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AD

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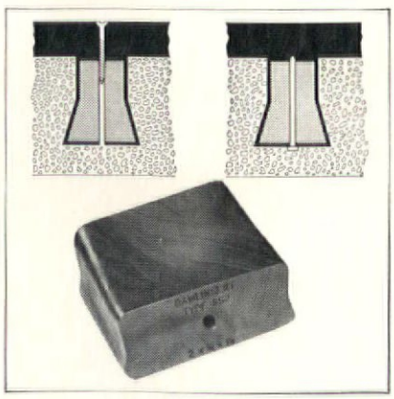

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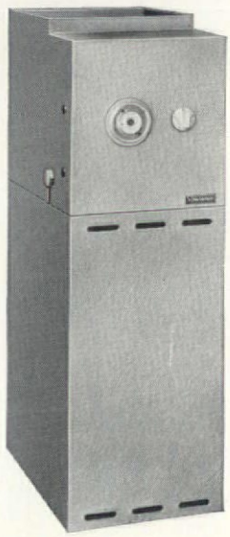
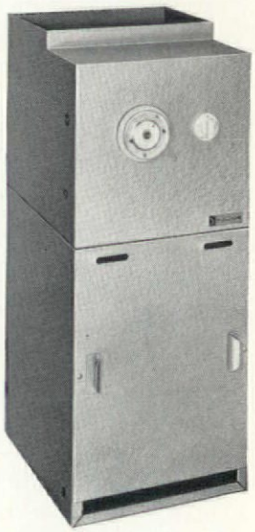
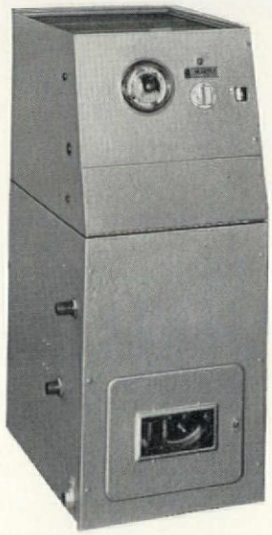


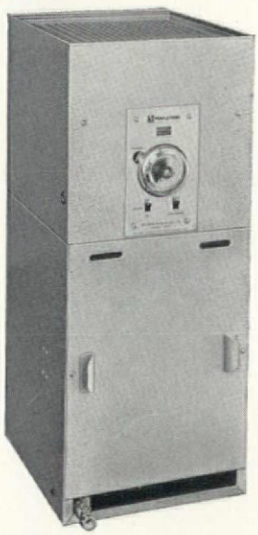
TYPE 40/50/TN
Height: 43½", Width: 15", Depth: 24"
Heat Output: 40,000-50,000 Btu/h
Heat Input: 53,500-67,000 Btu/h



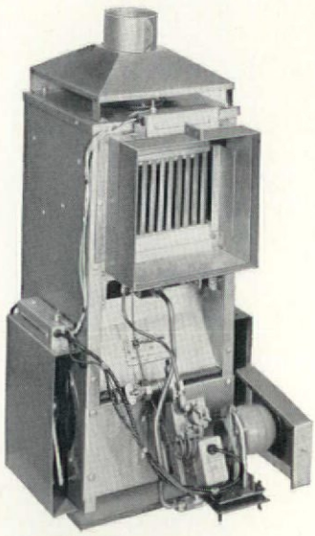
TYPE 25/30/TN
Height: 35¾", Width: 15", Depth: 17"
Heat Output: 25 000-30,000 Btu/h
Heat Input: 33,500-40,000 Btu/h



TYPE 22/WH/TN*
Height: 38½", Width: 15", Depth: 20¼"
Heat Output: 22,500 Btu/h
Heat Input: 30,000 Btu/h



TYPE 22/TN
Height: 37½", Width: 15", Depth: 17"
Heat Output: 22,500 Btu/h
Heat Input: 30,000 Btu/h



TYPE 17(R)
Height: 36", Width: 16½", Depth: 19"
Heat Output: 17,000 Btu/h
Heat Input: 22,500 Btu/h

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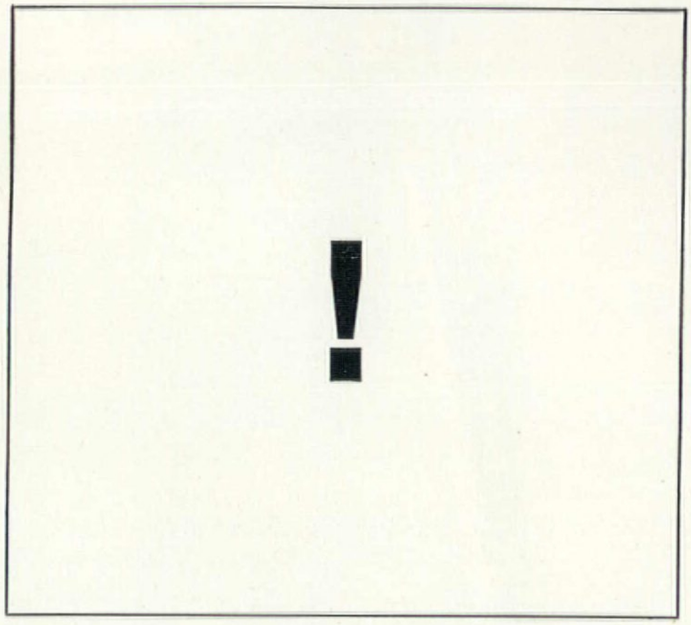

