eliding that resounding scansion which is audible in the Palladian project. I computed on the basis of the engravings the quantity of the three volumes—portico, vestibule and round room—which make up the basic sequence repeated in rotational symmetry, and by reducing these calculations to spheres for sensible comprehension, I discovered that their radii were in the ratio of 3:2:5. The same order of ratios divides up the basement, excluding the plinth, the colonnade, the architraves and the fascia and attic. With Palladio there was naturally nothing calculated in such resonances; only a state of grace, an incredible presence of rhythm and harmony. Finally it is to be noticed that in density of light, the volumes go from portico to hall in the order of maximum to minimum, while in dimensions the order is medium, least, greatest.

So the key sequence of the Palladian Rotonda has been conducted by differences of shape, of absolute volume, density of light, and in the middle room, pressure. In it are present all those yeasty ferments of spatiality of the great fabrics of the sixteenth and seventeenth centuries, which have in the Basilica of Saint Peter, the mirror of every magnificence. The history of the walls of St. Peter's is the history of the conquest of its internal spaces; nor could it be otherwise, because it was raised in the hope of enclosing the largest space in the world, an empyrean of power and charity. No one architect, however great he might be, could possess in his reality all at once spaces which remain in absolute value, beyond the human scale. Spaces were consigned to Raffaello, Sangallo, Bramante, Michelangelo and Maderna, each one conquering a sphere of them, until finally the whole space was mastered and rendered integrally sensible and alive, a quality which all recognize and which constitutes the irradiating force of the basilica. The model of the internal volumes of St. Peter's is a mechanism of surprising clarity, a hydraulic system of



i questi spazi e sugli andamenti emotivi che le loro sequenze ci suscitano, può forse far balenare alcuni capi dell'oscura legge che guida universalmente lo spirito umano, che così spinge i grandi nomi nel comporre tali straordinarie architetture come comuovono anche i più semplici spiriti che le guardano. Viene in mente, da ciò, che la moralità sovrana dell'architettura, l'unica autentica istanza sociale, anzi umana, è quella di comunicare egualmente con tutti, umili e potenti.

In Grecia non ebbe nelle sue architetture spazi interni della misura e del significato che i romani promossero. Le colonne del tempio greco chiudono nei loro rettangoli lame d'ombra che sembrano nascere dalle viscere della terra a involgere e formare gli invalicabili sacelli. L'architettura greca fu algoritmo di strutture attente dal sole, fu una logica della luce e insieme ombra di ignote forme ove albergavano gli dei. L'altipiano, la luminosa volta del cielo sono lo spazio estroverso, mirabile, che il pilone colonato del tempio sorregge.

In una casa ellenica, sulla trama elementare del riparo e dell'ombra per l'uomo, distribuendo nei domestici ambienti densità di luce diverse, dagli oscuri *oeci* alla penombra del peristilio, al brulicando del viridario, scandì quel metro su cui si distese per secoli il verso romano e rinascimentale della casa non meno di quello barocco e ottocentesco, ovunque cioè un andito grigio si aprisse su una chiara corte. Nella penombra della casa greca, splendono a ogni riflesso o raggio, i domestici oggetti o le criniere degli elmi, le lamidi i bronzi di Alceo, come i cristalli i rossi parati gli scacchi bianchi e neri dei pavimenti nelle case fiamminghe di Vermeer.

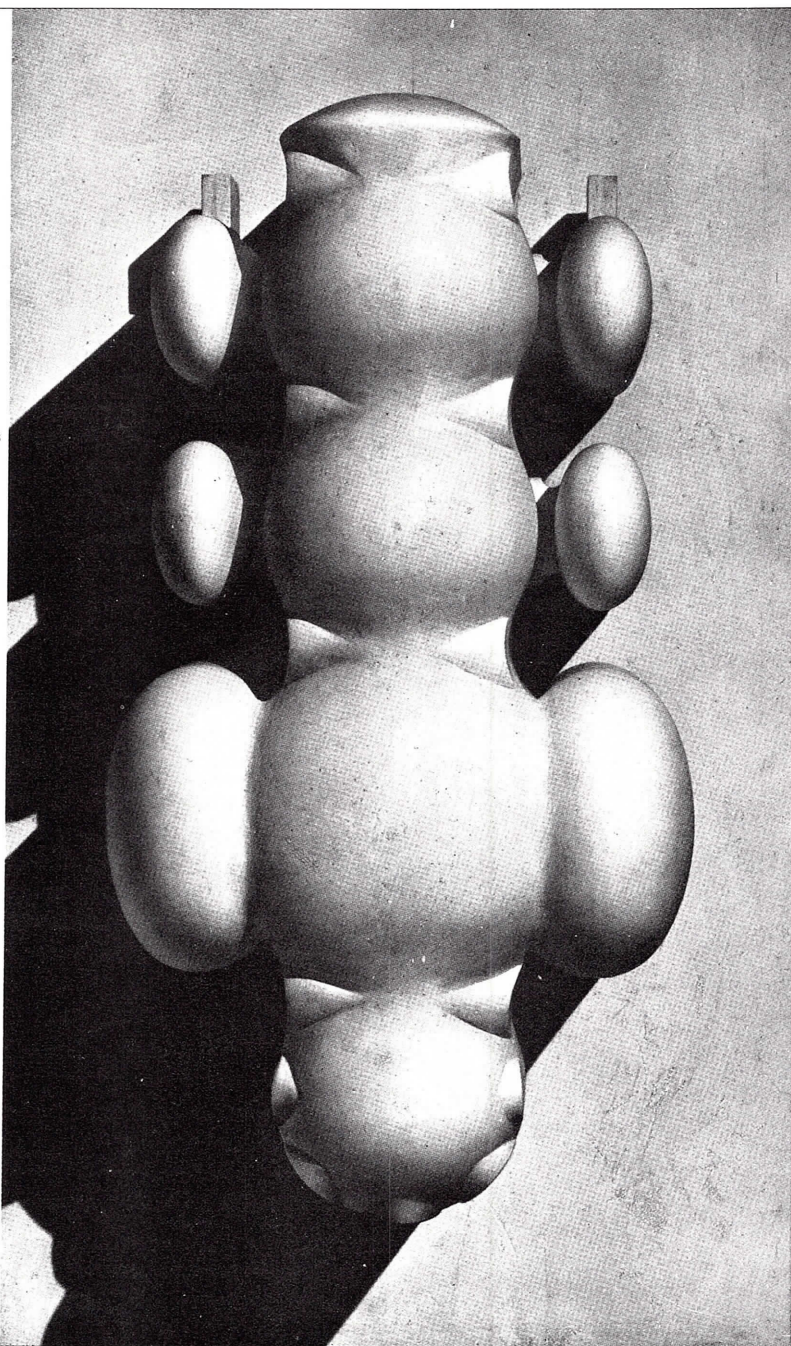
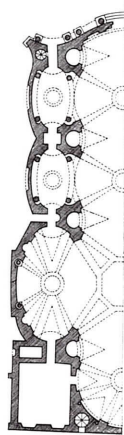
I grandi spazi dell'architettura nascono con Roma e ne sono la magnificenza. In uno con le sovrumane volte e con le mura, d'inedicabile forza, con un respiro istintivo di inabbuttibili opere mitari, che le reggevano, sono l'espressione della cosciente potenza di una comunità. Questi spazi si aprono sovrani e si legano in teorie orgogliose in cui il misurato ordine sembra far sensibile la chiarezza di mente e la coscienza di questa chiarezza, cioè la maestà, del popolo romano. Le sequenze dei volumi nelle basiliche e specialmente nelle terme, di Tito di Agrippa di Diocleziano di Traiano, dovevano raggiungere per la varietà degli elementi che componevano e dei percorsi possibili, effetti insuperati. Sulle rovine delle mura che segnavano questi volumi, dal Brunelleschi

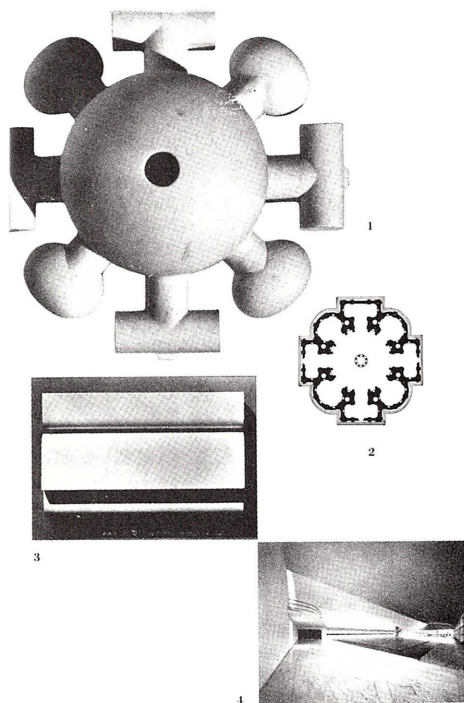
Michelangelo, nacque lo spazio rinascimentale e barocco e il senso del grandioso nella nuova civiltà d'occidente.

Per valutare nella loro complessità le sequenze dei volumi nelle forme è opportuno iniziare le osservazioni su quelle sequenze più elementari che possono riscontrarsi in alcuni esempi della stessa architettura romana e in alcune costruzioni rinascimentali. Tra le fabbriche di Villa Adriana, specchio argentatissimo di tutte le riflessioni dell'eccelettismo imperiale, si possono individuare interessanti modelli di sequenze dalle più semplici alle più elaborate. Il gruppo ternario del portico del Pecile, dell'aula quadrata dei Filosofi e del « natatorio » circolare, può assumersi come esempio di una sequenza di volumi la cui vivezza e solennità è oggiata esclusivamente sulla differenza delle forme geometriche tra gli elementi del gruppo.

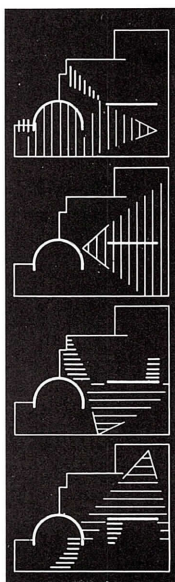
I tre volumi, nell'ordine naturale di percorso, portico — aula — natatorio, si seguono con le loro diverse figure geometriche: prima ad asse dominante longitudinale, cubo e cilindro. Il volume del portico, vera galleria con fuga lontana inderogabile, si fonda al suo termine su una parete leggermente arcuata e rifugge per un vano di passaggio di limitate dimensioni nell'aula quadrata e altissima, la cui cubicità al contrappunto della sottile freccia del portico e del suo percorso lunghissimo e umano, si alza a una misura empirica, astratta, solennissima. Dalla maestà e dignità dell'aula, per due stretti passaggi, scavati nello spessore della muratura, uno dei quali oscuro e non breve, vera chiusura di iride approvvisa, si prosegue in un aereo portico circolare di limitata altezza ma vastissimo, che abbraccia una grande piazza di cielo circonda un bacino di acqua entro cui, isolata, nasce una agile isola rotonda, incantata di nicchie di colonne di fregi.

Antonio da Sangallo il g. e Michelangelo. Palazzo Farnese. Roma. Rappresentazione dei volumi interni della sequenza vestibolo - portico - cortile. Pompei. Casa del poeta tragico (A B C D, fauces, atrium, andron, peristilium). 3. Schema della sequenza vestibolo-cortile propria all'architettura usica (lucci e arco) e all'architettura patrizia, dal Rinascimento all'Ottocento. 4. 5. Fotogrammi dalla sequenza finale del film «Variété» di A. Dupont: liberazione e apertura della porta della prigione. 6. Spazio turale, disegno di L. F. Cassas, inciso da Levée, 1802 (dalla Civica raccolta delle stampe A. Bertarelli, Milano). 7. 8. Guarino Guarini. Progetto per la chiesa di S. Maria della Divina Provvidenza in Lisbona, pianta (da G. Guarini: «Architettura civile») e rappresentazione volumetrica degli spazi interni





1. Michelangelo. Progetto per la Chiesa di S. Giovanni dei Fiorentini in Roma. Rappresentazione dei volumi interni. 2. Pianta (di intonazione di Valerian Regnard), 3. 4. Roma, Foro Italico. Accademia di arte su (L. Moretti). Rappresentazione dei volumi interni e vista della grande sala. 5. Mies Van der Rohe. Brno. Casa Tugendhat. Campi visuali degli spazi interni; zone di lettura definite (strategia sottile) e come di impossibile intuizione della forma (strategia forte)



Lo spazio cilindrico, dopo la cubicità della grande sala, doveva sembrare vivido per il seguirsi dei cerchi del portico e dell'isola specchiati e rifratti più volte nell'acqua in un girare incandescente che oggi ripensiamo non alieno dal vortice del tempio di S. Pietro in Montorio con le sognate risonanze del portico attorno.

La sequenza dei tre ambienti è giocata su tre forme tanto elementari quanto precise e sicure nei loro effetti: lo scatto lungo del portico, la pausa aulica, il ruotare cilindrico del natatorio. La diversità della forma geometrica è scandita dalle doppie strettoie dei passaggi che sono come una chiusa alle onde generate dai percorsi negli ambienti, una pausa ritmica, una di quelle cadenze di fine verso che i greci ponevano di equivoca durata per raccorciare o allungare il distacco di due versi.

Le strettoie nate come passaggi, limitati forzatamente nelle misure metriche per essere cavati entro le mura, a poco a poco vennero avvertite anche nella loro dimensione suggestiva e misteriosa, nel loro naturale contrappunto esasperato con i vastissimi spazi. Nascono così quegli anditi di dimensione umana, la cui spazialità soffre di un massimo di pressione per essere scavata nei noccioli di energia degli edifici, cesure liriche fra spazi: passaggi che i gotici dimenticheranno o esauriranno in altro senso, che il Rinascimento pieno vorrà negare e che, da Michelangelo, il cinquecento e il seicento rielaboreranno in tutta la loro drammaticità nelle congiunzioni fra le cappelle e negli atrii delle chiese o nei vestiboli dei palazzi.

Se il portico del Piccola Aula e il natatorio possono assumersi come esempio di una sequenza giocata principalmente per differenze di forme geometriche è nel Rinascimento che possiamo individuare sequenze cavate con estrema sottigliezza per differenze soltanto di dimensioni tra volumi che mantengono identiche o simili forme geometriche. Si vogliono qui indicare due sequenze di questo genere nel palazzo ducale di Urbino e precisamente una che corre dalle camere degli ospiti alla sala del trono e l'altra che prende i quattro ambienti dell'appartamento della Jole. I puri prismi rettangoli delle sale, resi vividi nelle volte dalle scagliature diamantine delle lunette, si seguono in ambedue le catene di spazi, dilatandosi sempre più di volume per la loro crescente dimensione in lunghezza e altezza. Questa maggiorazione continua scandisce, sulla costante monotona della forma, i due bellissimi « crescendo » delle sequenze che raggiungono i massimi nel trionfo della sala del trono e della sala della Jole. È interessante notare come le sequenze siano non per differenze costanti ma per differenze sempre maggiori, una specie di scala logaritmica avanti lettera, sino allo scatto finale e decisivo dei due volumi terminali: e come nell'una e nell'altra sequenza vi sia una sala che arresta il precipitarsi del ritmo. È fuori luogo pensare che la dilatazione dei volumi sia casuale: è più giusto considerare le due sequenze come un raro esempio di modulazione puramente quantitativa di spazi: anzi forse come il primo esempio nel quale lo spazio è considerato come qualche cosa di reale, con una specie di plasticità per suo conto, formata in una materia altrettanto labile quanto sensibile e concreta. I volumi delle sale del Palazzo Ducale, in limpida inversione prospettica, quale firma ancora una volta bivalente e per il Laurana e per Francesco di Giorgio?, palesano la ricerca di una emotività crescente sino a raggiungere un acme che è tale per il suo altissimo tono e per la posizione conclusiva nel discorso.