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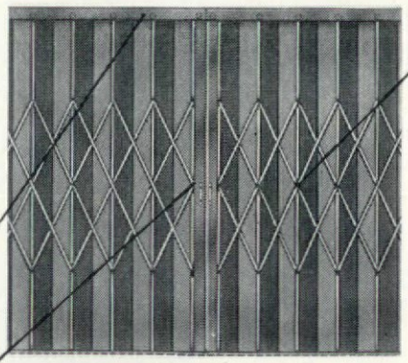

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8

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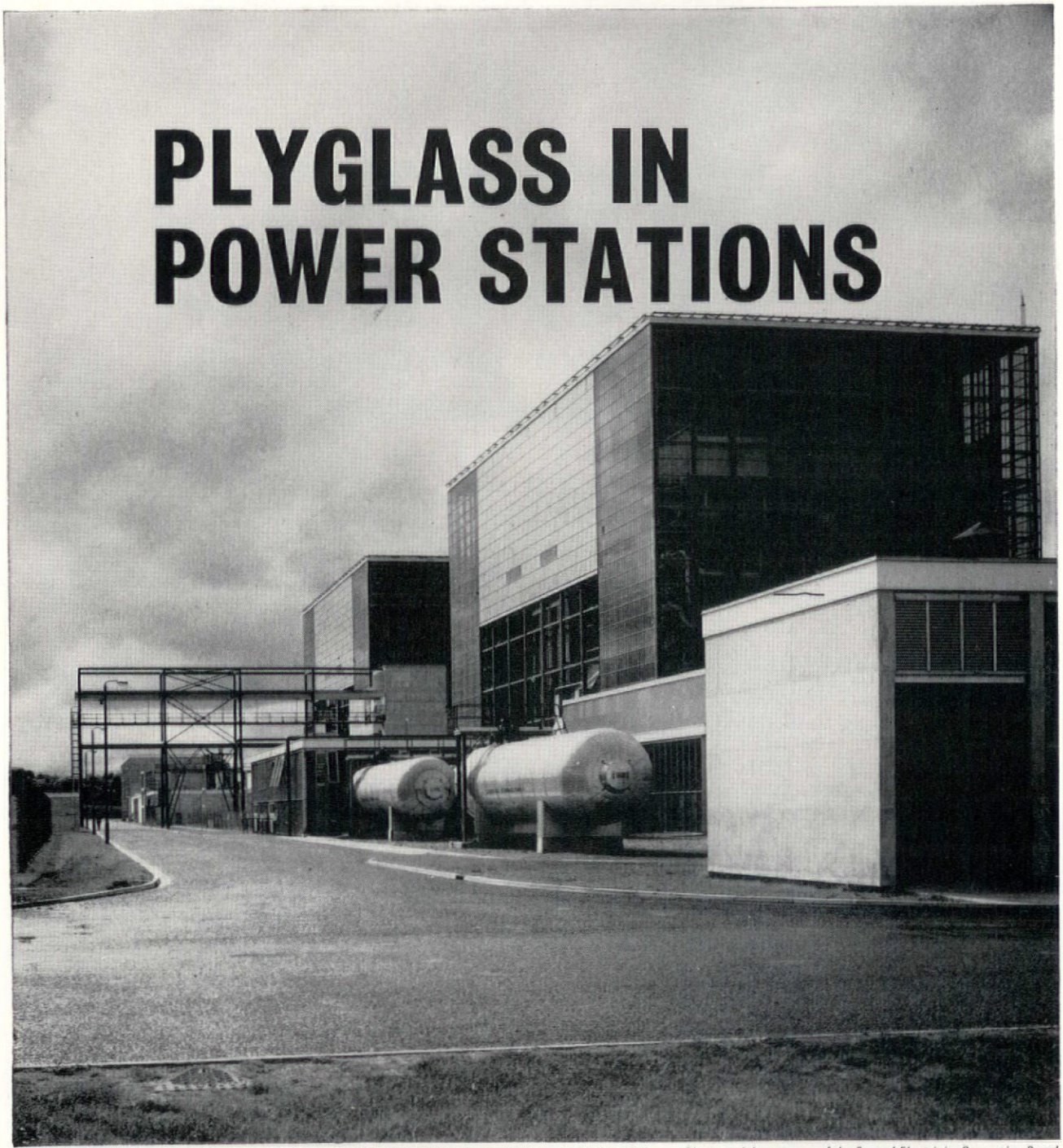

Hinkley Point Power Station. Architect: Frederick Gibberd, CBE, ARA, MTPI. Glazier: Williams & Williams Ltd. *Photograph by courtesy of the Central Electricity Generating Board.*

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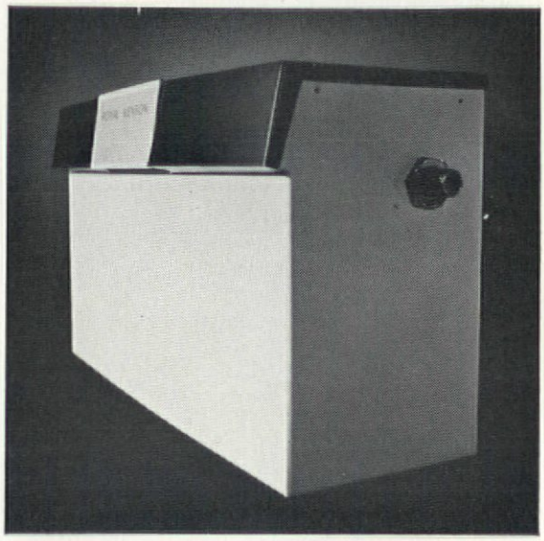

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AD Competition 8/68

What, where, when, whom?

Answer

name of building or construction .....

address .....

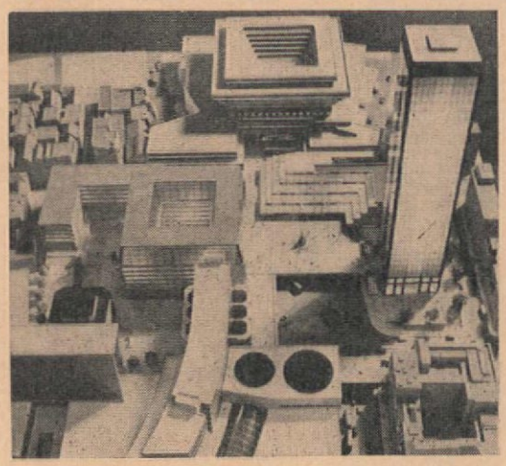
date of construction .....

designer (if any) .....

Name of competitor .....

Address .....

cosmorama



Down the Dilly

The GLC, the Westminster City Council and a handful of private developers last month disclosed their plans for the disposal of Piccadilly Circus. The communication pattern that makes the Piccadilly display specific and memorable is to go—is to be obliterated. The concept of that Circus as a vortex, a swirling hub on which people converge not only from London and the provinces but the world, to partake in a multitudinous moving public display, has not bothered the planners. Certainly, there is no place here for the junkies, the hangers-around and idle sightseers. It is an ironed-out place for an ironed-out society. It will be a barren waste not only because it will be boring and inaccessible but also because there is no sense of continuity with what was there before.

Acquiescing in the demands of the Ministry of Transport that the volume of traffic be increased to 50 per cent of the 1960 figure, the planners have firmly separated traffic and pedestrian flows. Pedestrians are to be set on a vast (200 × 140 ft) formal platform —together with Eros—26 ft above the buses and cars. There are to be no pavements at street level—though if one is to judge by the public's determination to go where they want to, despite all existing controls and barricades, people are likely to be swirling around in the cavern along with the traffic. The static plaza—etched with a 2 ft deep oval, that in no way conjours up the dynamism of Michaelangelo's Piazza del Campidoglio, of which it is, presumably, a reminiscence—is flanked by a series of formal exercises, banal rectangular or pyramidal buildings that do not even have the air of the unfortunate accident to lend a degree of haphazard charm. Though the buildings are for different clients they are the work of a very limited number of architects—architects who have neither John Nash's panoramic genius, nor sufficient flair to add any individual liveliness to the scene.

The Monico site, on the north of the Circus, is to have a 195 ft square lump of a building with a glazed, air conditioned court in the centre. The purpose of the building is not yet determined. The architects are Dennis Lennon and Partners. To the east, on the site of the London Pavilion, the same architects, in conjunction with Fitzroy Robinson and Sidney Kaye (of Hilton Hotel fame) have planned a pyramidal building. The function of this is also undecided. Further east, on the Trocadero site stretching to Wardour Street, Fitzroy Robinson and Sidney Kaye have proposed a 500-bedroom hotel in the form of an inverted pyramid. The Criterion site, to the south of the Circus, is to have a slim office tower, 96 ft square, 435 ft high, all clad in bronze glass. The architects are, once again, Dennis Lennon and Partners. Swan and Edgar, on the west, is to be rebuilt with the new Café Royal strung out on top. No details of the proposal are offered. The attracting feature on this side of the Circus is to be a remodelled Regent Street, which is to be covered over with a deck on the level of the main plaza, to provide an oversized, glazed and air conditioned pedestrian shopping arcade. The architects in this instance are Hugh Wilson and Lewis Womersley.

Clearly much effort and expertise has been expended in coordinating all the parties to the redevelopment, and Mr Frank West, architect to the Westminster City Council no doubt deserves special mention, but one wishes forlornly, that there had been a little less accord—that a dull orthogonal pattern of plazas and buildings had not been slung over that dynamic convergence of streets and ways that has made Piccadilly Circus a hub, a bustling meeting place for people wanting to participate in *all* sorts of public life; —people seeking urbanity. The new design, despite its profusion of coloured lights (regimented), does not promise to foster the theme of transient passage and public display. Better that the buildings rot and the Circus live than that the buildings are renewed thus to deaden the heart of London.

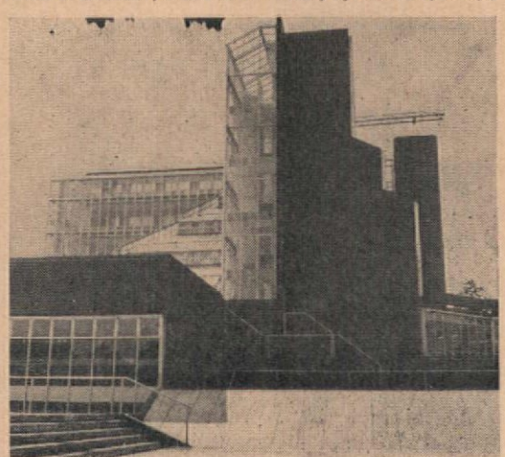
What Where When Whom

The sender of the first correct answer to this month's problem picture opened in our office on the 20th of this month, will receive £5. Entry form page *AD*14.

There were eight answers to the July competition. The buildings were the school and church, Karl Friedrich Strasse, Karlsruhe, erected between 1807 and 1816 by Friedrich Weinbrenner. Winner H. Sachsse.

Looking forward

During the RIBA Cambridge conference in June delegates also visited buildings including James Stirling's new History Faculty Library. (To be published in *AD* in October, with a commentary by Alvin Boyarsky.)