Il Rinascimento ebbe come ideale spazi interni che per forma e densità di luce dessero quel senso di felice rapimento, di contemplazione, che solo il mondo delle strutture concluse, astratte da ogni elemento contingente, può consentire. Il fuoco della ricerca si posò sulle famose piante centrali i cui spazi simmetrici, indifferenziati e imperturbabili, soddisfacevano, quali organismi cristallini, essenziali, alla dialettica dei puri rapporti. Ma nelle sequenze del Palazzo di Urbino sembra rivelarsi un secondo e inedito modo di astrazione dello spazio: per esaurimento; dopo una cadenza ritmica crescente, per una specie di misurato esaurimento di ogni residuo desiderio di visione. È la contemplante quiete che sopravviene allora che un crescendo raggiunge un certo ponderato livello di potenza, una tensione limite in equilibrio miracoloso, sospensivo.

Sequenze ottenute per dimensioni crescenti dei volumi si possono rilevare tra l'altro in un progetto del Palladio per una fabbrica a Verona. Ma nel genio di questo architetto misuratore infallibile di astratte relazioni si debbono trovare, né può pensarsi diversamente, gli esempi più compiuti della geometria musicale degli spazi interni. Una sequenza per differenza di forme geometriche

(continua a pag. 107)

Luigi Moretti

sluices, shells and basins which seems to cover an entire region; and nothing of the building's secret history escapes. For example, if one looks at the square bastion surmounted about the dome, it at once tells us more than any exegesis how terribly alive Bramante still is in Michelangelo's plan. Carlo Maderna, a very great architect, extended the basilica with those elements of more human scale, approximating the absolute and intellectual space of Bramante and Michelangelo to universal comprehension by way of a chain of passages. The model clearly shows it.

The principal sequence of volumes in the basilica unrolls in direction inverse to the actual sequence of birth of the spaces—a kind of immersion in the centuries, a plumbing in reverse from the time of Bernini to that of Bramante. Five doors open in the front of St. Peter's, in fortress bastions held among formidable columns, an ideal echo of the Michelangelean Pronaos, which by the thickness of the walls they are cut in, and the incumbency of the megalithic cylinders of the columns, constitute the *stretti*, the spaces of first pressure in the sequence of volumes of St. Peter's. By these doors one is liberated into a great atrium, open and luminous, which seems suddenly to give quiet and breath: but almost immediately its front wall cutting transversely opposes us like a decisive warning barrier. To the instinctive and alerted sense of longitudinal flight, the very long transverse wall carries a sense of release, augmenting the tension toward the liberation we know to await us beyond. Finally, three passages opening in the barrier give the final constriction and difficulty.

Then the rhombus of the immense nave suddenly erupts, unforeseen, its volume dilated already beyond the exceptional limit premised and ponderated by the counterpoint of atrium and passages. From now on the basilica is traversed in a continuous perspective crescendo until the empyrean of the cupola bursts. There the sense of human scale is released in the symmetry, dimension, the evanescent and glorious luminosity of the spaces. The sequence of volumes is conducted with a maximum of emotivity, concentrated between the accesses to the basilica and the atrium, to the contemplation of the abstract space of the central system.

The structural ladder of the sequence as to the value of the immediate and elementary emotional trends which it supports and so composes can be summarized as follows: pressure (access doors), limited liberation (atrium), opposition (atrium walls), very short pressure (basilica doors), total liberation (traversal of nave), final contemplation (space of central system). The differentials of the sequence up to the cupola are by way of form, quantity and incumbent energy. In a certain sense, the central zone does not have differentials; the natural route through the volumes is, as we have said, in reverse order to their birth, from the seventeenth century drama back to Bramantine crystals.

The universality of the basilica comes from the portentous elementarity of its sequences, from the chain of pendular effects of opposition and liberation on which they are principally woven. This pendularity has so dominant, exclusive and inexorable a rhythm that it seems to reveal the movement, the very breath necessary to the structure of the human mind. Of all the arts, architecture is the most universal, perhaps because it makes these oscillations immediate and sensible, unconsciously repeating the oppositions and liberations of spaces which, originally in the hostilities and hospitalities of nature, and so always, will constitute one of the formative aspects of the foundation of the human mind. Caves, stockades, and open country. The course of the second Faust comes to mind, the two symbolic flights which open and close the anxious journey of Melville's hero in the mythical island of Typee; or the liberation from prison, when the great door opens on to a plain beaten by a wild wind in a sequence from the film *Variété*.

All the same, the internal spaces of St. Peter's remain a composition of elementary volumes, individually separable and accorded with one another by elements of passage or by other spaces. One has to come down to Guarini by way of Michelangelo's last designs for San Giovanni dei Fiorentini, or better, the interior of San Carlino, to encounter the uttermost point in this whole process of modulating internal volumes and their sequences achieved in attempting to surmount the juxtaposition of spatial singularities in an all but continuous body.

The two models of internal spaces which we have taken from engravings of projects for churches at Casale and Lisbon clearly voice the most precise concatenation of the volumes, the minor scansion of the passages, the effulgence and attenuation of light as a distension and unfurling or unfolding of the spaces. In the designs for Casale and Lisbon, the volumes are modulated by emotive and intellectual differences, as we have already encountered in St. Peter's or other examples, but with less sensible caesuras; a species of condensed continuous poetry, metrically extended with strophe cuts. Spaces are conquered by way of a slow elaboration of purely geometrical worlds, governed by a surprising lyrical logic. The play of stereometrics in Guarini is always extraordinarily adherent to the great constructional play; the intersections of volumes coincide with the lines of force necessary to sustain them. One finally arrives at the metaphysical game, never attained even by the Gothic, of arches which explain their power of support, although being completely warped, with the keystones out of plumb with the piers. Guarini's spatial system is so unitary and absolute, every point is so bound to the others in a formal and constructive sense, that his fabrics seem incapable of suffering ruin; if one cupola were to collapse, the entire edifice would be wiped out. It seems that no ruin could remain of these regal veils or parasols, which extend and unfold, forming spaces of such rigor and fantasy as the petrified flower intended for the Casale church testifies.

It seems that we moderns have forgotten the laws of the sequences of internal volumes. We shall have to conquer space as a lively, sensible element, and that not by faithful extrapolation of graphic symbols. From now on, the errors modern architecture has committed through ignoring spaces in their concreteness can be judged in truth, naturally assuming that modern architecture will live on truth, and never henceforth be translated into its two-dimensional symbols, drawing and photography. There *have* been certain spatial sequences and modulations which in wholly modern tension take us back consciously or not to Guarini and the classicists. Observe in this connection Frank Lloyd Wright's McCord house: two flat cylinders are separated by a profound liberty, but equally by a profound and thoroughgoing intercalation. The fencing academy at Rome was one of the first attempts at

a strictly unitary spatial modulation which plays wholly on the entire scale of parameters of light, dimension and form. The experiences of Mies van der Rohe offer a particular interest, at least for didactic reasons, if we want to single out once again in this architect the dissociation of a unitary space by means of screens and diaphragms.

The ancients, in composing their sequences of spaces, took account of those elementary geometrical figures which permit possession of the form in its entirety, even when only a single tract of it was being dealt with, in such a way as to allow that intellectual simultaneity of vision, noticed by Adrian Stokes in its decisive importance.² Mies van der Rohe, by starting instead from a constructive volume of irregular geometrical profile, dissociates space from it, preventing the integral and direct reading of it, the only one his form makes possible, by inserting in it free walls and diaphragms which thus come to support unforeseeable and uncertain boundary spatial sectors. It works, that is, in such a way that the space not directly visible remains elusive in intuition. It is easy to see, for example, that in the Tugendhat house the sequence of spaces that cut down the great room is on a double chain in a certain sense: one for the spaces in direct vision, the other constant and monotonous for the spaces which beyond this vision remain indefinite. Every volume of the room has an area well centered in focus and an unfocussed field: a species of fogged spatiality, of crude visual positivism indurated in a romantic formal mist. Even successive traversals of the volumes always leave an equivocal margin, in which everyone inserts those accords and resonances which he imagines can be drawn from the principal forms. It is evidently one more proof of the elusive and romantic stage of modern, and in particular, of rational architecture a stage which, besides, seems the characteristic and proper one of our age even more than of the nineteenth century, and which even in music and the plastic arts is based on analogous structural equivocations, and is to be considered a weariness of the mind, if we still believe that we can once again reach the lyrical clarity of the classics, or which is henceforth our natural state, if this clarity be regarded as an unrepeatable fact.

1. This text and its accompanying illustrations introduced Moretti's use of three-dimensional negative figure-ground as an analytical tool. This tool seems to me to make distinctions of kind which in their own way are quite as valid as those introduced by the discussion of sensible and surmized transparency.—Trans.

2. The probable source for this reference to “intellectual simultaneity of vision” is an important essay on the Tempietto Malatesiano, which appears in a recently republished commemorative volume of Adrian Stokes's writings edited by Richard Wollheim, entitled *The Image in Form*.—Trans.

**Alumni Day Speech: Yale School of Architecture,
February 1958**

Paul Rudolph

The publication in this issue of *Oppositions* of the hardly known address by Paul Rudolph, given on the occasion of his assuming the Chairmanship of the Yale School of Art and Architecture, makes an apposition necessary to a fuller understanding of Robert Stern's view of Yale during Rudolph's tenure.

What emerges upon reading both Rudolph and Stern—the one polemical, the other historical—is the necessary distinction between Rudolph and Yale. For the interaction between the two entirely different energies while catalytic in many respects during the time remain suspended to this day.

In fact, one might say that the attempted union in many instances had negative consequences for both if we are to sift through the evidence of the last ten years; in particular, the isolation of Rudolph from the current debate—a role which does not suit his style and temperament if we read carefully the meaning of his initial address.

For here is Rudolph in 1958 asking for answers to questions which only now seem to have come into focus for many of us. His call for theory to overtake action, his description of the awesome moment of taking pencil to a white sheet of paper mirrors a dual attitude that could only have been honed from the hours of drawing and thinking which were the activity of his particular architectural education.

His four points even today do not seem

to have found a place central to much architectural education, least of all at Yale. It is this contrast between Stern's account and Rudolph's passion which certainly must form one of the questions raised by this difference. Where are the committed architects, such as Rudolph, in relationship to the educational processes and proscriptions that now direct many of our most prominent schools?
P. D.E.

Paul Rudolph was born in Kentucky in 1918 and received his Masters degree from Harvard University in 1947. He was a partner in the architectural firm of Twitchell & Rudolph, in Sarasota, from 1947-51, since then he has had his own practice in Sarasota, Cambridge, Boston, New Haven and New York. He was Chairman of the Department of Architecture, Yale University from 1958-65. His built works include the Art and Architecture Building, Yale University (1958); the Southeastern Massachusetts University (1963); and many built multi-family and single family projects. His current work includes an office building in Madrid, the New Haven Government Center, and four buildings for the Staten Island Community College.

142 The ever evolving cycle in human affairs is at that point where action has outstripped ideas and theory. And so it is in architecture. The last decade has thrown a glaring light on the omissions, thinness, paucity of ideas, naivety with regard to symbols, lack of creativeness and expressiveness of architectural theories as they were developed by the 1920s. Interestingly enough the laymen, especially the cab drivers of America, recognize this more forcibly than many an architect. We have yet to import a legion of cab drivers as architectural critics.

This is certainly not an attack on the great twentieth century architects who evolved what we now call modern architecture, for their efforts in retrospect seem superhuman indeed. It *is* to say that modern architecture is still a gangling, awkward, ungracious, often inarticulate, precocious, adolescent thing, which has not yet even begun to reach full flower. There are those who would have you believe that we are not tired of those great early precepts, and that we are now at the brink of mannerism. Fortunately this is not true. We are incredibly lucky, for we have yet to see a Golden Age.

Many have asked why I should come to Yale. It is because I believe that action has indeed outstripped theory and that it is the unique task and responsibility of a great university such as Yale to study, not only that which is known, but far more important, to pierce the unknown. My passion is to participate in this unending search. Theory must again overtake action.

We, in truth, do not know how to do many things which other great periods of architecture have known. Foremost is our lack of a coherent theory with regard to how to relate one building to another, and to give meaning to the spaces between. The Ecole des Beaux Arts did have theories with regard to this, although they have little relevance to our problems. For six decades now, we have damned the Chicago Fair of 1893, but they *did* have a comprehensible way of creating a whole. Indeed, if one compares the gyrations now being indulged in at Idlewild Airport, or the collection of the works of the world's greatest architects at Berlin's "Inter-Bau," one's vote must go to the damned Chicago Fair, no matter how brilliant may be the individual gems. The original

concept of New York's Park Avenue, that of a great walled street leading to a gateway to the city, Grand Central Station, was probably a superior one to the haphazard redevelopment currently going on. This is not a plea for a return to the Ecole des Beaux Arts' concepts which no longer work, but a reminder that architects have traditionally determined three-dimensional design on the largest scale and this is still our responsibility.

We need desperately to relearn the art of disposing our buildings to create different kinds of space: the quiet, enclosed, isolated, shaded space; the hustling, bustling space, pungent with vitality; the paved, dignified, vast, sumptuous, even awe-inspiring space; the mysterious space; the transition space which defines, separates, and yet joins juxtaposed spaces of contrasting character. We need sequences of space which arouse one's curiosity, give a sense of anticipation, which beckon and impel us to rush forward to find that releasing space which dominates, which acts as a climax and magnet, and gives direction. Most important of all, we need those outer spaces which encourage social contact.

The new scale given by the quickly moving vehicle (they will double in fifteen years), and the whole relationship of vehicle to the space between buildings, to the building itself and to the human, presents a complex problem which cries for understanding. The architect's unique contribution has been the manipulation of inner and outer space. Our traditional concepts of space have been shattered by the automobile and the sheer bulk of our building requirements, but we should not retire to nostalgic, romantic, admiration of the European square, which it is currently so fashionable to do. We have something to contribute, and our current abdication to every new specialist is demoralizing and unworthy of our profession. We must find ways of rendering our cities fit for humans, and develop the aesthetics of change. This will be our first concern at Yale.

Second, we will search for more eloquent relationships between the conceptual aspects of building and techniques. The range of concepts is limited now to goldfish bowls, buildings on stilts, and the efforts of the structural exhibitionists. The feeling and respect for materials elude most students, and one

fears, some architects. The unique forms inherent in any given material and the construction process must become more clear. In this case, learning by doing probably has little validity because of the number and complexity of the various trades involved. During the next decade the question of whether or not the ultimate form for the steel frame has indeed been found must be considered anew. We have almost everything, including the industrialized structure which was such a romantic favorite of the theorist of the International Style, but we seldom know what to do with our wealth. Driving down Park Avenue is rather like flipping through the pages of Sweet's Catalog. The 35 percent of our budget which we often spend on mechanical equipment needs reassessment. We should receive more from it than just keeping hot or cold. Structure has caught our imagination but the mechanical equipment has ruined many a fine scheme, turning our buildings into Swiss cheese. There is perhaps too much concern in architectural circles about peripheral matters and too little understanding of age-old concepts, such as fine proportions, how to get into a building, relationships of volume to volume, how to relate a building to the ground, the sky, etc.