Correction

AD 6/68, pages 273-277. J. Aubert, J. P. Jungmann and Stinco would like to point out that for their experiments with the tensegrity-type structures they borrowed from some of the geometric and structural patents of D. G. Emmerich (France) and R. Buckminster Fuller (U.S.A).

Next month:
The September issue will be about MOBILITY (mainly mobility in towns) introduced and edited by Brian Richards, with contributions from Warren Chalk, Stephen Mullin, R. E. Pahl, Alison Smithson, J. M. Thompson, Paul Buckhurst, William H. Liskamm, Peter Hills and Brian Richards himself.

The function of architectural theory and criticism

Eduard F. Sekler

Architectural theory and criticism may mean something very different to a philosopher, an historian of ideas, an architectural critic and an architect.

Our own discussion here will be limited to the concerns of the comparatively small group of people whom we call architects and whom we expect to perform a special role in society: that of experts in design who for specific social purposes creatively articulate 'real space' and whose activity is oriented towards the sensually perceptible final result of the design process. 'Real space'[1] in this description designates that space which is perceived by humans in 'real' time; the term 'real' simply indicates the kind of reality we are aware of in our direct experience of self.

This may sound like an unduly restrictive and cumbersome description but I believe it will stand close scrutiny as describing accurately what we mean when we speak of an architect in the accepted sense of the word. The architect's most important particular activity in this sense turns out to be a special kind of design which is oriented towards process and perception, and which is inseparably linked to and influenced by many conditions and social activities; we all know how much and how fast these have changed in recent years, even if we often find ourselves unable to understand fully what we know.

It is in the light of these changes that we must view the remarkable degree of concern with architectural theory which the last ten years have seen and which is manifested in a number of publications on the topic that recall another decade of similar intensive theorizing about architecture after the first world war. One rather striking statement was made then by the late Emil Kaufmann. On the basis of his studies in architectural theory of the French eighteenth century he concluded:[2] 'The idea is untenable that theoretical-critical considerations influence artistic creation. The latter corresponds to given sentiments, to a certain pre-disposition, to the total spiritual condition of the respective epoch and to sundry other factors but emphatically never to contemporaneous reflection. Such reflection however is equally rooted in its period as is artistic creation, is equally conditioned, equally unfree. Between artistic doctrine and artistic practice there is no causal relation but a parallelism.'

Kaufmann, in my opinion, overstated his case, but his statement seems relevant as an admonition for caution and as an example of one extreme position regarding the relationship of theory and practice.

The other extreme position is characterized by the conviction that a theory is essential for the successful practice of architecture.

Before we try to clarify our own position in regard to these extremes it may be useful to pause for a moment in order to recall where this whole confrontation of 'theory' and 'practice' actually comes from. We shall find that in the last resort it can be related to the Aristotelian distinction between 'practical' and 'theoretical' disciplines, among which, to the ancient thinkers, the 'theoretical,' i.e. purely contemplative ones, possessed the higher dignity.[3]

For somebody who shared the ancient prejudice about the lower status of what is merely a *techne* and of practical usefulness, as opposed to those concerns which possessed a body of coherent operational and philosophical doctrine, the fact that his own field had a *theory* or not would be of vital importance—especially when such a distinction had a direct bearing on his status in society. Such was the case for example at the emergence of the individual artist from the medieval system of artisans' guilds, and when we bear this in mind we can understand more easily why Renaissance architects were so deeply involved with architectural theory. However a comparable 'status-oriented' motivation can hardly be adduced to account for the interest in architectural theory which twentieth-century architects keep showing, in spite of the fact that in all other arts the usefulness of artistic theory is either denied or at least hotly debated.

If we can establish some of the reasons for this remarkable state of affairs, it will obviously help us to understand what the function of architectural theory might be for us, because function in our context means desirable performance and refers to a whole body of expectations which architects hold about their theory. Some of these expectations can best be identified by looking at a few of the recent statements about architectural theory.

In 1957 Sir John Summerson referred to theory as 'a conspectus of knowledge'[4], as in encyclopaedic treatises, but added that today we usually have in mind a narrower meaning, 'something both less extensive and more profound . . . a statement of related ideas resting on a philosophical conception of the nature of architecture—in short *principia*.'

Peter Collins some seven years later[5] defined theory 'roughly as the principles which relate the form of a building to the sociological, technological, economic and aesthetic conditions presiding over its inception', and more recently he rephrased the Vitruvian definition of 'ratiocinatio' by stating '. . theory . . . means the sum total of academic knowledge required to design a building, as opposed to the sum total of practical experience'.[6]

About the same time, in a discourse before the Royal Institute of British Architects, Professor Norberg Schulz summed up his own position as follows: 'What we need . . . is a general theory which liberates the architect. Such a general theory basically consists of a theory of building tasks based on a full understanding of human needs, a theory of form and a general theory of architectural semantics'.[7]

Obviously the function of 'theory' as conceived by these authors is such that it can serve almost any purpose during the formation of an architectural design, short of providing the actual formal solution. The knowledge, understanding and methodological aid which such a theory is intended to provide are certainly needed—but in an actually operative form not as a conspectus or panoramic view.