Third on our list of forgotten fundamentals is the concern for *visual perception*. An architect should be concerned with how a building looks in the rain, or on a summer's day; its profile on a misty day, the different treatment required for that which is close at hand vs. that which is twenty stories removed, with angles of vision, symbolism and content.

Fourth and last on our list will be a renewed concern with visual delight. This is indeed the architect's responsibility, for other specialists can do everything else that he does and, quite often, much better. The public is confused as never before about the exact function of an architect, for we have gone through a long period where the specialists talked only of social responsibility, techniques, economy and the architect as a coordinator. We have even apologized for being concerned with visual design. This fact is demonstrated again by the difference between a drawing, a model or a photograph, and the actual appearance of so many of our buildings.

I look forward to participating in your program at Yale. It will be our first concern to help perpetuate a climate where

the student is acutely, perceptively and incessantly aware of the creative process. We must understand that after all the building committees, the conflicting interests, the budget considerations and the limitations of his fellow man have been taken into consideration, that his responsibility has just begun. He must understand that exhilarating, awesome moment.

When he takes pencil in hand, and holds it poised above a white sheet of paper, that he has suspended there all that has gone before and all that will ever be.

Reviews, Letters and Forum

On Martin Fröhlich's Gottfried Semper

Martin Fröhlich. *Gottfried Semper: Zeichnerischer Nachlass an der ETH Zürich*, *Kritischer Katalog*. 1974, Stuttgart, Germany, Birkhäuser Verlag. 310 pp.

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Figure 1. Gottfried Semper, 1834.

Martin Fröhlich's *Gottfried Semper* is an annotated catalog of Semper's architectural designs in the Semper Archive of the Eidgenössische Technische Hochschule, Zurich. It is the first of a series of volumes on unpublished material by Semper (a projected second one will be a catalog of his drawings at other archives, and a third one will contain his correspondence and fragments of essays on architectural theory). Fröhlich's large and well-illustrated catalog is then itself a fragment of a more thorough future overview of Semper's work. It is to Semper's credit that he was prolific both as architect and theorist, but this has served as his nemesis as well; because few writers have found it possible to summarize his architectural and theoretical output in one book, we have instead a piecemeal approach which has led to the creation of "Semper mythologies" that do not interlock to form a complete picture.

Semper (figs. 1,3) was the most admired architect in Germany for the post-Schinkel generation, and his major book, the two-volume *Der Stil in den technischen und tektonischen Künsten oder praktische Aesthetik* ("Style in the Industrial and Structural Arts, or Practical Aesthetics," 1860-63), shows Semper to have been one of the most prescient theorists of the nineteenth century. His writings are not affected by the occasional parochialism of a Viollet, Pugin, or Morris. He was in every sense of the word a European, he received his training in Germany and France, he made a three-year study tour to Italy and Greece, and worked as an architect and teacher in Germany, England, Switzerland, and Austria. His influence reaches into the twentieth century and can be found among such a wide-ranging group of architects as Bernard Maybeck, Otto Wagner, Hendrik Berlage, Walter Gropius, and Bruno Taut.

For Central European architects Semper assumed the kind of position Viollet-le-Duc had in Western Europe. His writings were also well-known to such American architects as John Root and Louis Sullivan, a

familiarity that was an aspect of the Chicago School's high regard for German culture. If Semper is less well-known today than Viollet, it is because our understanding of modern architecture was strongly colored by Nikolaus Pevsner's and Sigfried Giedion's emphasis on a machine aesthetic; their belief that new structures and new materials yielded the style of twentieth-century architecture. Such ideas tended to perpetuate Viollet but not Semper (although Pevsner has recently written an essay on Semper).

The subtlety of Semper's thought, together with the convolutions of his German, has made his theory the subject of severe misrepresentation. A clear understanding of his concepts is further obstructed by the fact that *Der Stil* is incomplete. Semper had planned to write a third volume which, presumably, would have clarified and synthesized the content of the first two. Thus the full and coherent development of his ideas must often be surmised from earlier essays and from suggestions made in the prolegomena to *Der Stil*. Four standard incorrect classifications have emerged: (1) to see him as a utilitarian materialist; (2) to see him as a Darwinian evolutionist; (3) to see his analysis of architectural archetypes as examples of "first origins"; and (4) to use his general theory as a handbook for building.

Semper's participation in the 1849 revolution in Dresden may serve as a clue to his interpretation of architecture. Semper was the director at the Bauschule of the Royal Academy in Dresden, a post which he had received on the recommendation of Schinkel. In 1849 he was engaged in several royal commissions. Thus, when he joined the side of the republican revolutionaries—among them was his friend Richard Wagner—he had much to lose. Some historians have attempted to play down this episode by suggesting that Semper became implicated as a revolutionary by supervising the construction of a barricade only because he wanted to protect his nearby house. In a letter in the

Semper archives, which he wrote to one of his brothers in May 1849, Semper reported that as a sharpshooter of the militia he was not involved in much direct fighting at the outset. But on the fourth day of the uprising he came home to rest, exhausted after several sleepless nights. He was awakened, however, when he was ordered to build a barricade in his street, "*In part to protect our house from such near danger, especially, however, to show obedience toward a power which had to expect obedience, if it wanted to win*, I accepted this commission and erected at the end of the Neugasse a strong barricade within three hours." (italics mine). In the same letter he added, "Everyone must know what a sense of duty demands and act accordingly. In any case, halfhearted things are found frequently among us cultured classes who, even when they side with a party, do not want to give up anything. In short, I feel free of this accusation."

It is understandable that he thought of his house and the consequences of his actions for his family; nevertheless, there is no doubt that he was committed to what he had begun. In fact, it was to affect him for the rest of his life. He lost his job, commissions, and most of his possessions. When the royalists were victorious, he had to flee the country and he lived for a time in Paris, considered emigrating to America, but then he received an invitation from London to participate in the design of the Great Exposition of 1851. Subsequently he taught at the School for Practical Art at Marlborough House. In 1855 he accepted a professorship at the Polytechnical School (today the ETH) in Zurich, becoming its director later that same year. Between 1869 and 1876 he was involved in the supervision and design of several Vienna Ringstrasse projects. He died in Rome in 1879.

Throughout his period of exile he had hoped to return to Germany, where he continued to be considered a fugitive from justice until 1863. The warrant against him was rescinded so that he could travel to Hamburg to consult on an architectural project.

However, he returned briefly to Dresden only in 1870. His Dresden opera house had burned in 1869, and after some administrative resistance to grant him the commission for its reconstruction, public outcry brought about the award; but in the meantime too much of his time was taken up by his projects in Vienna so that the local supervision of his second Dresden opera house was carried out by his son Manfred. To insist that Semper's role in the 1849 events was ambiguous is a half-truth at best. For whatever uncertainties he felt were resolved in his decision not to remain passive—a decision that haunted him throughout his career.

It is against this background of strongly held political beliefs that his convictions about architecture become comprehensible. Beginning with one of his earliest essays (1834) about the use of color in ancient architecture to his last essay (1869) about architectural styles, Semper insists that style be seen as a reflection of sociopolitical conditions. He often compared, for instance, the formalized processional route of Egyptian temples with the nonaxial, open approach to Greek temples. The former is taken as an example of a rigid, priestly class and a stratified society, the latter as an example of a democratically structured people. His greatest admiration was always reserved for Greek architecture, not because he thought it sublime, but because he thought he could accept its social implications. At the same time, he expressed his distaste for the Gothic and Baroque styles because to him they exuded church hierarchy and aristocratic authority respectively.

During his exile, at the outset of which he had few commissions, he began to concern himself with more general, theoretical problems. In 1851, in an essay called "The Four Elements of Architecture," he made his first attempt to classify systematically all architectural forms as a kind of typology of architecture. The initial inspiration for this had been Georges Cuvier's exhibit of animal skeletons at the Jardin des Plantes in Paris, which he had seen during his student days

there. The multitude of skeletons, exhibited in no particular order (Cuvier believed in a fixist, not in an evolutionary theory), produced in Semper the desire to find the underlying similarities and relationships, to produce some coherence in what appeared to be random creations of nature. In the same way, he believed, human artifacts, especially architecture, seem to present a chaotic picture, but one in which some order might be found. He sought in architecture the kind of synthetic unity Goethe had assumed existed in nature. Semper's quest for archetypal built form is analogous to Goethe's search for the archetypal plant. This direction Semper was to take was perhaps indicated by Schinkel, who had included references to Goethe's *Urpflanze* in the didactic ornament of his Berlin Bauschule. In an essay on a system of comparative styles of 1853, Semper wrote that he wanted to establish a taxonomy comparable to Alexander von Humboldt's *Der Kosmos*, which like Goethe's work in the natural sciences, is a unifying study of the physical universe. Idealism for Semper, as for Goethe and Humboldt, was tempered by a degree of pragmatism. For instance, before he published the ideas (at the time still controversial) on the use of color in classical architecture, Semper visited ancient sites, had scaffoldings erected to check out remains of color, and had them analyzed by a chemist. His approach then borrows from that tradition of the natural sciences which was not simply interested in cataloging the random phenomena of nature, but which sought rational constructs that would at once synthesize and explain an apparently meaningless multiplicity of forms.

Semper divided all built form in his 1851 essay into four types. The hearth is the first element, the communal prerequisite for architecture. It represents for him the basic social nucleus, the gathering point for family and tribe and as such, the germ of civilization. The hearth is the central element around which the other three group themselves to provide the more traditional architectural concept of shelter, for both man and

148 hearth. The second element is the substructure, or platform, used to raise the hearth off the damp ground. The third element is the roof to protect the fire against rain. The roof is treated as a unit together with the framework on which it rests. The fourth and last element is the enclosure to keep out wind and cold. The latter, Semper saw as a generally non-loadbearing filler made of hides, textiles, wattle, etc., placed between the posts supporting the roof.

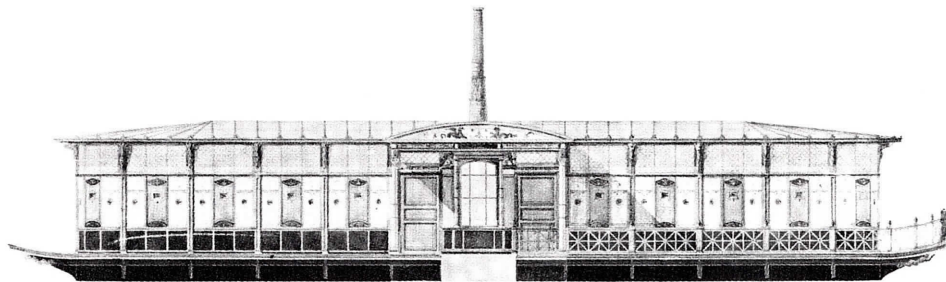
What is exceptional in Semper's schema of classification, is that he begins with a non-architectural element—the fire—an element without spatial dimension but one which bestows social significance on the site. The other three elements follow in logical sequence from the first. His postulation of the hearth as the generator of substructure, roof, and enclosure leads him to a further unusual categorization. The roof with its supporting posts is read as a continuous unit, and his fourth element, enclosure, represents the final (non-structural) step in dividing outside from inside. (The Indian tepee and wigwam might be considered as succinct examples of a continuous frame and roof covered by a thin enclosure.) Semper does not use the more readily perceivable—at least in Western architecture—elements, wall and roof, nor does he choose to follow in his analysis conventional nineteenth-century construction methods which would have presumed a wall-roof sequence and which would not have allowed him to see the enclosure as a non-loadbearing zone. Semper found his system confirmed in a Caribbean cottage shown at the Great Exhibition in London. It had a hearth elevated on a platform, poles supporting a roof, and woven mats suspended between the poles. This suggests that Semper's four elements describe primitive building, not architecture; he himself stressed this point. In a more evolved architecture, according to Semper, these four elements became integrated so that they could no longer be read as separate categories. And although the four elements were categories more explicit in primitive building, Semper did not attempt to imply a

chronological sequence. He was too aware of the complexity of human history to assume that he was describing the “first” building. His was not the naive positivism of a James Fergusson, for example, who assumed an inexorable progress from simplicity to complexity. Semper knew that primitive forms can coexist with more evolved forms (the Caribbean cottage, though transplanted, was as much part of a living tradition as the Crystal Palace in which it was housed), and that periods of high civilization can be succeeded by a regression to primitivism. His categories must, therefore, be interpreted as archetypal concepts, not chronological data.

He believed that these four elements are subject to transformations, separately or together. While one element may undergo extended technical development, another one may persist only in symbolic form. Since his schema is not time-specific, it cannot be attacked by pointing to building types that do not seem to be covered by his categories. For instance, the Dogon house or the Eskimo igloo do not have frameworks supporting a roof nor do they treat enclosure as a discrete entity. Although Semper did not deal with these particular examples, one could answer for him that they are actually proof of his insistence on reading roof and support as a continuous unit. That the roof and its support have in these cases also absorbed the fourth element, enclosure, could be understood as a transformation to accommodate extremes of climate. Further, we know that the Dogon house reflects aspects of Moslem architecture. The Dogon house is, then, a case in which an apparently primitive building retains echoes of a high culture in which the four elements had presumably been integrated. Of course, Semper's whole system is a construct and its “correctness” depends only on the workability of its model of architectural transformations. In this regard, it is no different from any scientific law man has invented to understand the workings of nature. Semper himself borrowed some of his terminology from natural science, particularly his notion of vestigial form in architecture. He believed, for example, that the

church altar was a relic of the place used for burnt offerings, hence ultimately of the sacred hearth.

Through his exposure to the advanced state of industrialization in England, Semper became aware of a general breakdown of normal evolutionary processes of all artifacts, as stated in his “Wissenschaft, Industrie und Kunst” (“Science, Industry, and Art”) of 1852. However, he believed that no corrections could be undertaken until these processes were understood, and to understand and clarify them was the goal of *Der Stil*. In *Der Stil* he turns to a study of industrial arts as the prerequisite for the comprehension of architectural processes of change. For he now supposed that the industrial arts constituted more basic types than his four architectural elements. He linked his four elements of architecture with four categories of industrial arts: the production of ceramics and metallurgy are related to the hearth (because they require heat), industrial arts of stone are linked to masonry and the substructure, woodwork with the frame and roof, and textiles with the enclosure. In *Der Stil* Semper also gave his categories a new sequence. One would expect metallurgy and ceramics first and textiles last. Instead he begins with textiles, and continues with ceramics, carpentry, masonry, and concludes with metallurgy. In placing them in this particular order which runs from soft to increasingly harder materials, he gives the impression that he has shifted from his former social-ordering principle to one in which materials and their properties dominate the schema. However, the hearth is still referred to as “the oldest symbol of society,” and in his introduction to the specific discussion of materials, he wrote concerning the “Classification of Industrial Arts” that his new categories are to be treated inclusively, not exclusively. That is, while he sees clay as the archetypal material, *Urstoff*, for vessels, he intends to include in his examination vessels made of glass or wood as well. On the other hand, there might be ceramic objects such as tiles, certain terracottas, or any ceramics that are



2.

primarily used as thin coverings, which might be more appropriately discussed under textiles. His categories are really functional ones, materials do not seem to be used in a purely materialistic sense.