From observation of what actually happens in the social and natural sciences it would appear that for an understanding of the sociological, technological and economic conditions which are relevant for architectural solutions, the best results will be derived from a study with qualified specialists, in specially identified areas of research rather than from an attempt to accommodate it all in one general 'theory'. A sense of conspectus, one hopes, will come to those who, in vigorous pursuit of their own discipline, manage to transcend it. It is necessary to insist on identifying carefully the appropriate areas of research with a view to the possible morphological consequences, because the danger is always present that research and analysis become perverted into either an excuse for non-design or a supposed panacea for design. The high degree of attention and—one is tempted to say—reverence accorded to research in connection with architecture today, can probably be explained by the fact that architecture is more closely linked to science than any other art. When the demand for a theory of architecture is voiced, what is at work is less a desire for concepts of the kind that characterize art-theories than a wish to parallel in some way what is believed to be the *modus operandi* of scientific theory.

There are few contemporaries, in any field, who would not consider it high praise to describe something as 'scientific'. However, as J. D. Bernal pointed out 40 years ago in *The Irrelevance of Scientific Theory*,[8] theory in science has a very different meaning for the scientist himself than for the layman. 'For the working scientist a particular theory is merely a popular champion to be abandoned and ridiculed the moment a new and more effective theory beats it in the field'. But for the layman, 'on the whole. . . scientific theories tend to turn into . . . dogmas believed to be true on authority without the possibility of examination. . . .' This attitude is, of course, in exact contrast to that which really matters, namely 'the continuous discovery and refining of discoveries, the acceptance of organizing hypotheses as merely convenient and provisional, and the experimental critical attitude towards every dogmatic proposition or system of belief'.

Everybody would agree, I think, that it is essential to apply intelligently the method of science in those stages of the architectural design process where it is applicable and where much harm can be done by a premature escape into the realm of subjective 'intuition'. But at the same time one feels the need for guidance in deciding which precisely are those stages as opposed to others when it may be not only legitimate but necessary to leave scientific method behind and to proceed with an unscientific lack of caution. Such guidance can come from a normative theory only, which brings us right back to Sir John Summerson's insistence on *principia*.

If we do not mix up the entirely different concepts of method and theory and if we agree that it is the function of architectural theory to be concerned with principles rather than to provide the carrying bag for an architect's necessary possessions of knowledge and operational methodology, we have to ask next, what principles can these be? How can they provide 'something which is essential to the creative designer—a bulwark of certainty, of unarguable authority, on which his understanding leans while his building as a whole, as a *unity*, takes shape. The most interesting, indeed the dominating question, in a search for the modern *principia* is: where, if not in antique forms, or some equivalent substitute, is the source of unity?'[9] Sir John's reply was, 'The source of unity in modern architecture is in the social sphere, in other words in the architect's programme.' This turns out to be a true and significant but insufficient answer.

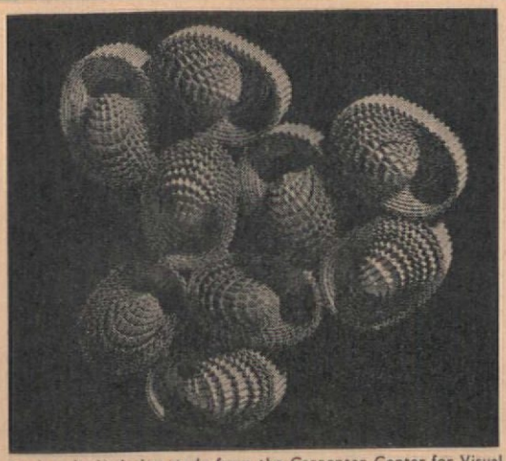
The conditions of the social sphere, 'the architect's programme' can be as little the only source of unity for architecture as other equally important but non-visual conditions. 'For all its brave talk of "an ethic not an aesthetic" brutalism never quite broke out of the aesthetic frame of reference. . .' this description of events with which Reyner Banham concluded his recent book[10] becomes very revealing in our present context. One might or might not agree with him in describing what he calls the 'aesthetic frame of reference' as 'professional preconceptions and prejudices that have encrusted architecture ever since it became "an art" ', but for the present purpose it is enough to note that his diagnosis coincides with mine in that a strong concern with the visual is characteristic for architecture if we use the word architecture in the normal sense it has acquired in our society. Architecture, being the visual result of a process, cannot do without a visually related source of unity—in addition to any other sources of unity it may have.

Accordingly it is not surprising to find that in the past one theory after the other tried to establish a system of principles related, not only to the process of architectural design, but also to its visual results. This was comparatively easy as long as there was no doubt possible about underlying common visual assumptions—in other words as long as a single vocabulary of architectural forms formed the point of departure for the theory.

However, as Emil Kaufmann pointed out in the passage quoted earlier, developments in the realm of visual invention and exploration and those in the realm of theoretical formulation always took place as parts of essentially different creative processes, though they might be closely related and mutually supporting. The visual phenomenon in architecture turns out to be as elusive as in any visual art when one tries to approach it with the aid or in search of theoretical principles, and I am frankly sceptical about the usefulness, for the process of architectural creation, of any framework that conceptually tries to establish and order visual relationships.

Syntactic visual exploration, through actual visual experimentation, is an entirely different matter. Here, in my opinion, valid results may be achieved in various ways, depending on the choice of medium, method and scale of operation. Studies in basic design may become as meaningful in this connection as other more specifically painterly or sculptural pursuits; and last, but not least, the process of architectural creation itself may be structured in such a way that each new design, takes its place in a series of consistent, mutually supporting visual explorations.

This paper which was first presented at a conference on architectural theory and criticism at the Technische Universität Berlin in December 1967. The entire proceedings of this conference will be published as a book.



Student basic design study from the Carpenter Center for Visual Arts, Harvard University. The Karlsruhe University basic design course is illustrated on page 391.