A further evidence of his desire to see artifacts grouped by function, not materials, was his criticism of existing museums in his essay on a comparative system of styles of 1853. For example, Semper thought that little could be learned by comparing a piece of metal armor with a metal vase. For him it would have been much more revealing to compare a metal vase with a glass vase, etc. In the same essay he defined style as a formula taken from integral calculus: $Y = F(x, y, z, \dots)$, where Y is the artifact, F is the function of the object, and x, y, z, \dots are the theoretically infinite number of components which interact in the production of Y. Semper saw in this formula the confluence of a stable and of a variable set of influences. Function is posited as a constant element; the shape of a drinking vessel, no matter what its material, would primarily be determined by its function to contain a liquid. Influences that are variable, the coefficients x, y, z, \dots he subdivided into the following three classes: (1) materials and techniques; (2) local and ethnological influences such as religion, politics, climate, or the specific site; and (3) personal influences such as those of the artist or his patron. It is clear from Semper's formulation of style that function has a more tangible effect on design than materials or the artist's idiosyncrasies, the latter being only subcategories of an infinite number of variable coefficients.

Despite the comparative precision of this aspect of Semper's ideas, by the turn of the century he was already radically misunderstood. He was generally seen in the light of the prevailing materialist and Darwinian attitudes. Indeed, if *Der Stil* is scanned rapidly, its chapter headings, organized by materials (textiles, ceramics, carpentry, masonry, and metallurgy), might suggest just such a reading, a misinterpretation avoidable only if Semper's introductory

remarks in his prolegomena are taken seriously. Alois Riegl, the Viennese art historian, as early as 1893 in his *Stilfragen* ("Questions of Style") found it necessary to defend Semper against overly materialistic interpretations. He wrote that those purporting to be Semper followers have as little in common with Semper as Darwinism with Darwin.

Architects, too, were beginning to superimpose their own predilections upon Semper's theoretical framework. Otto Wagner, for example, in his *Die Baukunst unserer Zeit* ("The Architecture of Our Time") of 1894, while paying tribute to Semper, went on to point out what he saw as his shortcoming: "Semper did not have the courage, like Darwin, to complete his theories upwards and downwards and he made do with a symbolism of construction instead of designating construction itself as the germ cell of building." Semper's theory was, of course, something more than the symbolic utilitarianism Wagner cited. It also dealt with religious, social, and political function. For Wagner, for whom every architectural form ultimately derives from construction, this point was lost. Similarly, Semper's "failure" to adopt a Darwinian model of evolution is quite consistent within the context of his intentions. He, in fact, was familiar with Darwin's work (*Origin of the Species* was published in 1859) and apparently read it with interest. However, by 1859 Semper had already written most of his essays, and the bulk of *Der Stil* (certainly its basic conception) must have been completed by the time he read Darwin. The only direct reference Semper made to Darwin is in one of his late essays, "Über Baustile" ("About Architectural Styles") of 1869, in which he stated unequivocally that Darwin's theory of natural selection, particularly the axiom that nature makes no leaps, is not transferable to the creation and development of artifacts, be they crafts or architecture.

Hendrik Petrus Berlage, who had studied at the Federal Institute of Technology in Zurich, often referred to Semper's theory as

practical aesthetics; a usage intended by Semper but one difficult to carry out since the last volume of *Der Stil* (the one which would have dealt with architecture) was never completed. Like Wagner, Berlage believed construction to be the generator of architecture. In his *Gedanken über Stil in der Baukunst* ("Thoughts About Style in Architecture") of 1905, he named Semper and Viollet-le-Duc in one breath as theoreticians he intends to follow. Berlage's desire to see these two figures' ideas as being of a piece is an indication of Berlage's constructivist vision. To Berlage, the most urgent question for architects was to evolve a new style. To do this, he suggested turning to prototypes in nature. Just as the hide of animals never seems to conceal their skeletal structure, so, he believed, a building should always reveal its construction. Berlage's literal analogy with animals reflects quite closely Viollet's conviction that "forms not determined by structure should be spurned." It does not, however, conform with Semper's stylistic principles. Semper's Caribbean hut may have revealed structure, but it was seen by Semper as an example of building, not architecture. It was an archetype used to describe the evolution of architectural elements, but it was not proposed as a model to be followed by contemporary architects. In more highly developed architecture, Semper believed that the separate architectural elements become fused and integrated and no longer reveal construction in a direct way. In fact, in his introduction to *Der Stil*, Semper wrote that his conception of basic forms and their origins has nothing in common with the materialistic understanding of building in which architecture is "nothing more than evolved construction, an illustration and illumination of statics and mechanics, pure revelation of material, as it were."

It is essentially Wagner's and Berlage's view of Semper which has come down to us. It was passed on, for instance, in more or less this form by Franz Boas, the German anthropologist, who established anthropology as a serious endeavor in America, and who trained a whole generation of

150 American anthropologists. Even in recent Semper studies, his place vis-à-vis Darwinism is not made clear. Leopold Ettlinger, for example, in his essay "On Science, Industry, and Art" (*Architectural Review*, July, 1964), after acknowledging that Semper did not transfer Darwin's method fully to the arts, added that ". . . he firmly believed that the principle of *Evolution*—in the strict scientific sense of the term—could be applied to the arts and to architecture." Ettlinger substantiated his depiction of Semper as an evolutionist by referring to the latter's interest in Cuvier. Cuvier, however, had been a great defender of "fixism" and had nothing in common with evolutionary concepts. Further, there is not now, and never was, a principle of evolution in a "strict scientific sense." The nineteenth century was confronted by a variety of competing scientific theories. Even today, when Darwin's version is the generally accepted one, new definitions and revisions of his theory are being put forward. For example, Darwin's belief in a gradual adaptation to changing conditions is questioned as a universal explanation for changes in nature. Some scientists have suggested that great cataclysmic events, such as the impact of meteors which may have altered climate and caused the mutation of genes, may have been responsible for the more drastic shifts in evolution. Thus, the concept of evolution itself is continually undergoing an evolution also and it is, therefore, not very meaningful to speak of evolution in a "strict scientific sense."

Joseph Rykwert, in his recent book, *On Adam's House in Paradise*, in contrast to Ettlinger, is careful not to portray Semper as a materialist Darwinist. He does, however, believe that Semper in *Der Stil* is describing the origins of architecture rather than conceptual archetypes. Because Semper dealt first with textiles, Rykwert suggests that for Semper the first artifact was a knot, that the origin of the house coincided with weaving, and that the first house was a tent. In his introduction to the chapters on textiles, Semper stated that even the

oldest and apparently the most primitive cultures we may be able to pinpoint, would probably turn out to have been a vestige of a yet earlier higher culture. The attempt to fix origins in time, he, therefore, found a thankless task. In the same way, he wrote that he cannot determine which one of the various crafts came first in time. The reason he commenced with textile crafts is that it appeared to him, from all available evidence, that textiles bore the origin of many ornamental types and symbols found in other crafts. He referred to textiles as *Urkunst*, a basic art form which seems to have provided typological models, but not necessarily one which was first in time.

A different sort of illustration of the still prevailing misconception of Semper is the current historical view of his relation to the Chicago School. Architects working in Chicago in the eighties and nineties were without doubt exposed to his writings. In 1880, the *American Architect*, as part of its obituary of Semper, recommended *Der Stil* to its readers and gave a bibliography of several essays by Semper published in various foreign periodicals. This advice seems to have been effective, for in the late eighties, a more general interest in Semper can be documented. In 1887 the *Inland Architect* published a discussion held by the Illinois State Association of Architects in which Louis Sullivan and John Root had participated, and in which the German-born Frederick Baumann quoted from Semper's essay "Über Baustile." Then John Root, with the help of Fritz Wagner, edited and translated this particular essay and it appeared in serialized form in the December 1889, and the January through March 1890 issues of the *Inland Architect*. Dankmar Adler, Sullivan's German-born partner, apparently was fond of reciting quotations from Semper. The evidence that Sullivan was familiar with Semper's ideas is, therefore, quite substantial.

While most historians of this period of American architectural history acknowledge Semper's influence, none has traced specific

aspects of Sullivan's ideas to those of Semper. It would appear that Sullivan's eurythmic organization of a building into a clearly perceivable and forthrightly readable *Gestalt* (an organization of the exterior that expresses symbolic functions more clearly than structural-mechanical ones) can be associated with concepts found in Semper's prolegomena to *Der Stil*. Sullivan's ornamental emphasis of a building's entrance and termination is also comparable to Semper's analysis of the design principles found in a Greek hydria, discussed in Semper's essay "Keramisches" ("On Pottery") of 1852-5. Semper wrote that the ornament must emphasize the characteristics of each part, as well as its relation to the whole object and the surrounding environment. In both the foot and the neck of the hydria Semper saw conflicting directional forces at work. The foot is the receiver of the belly which seems to press down on it but, at the same time, it rests on the ground and holds up the vessel. The counterforces run upward and downward and this Semper found was usually expressed by vertically arranged, vegetable ornament. The ornamentation of the neck, he wrote, is informed by the action of filling and pouring out liquid. The opposing forces here also move upward and downward and this is signified by ornament similar to that used on the foot. The hydria's belly, which Semper saw as a container in complete hydrostatic balance, is a neutral zone without directional forces, usually reserved for pictorial representations. Elsewhere Semper showed how this type of an analysis can be transposed to form an understanding of architectural *Gestalt*. A comparable dynamic interpretation of ornament would have allowed Sullivan to see the entrance, where the greatest activity between inside and outside occurs, similar to the neck of Semper's hydria. The hydria's neutral belly can be associated with Sullivan's conception of office floors, which, in his essay "The Tall Office Building Artistically Considered" of 1896, he described as being all identical, and therefore a kind of neutral zone between the perceptually active basement and entrance

and the forcefully stated termination at the cornice level which helps to set the building off from its general background and also helps to make it readable in terms of Semper's principles regarding a visual field.

Frank Lloyd Wright, who worked in Sullivan's office in the late eighties and early nineties, could also have been familiar with Semper. In Wright's work one might point to his ceremonial emphasis of the fireplace, which often, as in his Willitts and Robie Houses, seems to generate the plan itself. It is clear, though, that Wright's personal belief in the importance of the family has much to do with this particular organization of the house. However, Semper's description of the hearth, as the most elementary social nucleus of a building, would have reinforced Wright's own attitudes.

In a discussion of the general relationship of Semper to the Chicago School architects, one might also investigate the origin of the term "curtain wall" as it was used to describe the thin envelopes of Chicago skyscrapers. And, by extension, Wright's sources for the "textile" blocks of his California houses might be explored further and compared with the textile effects of the Coonley House tiles, a device used by Wright long before he turned to the more literally "woven" effect of the hollow concrete blocks. This may perhaps have been an adaptation of Semper's fourth architectural element, that of a thin, fabric-like enclosure. Semper himself would not have advocated such an application of what he regarded as an archetypal element, although the attempt to use Semper's theories as a handbook would be rather typical of his influence on architects. In any case, Semper's relationship with the Chicago School is obviously a rich one and bears further investigation. Yet, most historians have reduced, rather than expanded, our understanding of this connection.

Donald Drew Egbert, in his essay on "The Idea of Organic Expression and American

Architecture" (published in *Evolutionary Thought in America*, 1956), explained Semper's importance for America by referring to him as if he were a Darwinian evolutionist, "Semper conceived art to be a special process of development . . . and thus of evolution. For this reason he dealt especially with the principles of style in their adaptation to new inventions. He investigated structure from a genetic point of view, and explained it as derived from the specific nature of the material, from the nature of the tools and methods of construction and also from the nature of the use to which the structure is to be put." Semper's symbolic functionalism is submerged in Egbert's primarily materialistic explication.

Similarly, Albert Bush-Brown in his *Louis Sullivan* of 1960 quoted from Semper out of context to show how his ideas are supposedly Darwinian. And Carl W. Condit in the *Chicago School of Architecture* of 1964 completely sealed Semper's fate as a Darwinian, "The organic theory of architecture that was rising in Germany under the influence of Darwinism came to be known originally through Root's translation in 1889 [sic] of Gottfried Semper's 'Development of Architectural Style.'" It seems that none of these authors checked Semper's essay to see whether he did, in fact, propose a Darwinian model of evolution.

Further proof, if more were needed, that Semper was not a materialist or a Darwinian, is his so-called *Stoffwechseltheorie* (untranslatable, but something like theory of change in materials) and his interest in linguistics as a potential model for the evolution of man-made forms. The *Stoffwechseltheorie* describes his conviction that formal patterns have been taken from one medium and reused in another, sometimes with slight changes, sometimes with strong symbolic transformation. For example, patterns devised for textiles may reappear first as wall ornament on a textile enclosure. If buildings which had such textile enclosures become more permanent, the wall may be done in masonry but the same ornament

which had been used for the textile enclosure may be used on the masonry wall. Or, if swags of garlands were used in sacred buildings, references may be made to these in a later development as painted garlands. So, while the original pattern may have been affected by its medium, in its subsequent transformations the material on which it occurs is no longer of primary significance. This aspect of Semper's theory accounts for the traditionalism that prevailed before our own age in the usage of forms. Semper dealt with form that evolves slowly and gradually, which goes through traceable transformations comparable to the processes of change in language. This gradual process of change allowed for the conservation of symbolic language, a process Semper found usurped by industrialization. Industry's ability to produce many forms out of many materials meant that symbolic content could be transferred from one artifact to another that is functionally quite different, thereby rendering meaning meaningless. For Semper, a constant barrage of neologisms in designed form, just as in language, would defeat the central purpose of any communication, to be understood.

Semper was interested in comparative linguistics; he had high hopes for its usefulness in tracing the origin of forms. A word, through its stem can reveal its original meaning and place of origin even after many transformations. In the same way Semper wanted to find in the names of architectural parts evidence of their origin. He gave as an example the German words "*Mauer*" and "*Wand*." Both mean "wall," but the secondary meaning of "*Mauer*" is "battlement," and "*Wand*" can also mean "screen." Semper saw evidence in these words for his division of architectural elements into the substructure and its relation to masonry and the enclosure and its derivation from a thin skin. "*Wand*" he thought of as being related to the word "*Gewand*" ("dress"). Modern etymology actually relates "*Wand*" more directly to the verb "*winden*" ("to braid"), and gives the original meaning of "*Wand*" as having been "wickerwork" or "wattling?"



3.

However, this still supports Semper's theory of the primitive wall as filler.

Semper's *Stoffwechseltheorie*, together with his etymological approach, were confirmed in more recent scholarship by Karl Lehmann. Lehmann traced the image of the dome as a symbol of heaven to temporary Greek canopies embroidered with stars. The symbolic function of such canopies is supported by their name, *uraniscus*. Or, one might consider the term "reredos," usually a synonym for "retable", a structure forming the back of an altar. The secondary meaning of "reredos," however, refers to the back of an open hearth or fireplace, a relationship that bears out Semper's connection of hearth and altar.

Semper stated in *Der Stil* that established meaning and symbols in architecture may not be ignored or willfully altered without loss of context. He continued, "The observing public and the majority of active architects follow these traditions rather unconsciously. But the same advantage, which comparative linguistics and the study of archetypal relationships give the rhetorician, will accrue to that architect who recognizes the oldest symbols of his language in their original meaning. . . . I also believe that the time is not far off when the study of linguistics and that which is concerned with forms in art will enter a reciprocal relationship. From such a relationship the most curious mutual discoveries in both fields must emerge."

Semper, then, while influenced by taxonomic studies in the field of natural science, was not strictly a materialist, nor was he strictly a utilitarian functionalist. Materialism for him stood in a reciprocal relationship with idealism, and utilitarian functionalism with symbolic functionalism. His discussion of evolution is not linear, progressivist, nor does it deal with first origins; rather he deals with the complex transformations of archetypes comparable to the changes in language—another artifact, in which no clear progression from complexity to

simplicity exists. Semper probably shied away from adopting a Darwinian model because in the evolution of nature there is no return to old forms—it is unlikely that there will be another age of dinosaurs—but in artistic change a return to older forms is indeed possible as is a complete coexistence of old and new forms. Semper did not see human history and the creation of crafts and architecture as a simple progression. Development of forms was evolutionary to him only in the sense of continual change, not in the sense of a progression from lower organisms to higher forms of life. The more conceptual models of Goethe and Humboldt, also devised for the study of natural science, were clearly more directly applicable to his own endeavors.

Considering the frequency with which Semper's analysis of archetypal form in architecture was adopted as a handbook for building by later architects, one wonders whether for Semper himself the theory was discrete from his architecture and whether some relationship exists between these two areas.

Martin Fröhlich's *Gottfried Semper* provides no answer to this question and probably did not intend to do so. Since it is a catalog of drawings only, it does not even always give us a full analysis of each of Semper's buildings. It is, nevertheless, the first good pictorial overview of Semper's wide-ranging works, since none of the earlier books on Semper had been adequately illustrated. Each series of chronological sections on Semper's life and works is preceded by useful lists of buildings by other architects comparable to those designed by Semper. It is regrettable that maps are presented somewhat too schematically to follow Fröhlich's discussion of Semper's larger schemes with any ease.

Much of Fröhlich's interpretation is concerned with Semper's supposed method of organizing plans into centralized, cruciform, or serially arranged spaces. Fröhlich's schematic drawings showing one of these

types of plans, paired with specific designs by Semper, do not always look convincing, since some of the plans by Semper exhibit a combination of these types and cannot be reduced to a single one. Comparatively little is said about Semper's choice of architectural styles. Semper usually decided on a specific style early in the planning of a building, but the spatial organization often went through a series of transformations; this developmental aspect, revealed in the various drawings stages, is clearly transmitted by Fröhlich's presentation. However, one is left to wonder why certain stylistic modes were chosen in the first place. Why do Renaissance forms predominate in his designs when he had reserved his highest admiration for the Greek style? The answer would seem to be that Renaissance buildings provided more suitable functional prototypes for the multi-story building types of the nineteenth century. Or, why were Baroque and Gothic forms used in his buildings when he had disdained them in his writings? A Gothic style, for example, was chosen for his project of a town hall for Zurich. It would appear that, while he had little use for church-Gothic (even though he did admire individual Gothic churches), when the building type in question could properly refer to the bourgeois town halls of the later Middle Ages, he was willing to use this style. He could accept the Gothic when it sprang from a non-hierarchic context. In a similar vein one might ask why Semper used Baroque forms for his museums in Dresden and Vienna, a style he had rejected along with the Gothic in his writings. Here we come to the conclusion that the museums first of all are, in fact, royal commissions and are extensions of Baroque palaces. This style is then perhaps used simply for the sake of political and formal continuity (a continuity much admired by Camillo Sitte who had seen in these projects coherent principles of city planning that stood in sharp contrast with, for example, most of the other projects along the Ringstrasse in Vienna, in which each is treated as a separate monument). A secondary meaning of the Baroque style may possibly be revealed by the building type of these

projects, i.e. museums. They may be seen as people's palaces. Museums are not just public buildings of any sort. They provide intellectual and artistic instruction, a function which in the nineteenth century would certainly have been regarded as being higher than other types of public buildings, such as railway stations. Perhaps for this reason also, the "aristocratic" Baroque style may have seemed appropriate.

One of the problems the nineteenth-century architect faced was the emergence of a large series of new building types which had no clear precedent in older architecture. Often the solution was to choose that style or building type from the past which seemed functionally the most correct, without, however, any attempt to transfer the symbolic aspects of the prototypes. Thus, for his designs of a railroad station and a stock market, Semper alluded to the forms of Roman baths—good prototypes for large halls containing a variety of utilitarian spaces. For a laundry shop, a type without clear genealogy, Semper devised a magnificent Pompeian wall decoration. Its linear and billowing flat panels were perhaps meant to suggest laundry on a line, but in essence a Pompeian style in this context was no more appropriate than several other styles would have been (fig. 2).

Together with the problems created by new building types, there were often quick shifts in the kind of commissions Semper received—from royal patronage to bourgeois patronage, from an old order to a new order—and such ambiguities could not always be resolved. The illustrations in Fröhlich's book give us new insight into the uncertainties and complexities of a period. The book helps us understand why Semper wanted to write an architectural typology, why he wanted to clarify on a theoretical level what was perhaps not soluble in practice.

Figure Credits

Figures 1,2,3. Reprinted from Martin Fröhlich, *Gottfried Semper*, 1974, Stuttgart and Basel, Birkhäuser Verlag.

On Max Bill. A review of the Albright-Knox Exhibition catalog.

Max Bill, eds. Max Bill and James N. Wood. 1974, Buffalo, New York, Buffalo Fine Arts Academy and Albright-Knox Art Gallery. 198 pp., \$14.00.

Kenneth Frampton

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154 More than a catalog but less than an *oeuvre complète*, this publication, produced for Max Bill's retrospective which travelled to three major cities in the States between the fall of 1974 and the spring of 1975, is to be valued primarily for the fact that it places within one cover not only an illustrated synopsis of his painting and sculpture but also a number of his seminal texts. In this context, where they appear one after another separated by appropriate intervening works, one can hardly fail but be impressed by the consistency and lucidity of the thought and its expression particularly when one remembers that these texts were compiled over a long period of time, from the earliest piece entitled "Concrete Art" of 1936, written when the author was only twenty-eight, to last year's short statement transcribed with touching fidelity to Bill's inimitable English.

Perhaps the single most significant aspect of Bill's whole achievement is that, while it has come to embrace a scope of undeniably humanist dimensions, it is relatively free in each of these areas, be it industrial design, architecture or art, of any specific content that could be legitimately regarded as humanist. One only has to think, for example, of Bill's perception of the role played by perspective in the evolution of western painting, to realise that for all of its dependence on logical structure his own work was never formulated in extension of humanist values. In 1949, in his essay "The Mathematical Approach in Contemporary Art," he was to argue with succinct conviction that, "Perspective certainly presented an entirely new aspect of reality to human consciousness, but one of its consequences was that the artist's primal image was debased into a mere naturalistic replica of his subject. Therewith the decadence of painting, both as a symbolic art and an art of free construction, may be said to have begun." This distancing of perspective and with it the whole of the humanist legacy is an aspect of Bill's thought that has yet to be fully appreciated, despite the fact that it is evident in almost every level of his activity.

Although this catalog and indeed this retrospective did not in fact treat with Bill's career as a designer, something demands to be said at this point about his attitude to building since this casts his whole work into a particular light which may be of consequence to the future of architecture. Above all else, it is this artist's attitude to reduction that we need to acknowledge, for if we assume, as we are often vulgarly urged to do, that reduction *per se* necessarily means loss of content, then we will have little chance of transcending a certain endemic primitivism which today largely fills the cultural void with degenerate "noise," in the Max Bense sense of that term. One may almost think of the whole of Bill's work as being contingent on a certain level of intentional lucidity as a necessary pre-condition for the transmittal of information, whether this information is aesthetic or not. And this lucidity, which is intrinsic to the work itself, must first be limited as to its initial parameters by a clear understanding of the status of the object within a given socio-cultural context, whose implacable character is as much historical as it is determined by material sources and the means of production. One is nicely reminded at this juncture of an unknown stone carver in the Ticino who has apparently worked for Bill throughout his career and of whom, hearsay has it, Bill has remarked, that when this man dies he will not be able to make another stone piece.

Bill's writings on the various aspects of his work appropriately serve in the catalog as a key to the complexity of his overall cultural position. Thus we find him writing in his maturity of the role of art in human culture in the following terms: "I say that it is the scope of art to create a kind of non-changeable elementary truth. A kind of truth which can be interpreted differently but which remains nevertheless the same. Though the environment and the onlooker are subject to change, this does not go for the aesthetic object. This shows why essentially the subordination of plastic art to the laws of change contradicts the meaning of plastic art. The

purpose of art is to give an aesthetic measure."

The implicit monumentality of this assertion, which appeared in 1967 in a short polemic against kinetic art published under the title "Art as Non-Changeable Fact," had already been rendered as a cogent argument some fifteen years earlier, when, in 1952, he had defended his monument to the Unknown Political Prisoner (fig. 3) in terms that were explicitly monumental: "Certain objections have it that the materials I propose are 'not modern,' that the media I suggest are archaic in contrast with those of the constructivist projects. I gave this problem my careful consideration and this is my conclusion: if an idea is considered worthy of a monument, the monument should be durable. Construction and materials must be able to withstand the deteriorating effects of the elements. A construction such as that of the Eiffel Tower, or a similar one employing so-called modern materials is therefore out of the question. For this reason the outer surfaces of my monument are of granite and the inner surfaces of white marble, both of which are materials capable of withstanding the influence of time. The stainless steel column remains unchanged over a long period of time."

Such quotes, when set against other statements by Bill with regard to the intrinsic nature of architecture and design, tend to reveal the subtlety or even perhaps the persistent naivety of his position. Nothing to my mind is more revealing of the complexity of his attitude than a brief appreciation that he wrote of the architecture of Amancio Williams in 1964, since, while acclaiming the brilliance of this work, he identified at the same time the nature of his own cultural preferences: "Just as opposites attract one another, I am fascinated by Amancio Williams' architectonic structures. I feel the same way when I look at the constructions of Mies van der Rohe and Philip Johnson. I am overwhelmed by a sense of astonishment at such architectonic perfection, at the creation of new form, which often seems an end in it-

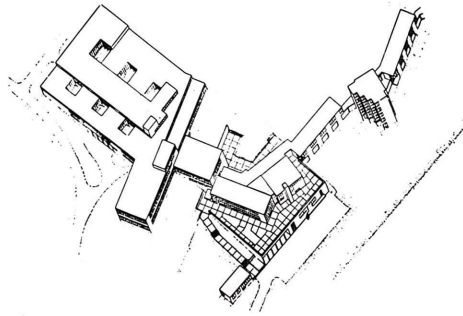
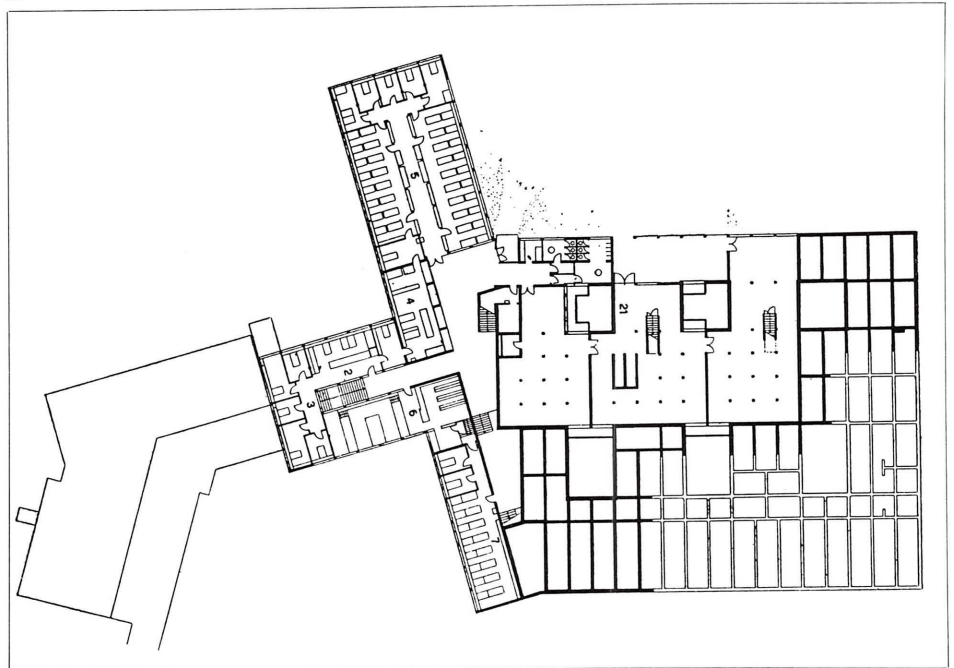


Figure 1. Hochschule für Gestaltung, Ulm. Max Bill, architect, 1955. Axonometric.

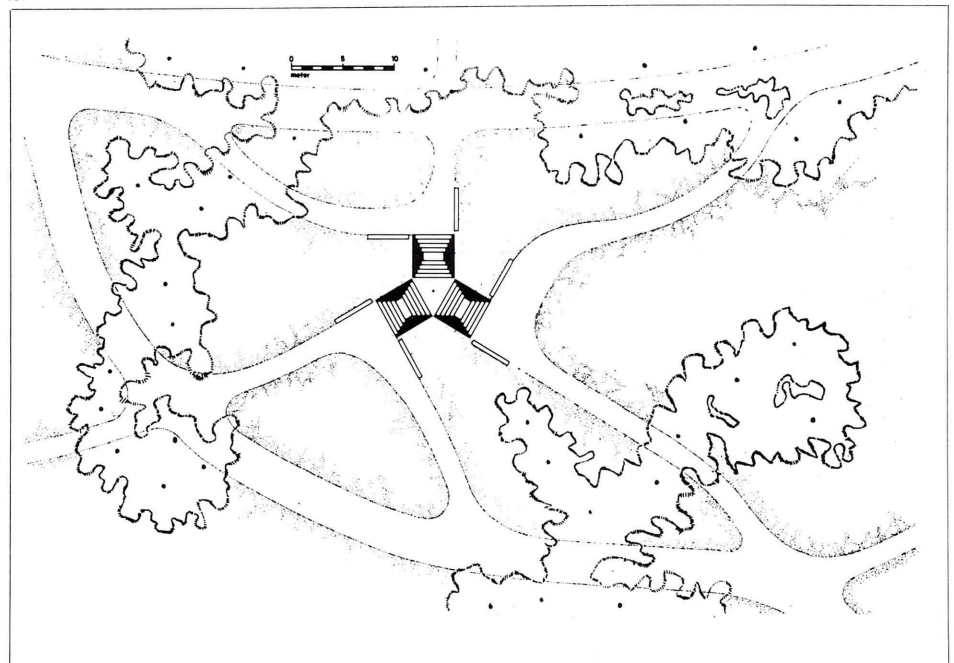
Figure 2. First floor plan.

Figure 3. Project for a monument to the Unknown Political Prisoner. Max Bill, architect, 1952. Site plan.

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self. Even where this vision is technically motivated, it achieves a perfection that recalls Konrad Wachsmann's projects (as yet unrealized unfortunately) on the aesthetic plane. I am touched by Amancio Williams' conception of architecture, even though, personally, I have no penchant for idealization and seek more functional, and human, solutions."