If an attempt is made to clarify conceptually the results of such visual experimentation, this may lead to theoretical formulations which have visual implications, but need not become normative. Theory in this sense proceeds from the results of direct sensuous experience to the recognition of causes and effects; it can be called a morphological theory in that it relates the generative process and the final perceptual result: it reflects the fact that architecture cannot do without a visual 'source of unity'.

Probably the search for a comprehensive visual 'source of unity' which would correspond to 'antique forms, or some equivalent substitute' is futile anyhow in our particular historic situation; Le Corbusier's *oeuvre*, for example, came as close as is possible to providing a visual 'source of unity', yet it's unifying power seems to have proved inadequate in the face of all the divergent tendencies that exist today.

It has been pointed out often that the singular lack of a coherent generally accepted system of social and cultural values in our time is paralleled by the equally singular, unprecedented potential of technological and methodological means at our disposal. Once we combine an awareness of this with an attempt to realize what it might mean under these new conditions 'to be an expert in design who for specific social purposes creatively articulates 'real space' . . .' we shall recognize the need for an architectural theory that in its function goes beyond the establishment of visually operative principles, though not excluding them.

Such a theory would provide the architect with a general system of values which regulates his whole design process, including the relationship between visual and non-visual concerns. In this sense the theoretical principles would be normative. No such theory exists at present.

An architectural theory as a regulating system of values would attempt to assure that in the process of architectural design the perceptual, sensual concern neither becomes overriding nor forgotten; it would embody principles that make it easier to weigh the relative importance of all conditions involved, by assigning values that are not based on arbitrary individual reactions. Such a theory would help in pulling together, into one integrated process, the many biotechnical and sociological factors that are relevant in design, but are normally the domain of specialists who have little visual understanding. To do so it would be an open-ended system of organizing hypotheses, comparable to a genuine 'scientific theory'. But it would differ in two significant aspects: there would always be the orientation towards the sensually perceptible final result and the concern with value.

By linking the concept of theory to the critical function of assigning value, we imply a striving for a total view, which is not a conspectus but an assessment. In doing so we restore to the word theory a very ancient meaning since theoretic meant contemplative: 'an intensive seeing or insight informed by concern and a sense of wonder'.[11]

Contemplation has a very special significance for anybody involved with the process of creation; as an 'active preparation' it turns out to be more important for the moment of poetic intervention than any static total system of applicable precepts.[12] Architectural theory, as a contemplative pursuit, becomes a personal search for basic assumptions about architecture and, of necessity, about more than architecture, since it must engage the total human being in order to arrive at authentic results.

If I have just assigned to theory a personal but important function, I am inclined to claim general and equally important function for architectural criticism. Criticism is always a strong link between the individual and his peer-group and, beyond it, society; architectural criticism is no exception.

There was a time when the production of verdicts, the sitting in judgment, appeared as the most important and almost only function of the critic. Today his task is much larger and at the same time more complex, for by his threefold activity of description, interpretation and evaluation he marks out a good deal of the very landscape which is contemplated in search of a theory.

If it is the artist's task to 'make visible'[13], it is the critic's task to help people to see what was made visible. To this end he has to control carefully all the media of communication at his disposal; he has to be aware of all his possibilities for making visual documentation meaningful beyond it's documentary character through an advised choice of telling images and comparisons, and he has to watch continuously how his chief instrument, language, and more specifically, his special language, relates to the phenomena he is describing. He may have to develop, within limits, new terminology or clarify an existing one in order to refine description to such a degree that it can record all levels of architectural reality and experience, not only those accessible to superficial methods of reporting.

What I mean by clarification of language I have illustrated elsewhere[14] by reference to three familiar terms which occur in almost every piece of architectural criticism: structure, construction and tectonics. Even a cursory examination soon reveals how advisable it is in critical usage to keep these three concepts neatly separated in spite of their close interrelation.

If accurate description in a clear language is the first task of the critic, he really comes into his own when he turns from pure description to interpretation. Morris Weitz has reminded us[15] that from the point of view of use of language 'interpretations cannot be reduced to descriptions. . . . Instead their role in criticism is to invite, to get us to see . . . in a certain way . . . . If they are powerfully and cogently argued, they may induce us to see as the critic does. . . .'

Interpretation demands a great deal of constant watchfulness and self-discipline from the critic, lest he get carried away by his own imagination or by an overdose of sentiment. The interpretation of contemporary phenomena in the light of historic parallels is especially full of pitfalls.

A particular danger exists when terms used in interpretation are treated as if they were descriptions of actual properties residing in works and when, moreover, it is imputed that creators of works from the past have acted as if they had been aware of such (actually non-existing) properties.

If interpretation demands a good deal of conscientious effort to preserve clarity and to eliminate irrelevant intrusions from sources that have nothing to do with the matter in hand, evaluation, as we all know, needs even greater efforts in order to be authentic.

Evaluation is still the function of the critic which is most properly his own and, here again, it is important to be aware that evaluative utterances, as far as the use of language[16] and its logic is concerned, differ fundamentally from interpretations and descriptions. Evaluations are not descriptive reports and at the present state of our knowledge it is also impossible to reduce them to descriptions by restricting what they are based on to those phenomena which can be accurately measured and accounted for in the operation of the human psychophysical system. However, if evaluations are not descriptive reports, this does not make them meaningless 'merely emotive utterances'[17] unless one is willing to recognize no other uses of language than the descriptive and the emotive.