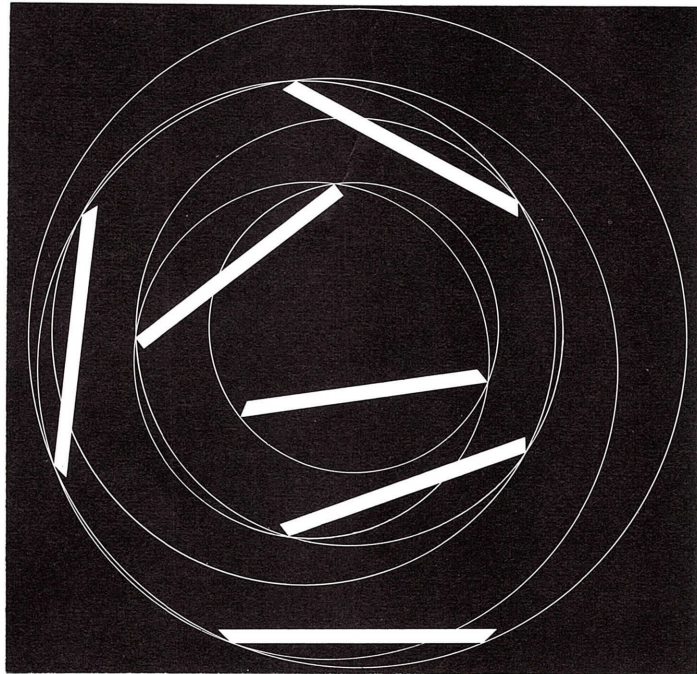
What Bill meant (or would mean still were he active as a designer) by the term "more functional, and human, solutions" was perhaps to be seen most clearly in his own architectural work at the time. I have in mind of course his pavilion for "the art of living, education and creation," erected for the Swiss National Exhibition of 1964 at Lausanne, a structure which was obviously conceived as a homage to those for whom "building" rather than "architecture" had always been a more proper description of their appointed task. For the Lausanne pavilion, comprising a galvanised steel superstructure variously clad in glass, aluminum and asbestos cement, was a precise and articulate building system whose cultural aspirations led back to Paxton's palace of 1851, via the work of two men whom Bill had always admired—the Swiss Hannes Meyer who had been his master and mentor in the Bauhaus and Konrad Wachsmann whose *Turning Point of Building*, published in 1961, had clearly been a source of profound inspiration in the actual development of the Lausanne system. And here we have the proof, if you like, of Bill's capacity to differentiate between building as *monument* (as outlined in his text of 1952 quoted above) and building as *productive process*; the morphology of the second being subject as in all forms of normative production—be it machine-made or hand-crafted—to the necessary constraints of the *produktform*.

Form as "aesthetic measure," form as "cipher for collective value, i.e. memory," and form as "product"; these three aspects seem to characterize the triadic division of Bill's achievement at a more profound level

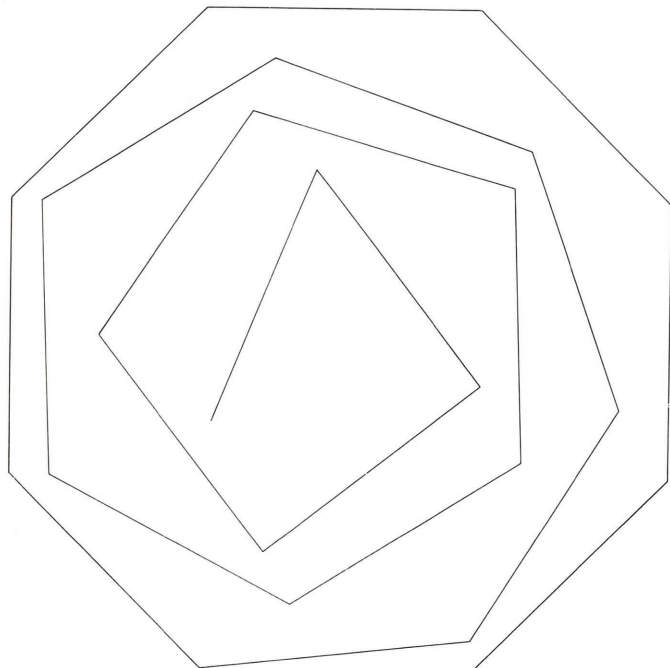
Figure 4. Variation 5. The circumscribed circles of the polygons are connected to those lines of the polygons omitted in the theme. The polygons form surfaces whose smaller sides develop in the same rhythm as the theme.

Figure 5. Fifteen variations on a Single Theme. Max Bill, 1934-1938. This is the basic theme consisting of the continuous development from an equilateral triangle to a regular octagon. The resultant figure is a spiral composed of straight lines of equal length.

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than the respective and more conventional categories of art, architecture, and building/design. That Bill has attempted throughout his life to differentiate clearly between these three states of form places him well within that long, but still underground, tradition of cultural re-definition that was first lucidly initiated in the writings of Gottfried Semper and Adolf Loos (particularly in the latter's essay "Architektur" of 1910), since extended into the present via the productivist wing of the *neue Sachlichkeit* (the ABC Group) and the aesthetic logic of Van Doesburg's *Art Concret*.

Both Lawrence Alloway and James N. Wood are patently aware of the distinctions that Bill habitually draws between the socio-cultural domain of art and the socio-cultural task of the *produktform*. In their respective introductions to the catalog they each characterize Bill's capacity to sustain such distinctions with exemplary clarity. Thus Alloway writes: "The weakness of earlier approaches to the *Gesamtkunstwerk* via rational planning is that the artists held too simple and too elitist a view of the interrelations of art, the arts and society. It was assumed to be sufficient to apply art-derived principles to the rest of the environment. However, looking at, say, Bauhaus products we can see that although individual pieces were admirable, no unified aesthetic emerged on the basis of extrapolated art principles. It is important not to confuse Bill's numerous activities with this aestheticizing mode. He considers the different tasks as different kinds of operation. The kinds of decision that are appropriate in painting a picture are not of a kind that can be transferred to, say, the layout of a catalog. There is no assumption of one universal design principle, elastic and omnivorous, that can engulf all artifacts. On the contrary, Bill works so well in his wide field, because of his exceptional grasp of specific objectives and of the costs or resources to be used in achieving them. There are functional differences between the various tasks." James N. Wood complements this assessment by writing of the art itself: "The result

is works of art with two primary intentions; first, as concretions of symbolic information for the pleasure and spiritual use of individuals and, second, as prototypes for a broader social use—for as Bill has repeatedly stressed, he is convinced that the Fine Arts are the primary formative influence on all design.”

But of course the general critical question remains as to which of the relative criteria are to be given priority and thereby allowed to determine the overriding properties of the form. In concrete terms one still has to ask which aspect has the most weight and to what degree and in what context—the logic of aesthetic measure derived from pure art or the means of production? And the paradox is that this kind of question attains its full measure of criticality, not in the relatively autonomous fields of fine art or product design, however different they may be, but there in the field of building where the autonomy of the object is restricted by its integration into a particular site and a specific social program.

This problem was never more evident than in the major *opus* of Bill’s career as an architect—namely his Hochschule für Gestaltung, Ulm, designed between 1950 and 1954 (figs. 1,2). Unlike his monument to the Unknown Political Prisoner of 1952 or his building system for the Lausanne pavilion of 1964, there is here a decided split between building as the manifestation of a productive system and building as the embodiment of symbolic form. This split at Ulm occurs both literally and conceptually at that singular point where the complex simultaneously breaks in section and changes in direction, presumably out of a response to a marked displacement in the fall of the land. Here in the public core of the school—comprising the entry, the main stair, the library and the canteen—the greatest deformation is imposed on the orthogonal modular logic of the overall system. All concern for *produktform* or for the logic of aesthetic measure seems to be sacrificed at this juncture to those distortions as were con-

sidered necessary for the accommodation of the public realm or the celebration of the *genus loci* of the site. At this specific break in the composition one is about as far removed as one possibly can be from that structural neo-classic lucidity sustained by Mies under comparable site conditions; in say, his office complex projected for Krupp at Essen in 1964. Here, one is surely closer to the “organicism” of Hugo Häring’s *neues Bauen*, as exemplified in his Gut Garkau complex of 1924. The anti-humanist rationality that has always been latent in Bill’s vision seems here to acquire sufficient force to depart with impunity from the constraints of both *produktform* and aesthetic rule. This point is made all the more dramatic by the way in which the system becomes at once modular and normative beyond this specific conjunction; the workshops and the housing being exemplary exercises in the objective production of rhythmically controlled form.

But the Hochschule and the Lausanne Pavilion may be contrasted to each other from the point of view of nuances that are of more general significance; most notably in the respect of the emphasis that each gives to the intrinsic value of the material and its architectonic. Thus, where the one stresses materiality, mass, and surface, the other emphasizes immateriality, volume, and joint; where the one is permanent and in certain respects implicitly monumental, the other is impermanent and explicitly systemic.

These nuances of material expression that arise out of the substance itself, return us to the intrinsic quality of Bill’s fine art where, for all of the objectivity of the concept, the phenomenological attributes of the material itself are exploited rather than suppressed. Such sensuality has been evident in Bill’s work from the first sprayed canvasses and the earliest gilt brass “mobius” sculptures of the forties. As Alloway has written of this aspect: “. . . high polish is a constituent of the conception of the work; the sleek mirror-like surfaces condense a maximum of reflections from their surroundings. Their partial

dematerialization by light corresponds to the immaculate skin of optically active color in the paintings. The factual basis of Bill’s art has never inhibited his extra-ordinary sensibility to zones of ambiguous visibility and complex color.”

Should one immodestly attempt to assess in brief terms the sum of Bill’s potential contribution to the future of our visual culture, one would surely have to stress this feeling for zones of ambiguous visibility, which are capable of imparting infinitely rich effects to plastic phenomena which in all other respects are reduced to an extremely simple order. For the rest one could do no better than to take this last—this structural lucidity of Bill’s formal concepts—as a necessary referent for all of our creative work, providing that one remembers, as he has always striven to do, that each design task has its own specific role within the culture. For today we need, as never before, to perpetuate, as the Smithsons have reminded us, an architectural and design aesthetic that is consciously without rhetoric; a kind of degree zero or subdued formal hierarchy which while it is suitably differentiated from task to task, remains globally restrained by the overriding need to provide a calm but rich and responsive context for the conduct of life.

Figure Credits

Figures 1,2. *Casabella* 259, Jan. 1962.
Figures 3,4,5. Reprinted from *Max Bill* (Buffalo, New York: Buffalo Fine Arts Academy and Albright-Knox Art Gallery, 1974).

On Arquitecturas Bis

Arquitecturas Bis. Oriol Bohigas, Federico Correa, Lluís Domènech, Tomás Llorens, Raphael Moneo, Helio Piñón, Manuel de Solà-Morales, Enric Satué, Editorial Consultants. Rosa Regas, Editor and Director. La Gaya Ciencia, S.A., Alfonso XII, 23, Barcelona 6. One year (6 issues) \$5.

The Editors

Arquitecturas Bis is to be seen as part of a new phenomenon that has appeared in the context of architectural publications in the last three years; namely, the simultaneous emergence of the "little magazines" in places as dispersed as Barcelona (Arquitecturas Bis), Zurich (Archithese), Milan (Lotus) and New York (Oppositions). It is now nearly fifty years since the last spontaneous proliferation of such publications, spawned as they then were by the international polemics of the incipient Modern movement. There the resemblance ends however, for these counterparts of the seventies have neither the graphic style nor the content of the pioneer period. Instead, their distinction lies, to different degrees, in their critical and theoretical development of architectural ideas; that is, in their common attempt to recreate architectural culture itself.

Arquitecturas Bis represents an important event in the limited world of Spanish architectural magazines. It is possibly the first Spanish publication, since the Argentinian Nueva Vision of the fifties, to transcend both the parochialism of the profession and the xenophobia of national interest, and to deal with the evolution of ideas rather than with the description of facts.

Since May 1974 Arquitecturas Bis has published an impressive series of highly informed critical articles, beginning in the first issue with two critical pieces on Richard Meier's Twin Parks housing in New York by authors of very different displaced backgrounds—David Mackay, a Scot from Barcelona, and Roger Sherwood, an Oregonian from Los Angeles. One cannot help but remark on the significance of this opening editorial gesture; on the fact that an architectural group, that had hitherto given every indication of being preoccupied with the work of Kahn and Venturi and with the extension of the Philadelphia School into American populism, should now, at the moment of publishing, declare an interest in an American work whose ultimate antecedents seem to lie in the high European tradition of

LA ARQUITECTURA EN LA PRÓXIMA BIENAL DE VENEZIA por Vittorio Gregotti

El Biennale di Venezia ha estado siempre considerado como el punto de partida de una gran tradición cultural que se ha ido desarrollando a lo largo de los siglos. Desde 1954, el Biennale di Venezia ha estado organizado por un grupo de arquitectos que se han comprometido a dar un carácter de actualidad a esta gran tradición.

AR3VITECTVRAS

septiembre 1974

RUBIÓ I BELLVER

Y LA FORTUNA DEL GAUDINISMO por Ignacio de Solà-Morales i Rubió



El resultado de un proceso constructivo de trascendencia local, con un carácter de trascendencia internacional, se produce en el momento de la construcción de un edificio. Este momento de trascendencia se produce en el momento de la construcción de un edificio. Este momento de trascendencia se produce en el momento de la construcción de un edificio.

GREGOTTI & ROSSI

No somos una arquitectura sin el estudio de un habitante en el que los datos que describe el espacio físico de un territorio se convierten en un espacio de vida que se desarrolla a lo largo de los siglos.

AR4TITECTVRAS

noviembre 1974



El espacio de vida que se desarrolla a lo largo de los siglos se produce en el momento de la construcción de un edificio. Este momento de trascendencia se produce en el momento de la construcción de un edificio.

1. EN LA MUERTE DE MELNIKOV

Oriol Bohigas



Melnikov siempre se refirió a su arquitectura como a la arquitectura de un hombre. Su arquitectura es la arquitectura de un hombre. Su arquitectura es la arquitectura de un hombre.



2. L'ENVELAT

Lluís Domènech i Montaner



El edificio de Lluís Domènech i Montaner es un ejemplo de la arquitectura de un hombre. Su arquitectura es la arquitectura de un hombre. Su arquitectura es la arquitectura de un hombre.



continuous urban form (Sitte). These and similar transatlantic preoccupations were possibly most poignantly expressed in the first issue in the editorial homage paid to Louis Kahn on the title page—a notice given on the occasion of Kahn's death.

Issue two was to veer from this line to England—to present an analysis of the work of James Gowan by Lluís Domènech, David Mackay and Oriol Bohigas. These articles were to stress in common the connection between Gowan's work and the English vernacular—a link that still seems to be regarded in Barcelona as being somehow exemplary of the maturity of the Modern movement. The third issue featured a re-evaluation of the Catalanian "Modernista"—a recurrent theme in subsequent issues—with Ignacio de Solà-Morales i Rubió exposing the myth of Gaudí as an isolated genius, in an article treating with the work of Rubió i Bellver (fig. 1).

By the fourth issue, however, a certain hardening, so to speak, was discernible in the editorial line—a shift in stance that was more consistent with the ultimate development of a truly critical perspective. This emerging awareness, announced primarily through essays dealing with the recent work of Aldo Rossi and Vittorio Gregotti by Rafael Moneo, José Quetglas and Oriol Bohigas, was to represent a move from a prior infatuation with American populism and a conscious return to the important theoretical contributions made by Italian architects and theorists over the last fifteen years. Are we to see in this a somewhat belated acknowledgement of that "underground" dialogue in which the continual translation and publication of Italian material has made such a strong impact on the intellectual life of Barcelona? Meanwhile, the heterogeneous, yet "retrospective," tendency of the editorial was revealed here in an article dealing with the reconstruction of Warsaw by Federico Correa—an ironic reportage about the famous rebuilding of that historical center, now covered with replicas of Gothic, Renaissance

and Baroque monuments.

While the fifth issue may be regarded as moving even closer to a critical perspective, particularly in Xavier Sust's study of the ideological role of the skyscraper in the States (in contrast, that is, to the official monumentality that was the substance of both National Socialist and Soviet architecture in the thirties), the sixth issue brings the editorial line to a critical head in a retrospective assessment of the work of Josep Lluís Sert (including his most recent work in Barcelona); a piece by Rafael Moneo ironically entitled, "Si te dicen que caí . . ." (the reference is to an old Spanish war song, revived in the Civil War, carrying the refrain "If you hear that I have fallen . . ."). Aside from finding Sert's work over the last forty years to be nothing but a long decline from the high point of the Casa de la calle Muntaner, built in Barcelona in 1932, Moneo argues that if there is one architecture that surely now needs restoration it is modern architecture, since a pristine physical integrity is an essential part of its conception.

Moneo's critique of Sert is complemented by a piece on Kasimir Melnikov and the Spanish Melnikovians by Bohigas (fig. 4), by a critical report by Helio Piñón on the first semiotic congress held in Milan last year, and finally by a set of articles by Piñón and Moneo that attempt an assessment of the work of the British architects, Alan Colquhoun and John Miller—this last stresses somewhat invidiously Colquhoun's particular contribution to both theory and design.

Despite this hardening of the editorial line there still remains in *Arquitecturas Bis* a latent concern for the creative conflation of American populism with the Catalan folk heritage; a juxtaposition strongly in evidence in the fifth issue, where we find the Robert Venturi and Denise Scott Brown essay, "Functionalism, Yes. But . . ." significantly accompanied by a republication of an extraordinary text by Lluís Domènech i Montaner of 1886 dealing with the Catalanian tradition of tented construction (fig. 3).

The overall ironic freshness of *Arquitecturas Bis* is brilliantly reflected in its newspaper-like format and unpretentious design and in its tongue-in-cheek headlines such as, "James Gowan respected avant-gardist," or in its delightful play on the Martini/Rossi label, featuring Gregotti and Rossi in a similar logo (fig. 2). At the same time, the energy of the editorial may be directly felt through the quantity of its own contributions and in the editors' spirited habit of presenting three different views of the same work, each by a different contributor.

In this manner, aside from its informative function, *Arquitecturas Bis* has already established itself as a serious forum for ideas and we sincerely hope that this priority will be maintained not only because of the high level achieved in the discourse to date, but also because of the large natural audience that exists for this dialogue; an audience which not only includes Spain but also, at least potentially, the entire Spanish-speaking world of Latin America.

160 To the Editors:
Although the following was written as a specific response to Italian friends' enthusiasm for a certain American architecture, its general content should interest all *Oppositions* readers.

Do you Europeans care about a \$500,000 textile-mill owner's house on Long Island?

Architectural Record published in the spring of 1974 an article by *New York Times* architecture critic, Paul Goldberger, which restates an observation made by Vincent Scully twenty years ago. This coincidence does not imply that history repeats itself; rather, it points at something more peculiar and constant in American culture.

In his "Doldrums in the Suburbs" (reprinted in *Perspecta* 9/10), Mr. Scully examined two "modern architecture," American houses—an East Coast, neo-Bauhaus, International Style, by Breuer in Lincoln, Massachusetts, and a West Coast, "Bay Area," stick and shingle style, by Harwell Harris in Los Angeles. As I interpret, his essential point is something like the following:

The "machine-like," inorganic image of the former and the rustic, organic image of the latter usually lead to the consensus that these two architectures are "polar"—a kind of "classic versus romantic," German Wölfflinian, art history dichotomy. On the contrary, Scully asserts their essential social sameness; both being American single family houses, occupying a private plot of land and located in a suburban setting. Furthermore, as to building technique, both are of wooden construction with a "functionally expressive" asymmetrical plan. Finally, both contain the latest technological hardware. In other words, the aesthetic styling differs, but their social substance and physical stuffing correspond.

In his "Who Cares About the New York

Five—Or Their Critics, The Five on Five," Mr. Goldberger emphasizes the similar, contemporary comparison, not contrast, between Richard Meier, Peter Eisenman, Michael Graves, . . . and Robert Venturi, Romaldo Giurgola, Charles Moore. . . . Both "sides" design primarily single family detached houses, asymmetrically complex, of wood, and equipped with the latest American gadgetry. (He also notes that both sides teach on the East Coast, write about their work—exceptional in America—and he infers that they socialize in the same New York "inner circle"—a congruence which certainly merits further exploration!)

When properly placed within this particularly American, social and technological, cultural context, what does the Five's formal *styling* mean? This "expressive" question cannot be avoided, as it illuminates the essence of American (and all other) architecture. And in spite of Mr. Eisenman's assertions to the contrary, painfully contrived in *Casabella*, he will never realize "pure form." As his built geometries exist within a context—geographical, historical—they are not "value free." As realized, all architecture is not only form, as it is neither pure technique; literally, architecture at its most "meaningful" is its hypothesized, social point of view.

From its flip adaptation of the twenties, Marxist modern architecture by the post-war, corporate state, to the Fives and Venturis today, twentieth century America shows all too well that this expressive role of architecture is not "inherent" in the forms themselves, but results from the precise function contained within. The early modern movement mistook such associations for *a priori* constructs, reasoning that by ignoring architectural history, one could also forget cultural history, and begin anew with a new society—content as well as form. Contrary to this environmental determinism, America shows all along that social values

only change from cultural circumstances—economic, political—not from formal ideology.

For the Heroic Generation—the ones who eschewed history, the first (and last) "moderns" and their disciples, our teachers, such as Team 10—the twenties' intended correlation between modern architectural form and social content still renders its image sacred and the vocabulary untouchable, precluding any *ipso facto* adaptation to just any social context. An America that has always used "foreign" formal images with its own content shows that this is not the only strategy for our generation. In a relative world, we are free to embrace stylistic pluralism, using formal lessons from the twenties as one might use other historical styles.

As the latest European fashion import for Long Island suburbia, following Petite Trianons, Loire Châteaux, English Manor Houses, and Tuscan Villas, Le Style Corbu simply continues America's tradition of purchased images for its ex-urban habitats. At its formal best, as with the "indigenous" shingle style, this domestic architecture convinces as an *objet d'art*, transcending expensive, doll house kitsch. Then the Five's professional formal maneuvering cannot be denied (though neither can the technical gymnastics needed to hide the true "nature" of its wooden materials!) Then their architecture rationalizes the twentieth century vocabulary as impressively as any other epoch's reworking of the classical language, reminding us that all architecture is an art. This is one possible reason to care about the Five.

But the American cultural context must enter here. What the Five are also doing "naturally," as a consequence of their free replication of formal gamesmanship, parallels the acts of the Bay Area architects and even the transplanted Europeans of a generation ago—Mies,

Gropius, Breuer, and Neutra. That is, they not only imply that architecture is art, but also they infer that architecture is socially status quo. They serve to reaffirm the existence of the society and its power—in this case, the American establishment occupying eastern Long Island back through the Great Gatsby to the Vanderbilt days. Thus if and when it exists, architecture's utopian, social vision comes from the patron, the architect only expressing his intention in physical form.

Thus it seems that the Five are not honest in their false intellectualism, as when Eisenman appears to assume cultural freedom through formal expression. He is a social victim too! (Significantly also, Meier, the best formalist of the lot, is the worst verbal justifier.) In contrast to Europe again, architecture in America has always been an anti-intellectual and business-oriented profession. Its unique contribution has been in its images rendered possible by its technology, as with domestic Richardson and Wright, skyscraper New York and Chicago, and vernacular grain elevators, superhighways, and Cape Kennedys. Perhaps then, the Five's reversed playback to Europe is the ultimate perversity, for it is not unconscious and they know better.

Most certainly in any case, the Five epitomizes America's historical nonchalance in mixing and matching culturally-loaded forms, whether this be for mass-produced, tract housing, or the custom-designed estate. Such is "style" in America, as with the rest of its high "culture," a fashion purchased. There will be others after the Fives. Thus I ask again my title question. If affirmed, I must further inquire as to the contemporary role of style here, in Europe. Yours faithfully, Robert L. Hartwig
Rome, Italy

To the Editors:

Kenneth Frampton presents in *Oppositions 3* a brave and valuable critical analysis of the twists and turns in the curriculum of Ulm's Hochschule für Gestaltung, principally shaped and reshaped by Tomás Maldonado. He has taken to himself a task that many of us who had any involvement with that school would want to avoid for its great complexities.

We have, of course, amongst a variety of official and quasi-official documents, the twenty-one *ulm Journals* (the five plus sixteen) with their running, but far from complete, record of the more serious vagaries on Ulm's (if not Maldonado's) curriculum; and we should hope for yet another go-around of this history from the source *himself*. But, in this instance, "Apropos Ulm: Curriculum and Critical Theory" is a task well done by one who has that certain advantage of distance.

Those of us who find ourselves somewhere between *the distance* and *the source* are prone to picking over this and that detail for correction or expansion or reemphasis or such another modification—a sometime diversion that is oftentimes of small matter. Still, there is one matter, quite close to me, which I should like to readdress.

Frampton writes, "by then it would be noted that the foundation course, or *Grundlehre*, had been discontinued, after Maldonado had been appointed as head of the industrial design department with the reorganization of 1962" (p. 27).

I'm afraid this can leave the wrong impression, if one is led to understand that the discipline, basic design, or *Grundlehre*, a perennially sensitive issue of nearly all design schools, was abandoned.

ulm 12/13 (March, 1965) printed my paper, "An Argument for Basic Design," originally given at the Hochschule's Mid-

Week Seminar in October, 1963. The editorial notes of Bonsiepe acknowledge that I had "participated" in Maldonado's *Grundlehre* (1956-57) and that in "1963 and 1965, [I] gave guest courses in basic design at the HfG"—a pattern of yearly visits that continued until the School's closing in 1968.

Further, it is in order here to review Bonsiepe's other words on basic design in this 1965 *ulm*: "Basic design, known since the Bauhaus by such other terms as preparatory course or foundation course, is one of the *ardently discussed* subjects of design education. We are still lacking a (survey) and a historical documentation of the widely spread material concerning the various contributions. To clarify this subject we publish an article written by an architect-educator who studied at the Ulm School of Design. This article is illustrated with student exercises, although they were not made at the HfG; for they are aiming in a direction shared by the HfG. *We intend to continue this subject matter in a later issue of ulm. We will publish material concerning the specific contribution of the HfG, at which the first foundation course with a synthesis of perception theory, symmetry theory and topology was given in 1955.*" (Italics mine.)

In *ulm 17/18* (June, 1966) Bonsiepe kept his promise to continue the subject of basic design, especially as presented in his own "Results of Teaching: 3-D Non-Functional Projects" but also in Lindinger's "Results of Teaching: Visual Communication Department, 1. study-year"

Prior to (and overlapping) 1955, there was a Max Bill *Grundlehre* that approximated a Bauhaus revival of the course and included visits of Albers, Peterhans, and Itten. Maldonado, who effected the second basic design revolution (see *ulm 12/13* the first revolution by Albers), constructed his version, "the specific contribution of the HfG," essentially during the two school years spanning 1955 and 1957. Then there

came an aberrated period, the most disruptive period, when the “scientific” leadership, the “methodologists,” directed the *Grundlehre*, as well as the School, in a maximizing of analytic procedures. This produced a body of students who could scarcely design, i.e., give physical presence to their splendidly framed programs, and provoked Maldonado’s self-critical assault on “methodolatry” in “Science and Design” (*ulm 10/11*). “We have taken three steps forward; now we must take one step back,” Maldonado confided at the time. Consequently, with the reorganization of the sixties under a new constitution, and thereby the reestablishment of a (though up-dated) Maldonado order, the essential Maldonado *Grundlehre* was renewed through the persons of Bonsiepe, Schnaidt, Lindinger, Zeischegg, Ohl, Schmitz, myself (most of whom were Maldonado trained) and, of course, Maldonado himself.

The main feature of change, then, was not in the thematic nature of basic design, and certainly not its dissolution, but in the structural nature of the first year. In the School’s early years, every entering student (even those already certified in design) was obliged to participate in a grand, monolithic, yet many faceted, course, namely the *Grundlehre*, which verged on being, in the School’s original organization, a department in itself. Each first year student was, in fact, a candidate for, rather than a confirmed matriculant of, one of the design departments, and had not only to complete his *Grundlehre* successfully, but had in addition to bid for acceptance into one of the (then) four disciplines. But under that subsequent reorganization, central to the issue at hand, each department was made responsible to present its own brand of basic design, tailored to its particular needs—usually listed by the course title, “Einführung in die Gestaltung/ Introduction to Design” (see the annually printed “Lehrprogramm/Teaching Program” of the School’s last several

years). Each department (now numbering three) could concentrate on those fundamental design elements more relevant to its discipline (e.g., color and 2-d patterns particularly in Visual Communication, polyhedra in Product Design, folded surfaces and grids in Building); yet the exercise of the varying material was consistently linked to the common body-information of symmetry, topology, and perception theory. At the same time, each department was to assign in the first year its own simple, introductory projects in applied design (e.g., a poster, a flashlight, a wall panel joint)—another innovation by Maldonado in his overall redesign of the first year and of the total school.

I believe it not an enhancement to assert that Maldonado’s *Grundlehren* of 1955 and 1956, during that critical period of the Hochschule’s history when the grip on the School was being wrenched from Bill, in many ways constituted the model of the school that was eventually to come under Maldonado’s guiding hand. It was the testing ground for much of the material that was unique to the HfG curriculum (unknown at the time to any other school of design), from the abstract symmetry and topology to the not strictly basic design areas of semiotics and ergonomics.

But, if the model became the school and the model then, as a model, obsolete, Maldonado did not closet or discard it; he merely recycled its exceedingly recycleable parts. Far from ditching basic design, Maldonado ever sought to establish “the bridge” between pure and applied design. He often remarked on the nostalgia that students in advanced design held for their early days in basic design, and he programmed for them new exercises in basic design, interspersed with their practical design work—the inverse to the applied exercises of the first year. And, as Maldonado forayed from one field to another (remember, he came to Ulm as a painter and sometime publisher!), from

basic design to visual communication, then on to industrial design, and eventually into architectural pedagogics (*pedagogics*, *design pedagogics*, of course, being central to all his applied scholarship), I am persuaded that the nostalgia of the 1955 and 1956 *Grundlehren* did not leave Maldonado himself untouched.

William S. Huff
S.U.N.Y. Buffalo, New York

To the Editors:

One really hates to raise objections to a magazine which has succeeded in bringing a greater *seriousness* to architectural discourse, but that very seriousness requires debate to maintain itself; not that this letter will do more than suggest certain oppositions. So here goes.

Italian architecture: one hears on various occasions promise of unmined gold to be found in Italy, but so far there has been little shown—except pyrite. A recent issue of the Japanese magazine *A+U* illustrated Libera’s Malaparte house on Capri. This is true gold, which I had been looking to find illustrated since seeing it in Godard’s *Contempt*. If this is characteristic of architecture in Italy, then one wants more, but if the article by Tafuri is characteristic, then, thank you, but that is enough.