Evaluations are based on choices for which reasons can be given. In this sense they can be validated; the application of criteria can be spelled out. But finally a moment comes when, as both experience and logical analysis tell us, criteria may be brought into play which cannot be challenged reasonably, where 'in aesthetic validation. . . we must all stop, for there is no further place to go.'[18]

This is the moment of 'sheer choice' when the critic can rely on nothing except the sum total of his awareness, the quality of his sensitivity or intuition and the depth of his sincerity and commitment. The parallelism to the situation of the artist during the process of artistic creation has often been commented on. For both, in addition to what is uncontrollable gift or talent and stored awareness, sincerity is the decisive condition. Sincerity, not in the obvious senses of the word, but sincerity as 'obedience to that tendency which "seeks" a more perfect order within the mind.'[19] To be sincere, in this sense, means 'to act, feel and think in accordance with "one's true nature"'.

Ivor A. Richards, whose words I have just quoted, is talking about the criticism of poetry but what he has to say in many cases is applicable to architecture.

It should be clear from what I have tried to say about criticism so far, that it is pragmatic and that the only way in which a critic can improve his capacity for making the right kind of choices is by continued exertion; by matching his sensuous and mental equipment time and again against new pnenomena, in a spirit of openness and with a willingness to bring his full being to bear in each case. In each case he may have to revise his criteria in the light of a new creation, for the architect may have created something which is not amenable to treatment in a critic's established terms and the critic for ever has to fit into a new context. He remains a concerned observer in search of possibilities for a positive interpretation of the present, not however, a prophet either of the millenium or of doom. Time and again he will have to free himself from preconceived notions and from the temptation to rely on critical doctrines.

To quote once more from Professor Richards: 'All critical doctrines are attempts to convert choice into what may seem a safer activity . . . the application of rules and principles. They are an invasion into an inappropriate sphere of that modern transformation, the displacement of the will by observation and judgment.'[20]

Choice in architectural criticism cannot be based on decision theory, useful as the latter may be in matters of design methodology, because architectural criticism is not purely performance-oriented in terms of measurable performance. In the last resort the complexity of a work of architecture demands a commensurate complexity in the perception of the critic.[21]

NOTES

[1] As opposed for example to 'pictorial space'. Elsewhere I have discussed in greater detail the problem of describing the characteristics of architecture as compared to other visual arts: 'The Visual Environment' in *The Fine Arts and the University*, Toronto 1965, 83

[2] *Repertorium f. Kunstwissenschaft* XLIV, 1924, 235, translation by E. F. Sekler

[3] E. Zeller, *Aristotle and the Earlier Peripatetics*, transl. by B. F. C. Costelloe and J. H. Muirhead, London 1897, 165 ff

[4] 'The Case for a Theory of Modern Architecture', *RIBA Jnl.* June 1957, 307 ff. Four years after this essay its author made the striking statement: 'Personally, I find I cannot write about modern architecture any longer because I cannot design.' *RIBA Jnl*, April 1961, 237

[5] M. Whiffen ed., *The History, Theory and Criticism of Architecture*, papers from the 1964 AIA-Acsa Teacher Seminar, Cambridge, Mass. 1965, 3

[6] P. Collins, 'Oecodomics', *Architectural Review*, March 1967, 176

[7] C. Norberg-Schulz, 'Pluralism in Architecture', *RIBA Jnl.* June 1967, 244. His book *Intentions in Architecture*, Oslo and London, 1963, was discussed critically by Donald Smith and George Baird in two essays published in the *Architectural Review*, February and November 1965. A very important contribution to the discussion of architectural semantics will be found in the various writings of Gillo Dorfles

[8] J. D. Bernal, *The Freedom of Necessity*, London 1949, 92

[9] *op. cit.* 308, see note 4

[10] R. Banham, *The New Brutalism*, London 1966, 134

[11] 'Architectural History and the Student Architect, a Symposium', *Jnl. Soc. of Architectural Historians XXVI*, October 1967, 196

[12] R. Arnheim, 'Contemplation and Creativity', *Toward a Psychology of Art*, Berkeley 1966, 292 ff

[13] I am using the term 'making visible' in the sense of Konrad Fiedler, cf. his *On Judging Works of Visual Arts*, transl. by H. Schaefer-Simmern, Berkeley 1957

[14] 'Structure, Construction, Tectonics', in G. Kepes ed., *Structure in Art and Science*, New York 1965, reprinted in *Connection*, March 1965

[15] M. Weitz, 'The Philosophy of Criticism', *Atti del III Congresso Internazionale di Estetica*, Torino 1957, 207 ff

[16] There are, of course, evaluations without the use of language by simple selection or omission

[17] M. Weitz, *op. cit.*, 213

[18] M. Weitz, *op. cit.*, 216

[19] I. A. Richards, *Practical Criticism*, New York n.d. (first edition was London 1929), 271

[20] I. A. Richards, *op. cit.*, 283

[21] There can be no 'standard observer' as William Earle has pointed out in *Ethics*, LXIII, 4, July 1953

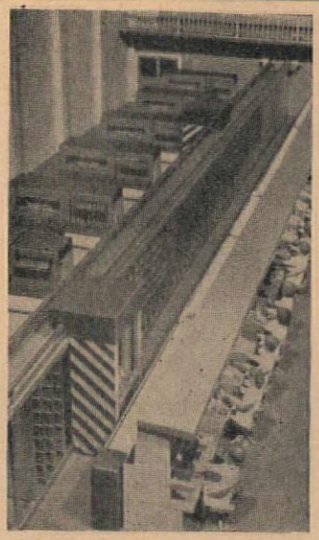
Automation and Mechanics

International Instruments, Electronics and Automation Exhibition, Olympia, London, May 13-18
Mechanical Handling Exhibition, Earl's Court, London, May 14-24

The most remarkable and depressing aspect of these two exhibitions occuring at the same time and within a fourpenny bus ride of each other was the almost total lack of any other connection between the two.