Perhaps if the article had been translated into *English*, its meanings would have been clearer, at least to me. Whatever language that was didn’t make comprehension easy. Having looked at other architectural writing from Italy, it may not be possible to render it into English. Italians seem bent on complication, as if their obvious love for luxury objects can be reconciled with dialectical materialism only by the greatest effort. Recent housing in China would seem more compatible with Marxism.

What about Ken Frampton’s article on Ulm, which raises similar issues? How is one to take it seriously; since it is written

clearly, and since it is understandable, one can argue with its faith in rationality, or challenge its assumed definition of the rational, or one could question the kitsch phobia it displays. Italian writing, at least the example you published, forestalls objections by being, at least in part, meaningless; all objections are futile. One can only disregard it.

In this article Signor Tafuri varies his strings of slogans with name dropping: Stirling, Mies, the Smithsons, the Venturis and so on. If one desires architecture to contribute to political ideas, why instance designers who obviously aren't interested? The obvious answer is for their prestige, their glamour. If a reader browses through an article illustrated with the work of these prestigious architects, he may be attracted to read it, but if it were illustrated with work appropriate to such a theme, the browser would pass on by.

How architects, who must come to terms with the "establishment," can hope to further the revolution is beyond me. One could say the same for establishment magazines supported by Exxon, etc. who surely realize such writing is harmless, permitting the writers to feel committed while not threatening these centers of power.

I find at present two divergent points of view: those for whom "art is art" (Ad Reinhardt), that is, sufficient as an end; and those for whom it is merely grist for their ideas. To me, this latter is Philistinism. Art remains alive, stimulating ever new ideas, while the ideas which generated the art fall into oblivion. In Luxor or Isfahan, looking at All Saints, Margaret St., or the Villa Stein, it is the thing itself which stirs one's feelings, while the beliefs of the builders seem remote and irrelevant. For ideas and knowledge progress exists. One reads Aristotle with admiration but not belief. But for art there is no progress. Recorded thoughts which haven't been superseded we call poetry.

Art is human artifacts, whether made of sounds, sticks or whatever, for which no replacement exists, which is why we try to preserve them. One assumes that someday Marx's ideas will seem as remote as Moses', whereas La Tourette or Guild House will still stir some passersby, or not, as a change of taste leaves a work without admirers. Art is either alive or nothing, whereas ideas are superseded but remain important in the chain called progress. For art, it's all or nothing. Modernism's hope lay in the power of art to make a new human, not in reforming him.

In ending this, the principal wonder I feel is how such confirmed formalists can be so left wing? Isn't it a bit paternalistic? Since the school at Ulm is closed, Fred Koetter's release from having to own "designed" consumer goods came just in time. Now if he rereads *Learning from Las Vegas* a couple more times, he may understand it—or is his misunderstanding a pose to avoid the issues? Best wishes,
Tom Killian
New York, New York

To the Editors:

In my opinion *Oppositions* is a public forum supported by not only a series of schools of architecture but also by over 100 individual architects. As such, I feel that it has a responsibility to continue its development and intellectual climate of opinion in architecture. To this end, I was deeply disturbed by several letters which appeared in your last issue (*Oppositions 3*, May 1974) which seemed intent on using this public forum for their personal aggrandizement. It would be sad if such petty bickering which has taken over such journals as the *New York Review of Books* should be allowed to erode what up to now has been a purposeful and promising beginning. With all respect,
Stanley Tigerman
Chicago, Illinois

To the Editors:

I have spent several years now hanging around architects and schools of architecture. As a kind of beachcombing historian I must have thought that there was more to be learned there than elsewhere. However, at times I also experienced some difficulties in my contacts with the world of architects, and browsing through the last issue of *Oppositions* (*Oppositions 3*, May 1974) has brought back to my mind some of these. Why have architects a tendency to be more pompous than lawyers, economists, or even sociologists or psychiatrists, not to talk about plain, ordinary people? Why these academic gestures of scholastic superiority in *Oppositions'* editorial statements and comments—such as when, for instance, Mario Gandelsonas gives his instructions "how to perform the work of writing," or when the Editors explain their dissatisfaction with Charles Moore's article, which turns out to be, together with the article on Ulm, among the really readable pieces in this issue? Some of the writing in (but not only in) *Oppositions* sounds as if the world, or at least the world of science, would be lingering hungrily for the last utterances from the mouth of architectural wisdom—while indeed, as we probably agree, "discourse," so elaborately ornated with garlands of important names from philosophy, linguistics and sociology, is of highly relative relevance if compared to the realities in, and outside of, the profession.

Oppositions is perhaps by now the most important periodical on architectural theory. As far as I am concerned, I am at times not sure whether it is more fascinating as a platform to be consulted and used or as a phenomenon to be studied. In other words, whether its contents (or some of its contents) are more interesting if taken at face value, or if understood as a complex and partly cryptic "meta-language" (sorry) of the great crisis—a "meta-language" communicating a situation *Oppositions* has in fact helped to

elucidate; a situation characterized by the fact that the architectural profession has lost some time ago its established role in our system of production. It is therefore highly understandable, sociologically as well as psychologically, that it has gone through pains in developing mythologies and behavioral defenses that would either cope with or conceal that state of affairs. The para-bohemian “doer”-type architect who likes to perform his “creative task” with as little intellectual or critical input as possible was one offshoot of that crisis—slightly comical by now perhaps. However, who knows whether the spectacle offered more recently by the architect-philosopher-gurus, whose mere vocabulary is so breathtaking as to prevent any straightforward dialogue, is really that much less comical—or indeed tragicomical.

It may be a mere coincidence if these thoughts come to my mind while I am innocently browsing through *Oppositions 3*. Be it as it may; excuse this little philistine o(p)position which I find easier to take on your relatively neutral territory rather than in my own backyard, i.e. *archithese*, where, at times, it would be perhaps almost equally justified.

I forgot to say how interested I am in Ken Frampton’s article “Apropos Ulm,” rich in very relevant information. It goes deep into the complexities of the matter. I would perhaps be more critical with regards to the utopian philosophy of the Ulm-protagonists, including Tomás Maldonado, for it is not so much neo-capitalism *per se* but the protagonists’ implicit expectations of an ultimate salvation through design that wrecked—had to wreck—the enterprise. Also, besides some interesting questions of theory (about which there exist a number of statements by Max Bill which may have been underplayed), the great difference between the Hochschule für Gestaltung and the Bauhaus was, it seems to me, that there were only a few relevant designers in Ulm, and possibly—

in the later years—no artists at all. How much more sparkle is there in the Bauhaus things—compared to the Vorkurs in Ulm. Yours sincerely,
Stanislaus von Moos
Cambridge, Mass.

To the Editors:

Oppositions 3 caused considerable concern among some of my colleagues at Cooper Union. Much to my dismay they seemed disturbed by the Marxist overtones of the editorial statement and the article by Manfredo Tafuri. My reading of the somewhat muddled position explored in *Oppositions 3* was one in which a superficially Marxist position was used as a smokescreen for an authoritarian right-wing position. It was this that concerned me, as I fear nothing more than reactionary elitism. Sincerely,
Michael Wurmfeld
The Cooper Union, New York

Errata

The Editors of Oppositions profoundly regret that Tomas Gonda was not attributed for the graphic design of “Symmetry” by William S. Huff as reproduced in facsimile in Oppositions 3, May 1974.

Forum: Stocktaking

William Ellis

William Ellis is an Assistant Professor of Architecture at City College of New York, a Visiting Lecturer at The Cooper Union, New York, and a Fellow of the Institute for Architecture and Urban Studies.

Interviewer: "Mr. Morgan, what do you expect will happen to the market?"

J.P.: "It will fluctuate, young man, fluctuate."

The first *Oppositions* Forum made a ritual of the past. For this reason, its pronouncements and assumptions were clear, if irrelevant. The second one attempted to come directly to grips with the present, thus its content was virtually unintelligible. One thing, however, was clear. The Modern movement is taking a nosedive on the American market. If the evening was any indication, bearish attitudes towards the Modern movement have penetrated even the New York architectural syndicate. Ironically, the panic sale took place at the IAUS which is considered by most people to be sitting stubbornly on preferred shares purchased before the Great Depression.

The Forum's device for confronting today was a "Counter-Critique" by Charles Moore of Stuart Cohen's article in *Oppositions* 2, "Physical Context Cultural Context: Including It All." Cohen's piece had pointed to some inconsistencies in the inclusivist vs. exclusivist argument. It suggested that both camps are actually inclusivist in that they are both attempting to revise the millennialistic tenets of the Modern movement. They simply focus on different aspects: the inclusivists emphasize cultural symbols ("local color") while the exclusivists concentrate on the physical organization (local "pattern"). But even this division is not so distinct. Therefore the two sides should get together, stop all this misleading chatter and admit their commonality: "contextualism" as a strategy to revise modern architecture.

Moore's counter-critique, followed by Cohen's counter-counter-critique, were more antiphonal than argumentative, as they themselves admitted. They set a tone for the general exchanges which followed, most of them notable for their lack of inclination to "draw blood"—a phrase used almost continuously throughout the eve-

ning—with the idea of both doing it and not doing it. 165

Professor Moore's remarks were full of the self-effacement and gentle irony for which we know him so well, and they provided a thorough display of his capacity for inclusiveness. He was able to "subscribe to," but "disagree with," at the same time. He admired theory in general and the Institute in particular for its interest in pursuing a theoretical discourse through *Oppositions*. He subscribed to Stravinsky's dictum on the value of excluding "reality" in the production of art. Nevertheless, he felt that art is the production of an order of reality (like a play), but that a populism is needed to develop order *in* reality—the one leading from the other. And while the one seemed fine for a period that tried to invent a whole new way of doing things, the other now seems "more fine." Having got past modern architecture, it is now time for reality, time to make connections. Thus he admired Venturi's concept of "almost" and "as if" as being "more perfect than perfection"; John Hejduk's *Bye House* because it borrows from Piero della Francesca's palette; and above all, colonial Williamsburg because of its rich connections, both historical and vernacular. And this somehow allowed him to equate Williamsburg with Californian vernacular.

In essence, Moore accepted Cohen's thesis, and Cohen in turn avowed he had in fact come around to a version of Moore's brand of inclusivism. Both wished all those slogans "would go away." So much, apparently, for the counter-critiques.

From that point the evening took on a befuddled air characterized mainly by a confusion as to whether the argument had in fact been settled. In his role as principal for the evening, Moore continued with a series of remarks concerning the importance of populist imagery that suggests the conciliation might have been an event to decorate the affair rather than a substantive fact. Yet since this was obviously not the case, one

Figure 1. Mario Gandelsonas, Charles Moore and Peter Eisenman.

Figure 2. Mario Gandelsonas and Charles Moore.

Figure 3. Sean West Sculley and Stuart Cohen.

Figure 4. John Hejduk.



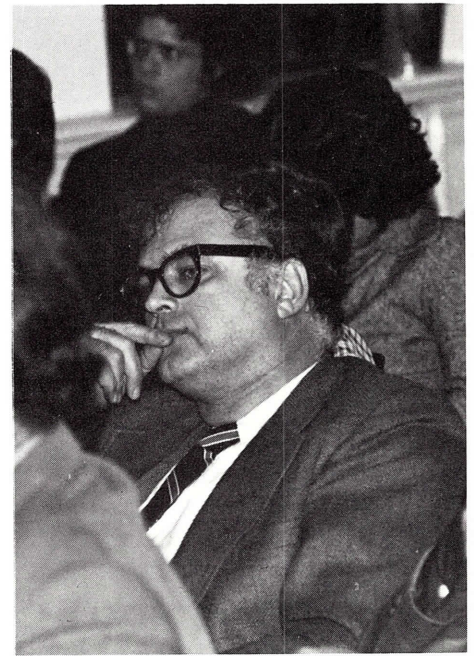
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was left wondering whether the remarks were made out of habit rather than conviction. If it was agreed that modern architecture is dead, there still seemed to be some question whether or not to stomp on its grave. For Moore, the images of popular American culture were still the jackboots fit for the job.

It seems regrettable in retrospect that his assertions were not more clearly tied to what it is in modern architecture he has come to hate. Since modern architecture can be seen to have been at once elitist, utopian, machine-symbolist, and theoretical, such connections would have been interesting and useful and would have helped to clarify Moore's apparently ambivalent attitude toward theory. This causes us to reflect that although the Forum is entertaining—even fascinating at a certain level—its function should properly be to uncover not only the ultimate attitudes of the participants, but the reasons for those attitudes. Instead, one gets a string of apparently ruminative exchanges that leaves us wondering what is really being said. For example, after a discussion of the possibilities for an emerging period of eclecticism, Jonathan Barnett suggested that “since Art Deco is back in vogue there is almost nothing left we can't admire. So colonial Williamsburg has to be the next avant-garde position.” But then he added that he was not so sure avant-garde is good. Moore: “That's why I'm going back [to California] where buildings are buildings. They don't think of a style but of practical method. Image-making is too much of a strain. There is no strain in making anything you like.” At the same time, he wished there were more strain—“more suffering”—to accompany his avant-garde position.

The difficulty of responding to remarks that reflect themselves in so many mirrors as these last ones is formidable but Peter Eisenman made the attempt. He suspected a certain contradiction in Moore's having extolled theory and pragmatic eclecticism at the same time. He suggested that theory also connects with and affects society. “If

you can do whatever you like, there seems no need for theory. Why even go to school? Just apprentice yourself to a builder, and get on with it. The Williamsburg image is likely to make us forget theory.” He suggested that modern architecture had a theoretical structure, and whatever the possibilities for theory at present, he doesn't want to lose the idea of it because it impinges upon what he believes is really important: architecture as a critical agent in society.

There followed a series of exchanges around regionalism, the vernacular, eclecticism, product orientation, theory, modern architecture and forums like these, all of which left the relation between theory and image distinctly unclear. Barnett ended the discussion when he suggested the question was not a matter of theory vs. no theory, but rather one analogous to the stock market. “Architects with ‘heavy positions’ in the Modern movement have heard a rumor that the Morgan Bank has liquidated its holdings. They are beginning to see that some people they respect, like Charles Moore, may be quietly selling their shares. This makes them nervous.” Charles Moore responded that he had sold out years ago.

Barnett's Wall Street metaphor could be applied to most architects in any period. But it is interesting in its implication that images come first, theory afterwards; an implication typical of most remarks made that evening, however strenuously disguised. That a proper *theory* for today has anything to do with the images of the Modern movement is certainly open to question. So it is not surprising that a consensus should be reached on the obsolescence of modernist images; Le Corbusier not only predicted it, he instituted it. But that theory communicates with and connects to society at large—even in the populist sense—seems less open to question. So it is at least interesting when theory seems to have receded almost into insignificance in the attitudes of a group like this. Because although most of those present may be anonymous on, say, an international

level, they do represent a cross section of the most active and influential teachers and practitioners in the United States. Thus it is a development that should be recognized and studied for its implications on the course of architecture in the near future. But whatever the relation between theory and image, it still seems to be a question of which theory and which image. It seems clear that when Moore was talking about Williamsburg he really had in mind the image of its vernacular buildings; say, the *gaol*; while others, if they were to come around to Williamsburg at all, might focus on the Governor's Palace—in short, a matter of style.

But after noting this, questions arise about the success of the forum itself. It seems to have problems, mainly in the inability of its format to deal with delicate advances and retractions of cultural musings such as these, which are its only potential product. It fails to channel those New York architects who tend to talk about anything and everything. It fails to encourage students and younger architects out of their cowed passivity. Instead, it produces only wandering, forced exchanges.

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