The IEA exhibition offered a wide range of new techniques for doing almost anything. It underlined the increasing need to know what to do rather than how to do it. The overall impression was of a considerable fragmentation and a lack of effort to compose a range of techniques for any particular application. This is a task for the immediate future—if not for the present. The Department of Machine Intelligence in Edinburgh is already working in just this area. It is interesting how play techniques are increasingly used there as a research tool (note Edinburgh's computer that balances a screwdriver—also note Prof. Michie balancing a screwdriver himself). The implication of this being that individuals with the traditional familiarity with play techniques—children, architects, artists—having overcome a basic dialectic problem, can usefully connect into the situation.

The worst aspect of the exhibition was the uselessness of the catalogue and extreme difficulty in reaching any particular part of the exhibition. For an exhibition dealing overwhelmingly with information handling techniques, this was ironic.

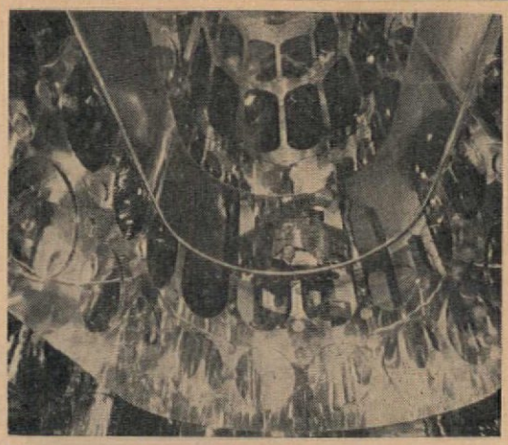


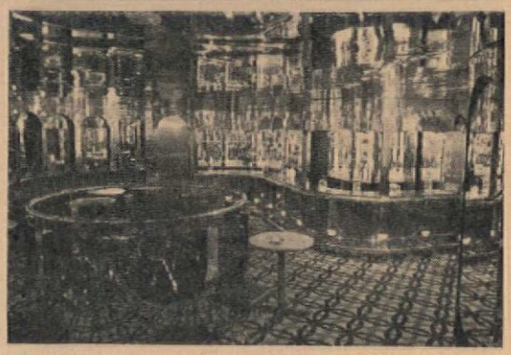
For left
Professor Michie of the Department of Machine Intelligence, Edinburgh, balancing his own screwdriver. *Photo: Kelvin Brodie, Sunday Times*

Left
Model of the Molac System 24 workshop, using the numerically controlled, or *NC Machine*, in which all machine tools operate in terms of numerical information derived from the dimensions of the workpiece itself. This information is fed back to control the machine's movements, which include automatic tool changing for different operations. The instructions for the machine are provided on a tape to which the machine is electronically linked. Small batches to different specifications can thus be carried out by a handful of machines

The application of new information and control techniques on those machines displayed at Earl's Court should cause a radical re-think of all such equipment. At the show most of the products were united by a common failing in machine intelligence. By adding information at a high intensity, a radical new form, not only of transportation, but of all kinds of production could be evolved. There are examples of this, in particular the Molac System 24, designed by the Molins Machine Co., Deptford, and the systems developed by Borg-Warner and Cincinnati Milling Machines Ltd. (see *New Scientist*, February 15th, 1968). The point—with numerical control or any other information control application—is that it is often the case that by moving a high level of information it is unnecessary to move physical objects.

The peculiar architectural danger of this exhibition was the marked similarity between the equipment and early Archigram drawings. It is to be hoped that the grand display of equipment will not spur the futurists among us to apply their forms thoughtlessly because of so tenuous an historical justification. *Fred Scott*





Chelsea glitter

King's Road strutters can now indulge in the authentic Parisian Drug Store experience—the pub on the corner of Royal Avenue has been dazzlingly converted for Charrington and Company into a three-level hive of boutiques, bars and restaurants—intended to be kept open until midnight. There is no nonsense about opening the bars out onto the streets, the streets are brought right inside. The architects are Garnett, Cloughley, Blakemore and Associates—designers of the Post Office Tower restaurant and Just Looking and Albrizzi, both in the King's Road.

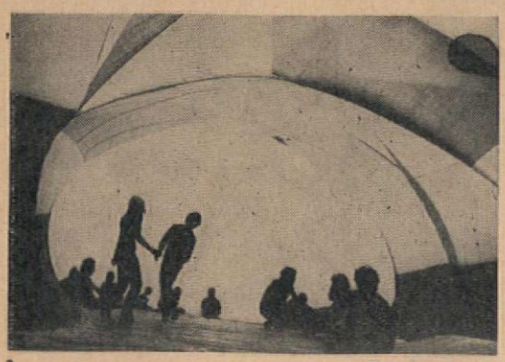
City of London Festival

The City of London Tower Precinct came briefly to life for two weeks in July with Joan Littlewood's fun fair. Structures ranged from Mike Leonard's sophisticated tensioned aluminium skylon to a packing case and tin can castle by Slobodan Paich **3** bearing the chalked inscription *No grown ups. Just children to make their own puppets.* Also in the Precinct were Jeff Shaw's Movie Movie—a giant inflatable trampoline pyramid, prefabricated fibreglass play sculptures by Keith Albarn, and an inflatable fun enclosure with programmed sound and night-time multi-image projection by Simon Conolly, Mike Davies, Johnny Devas, David Harrison and Dave Martin **2**. Bruce Lacey's beautifully-made, gurgling humanoid, swallowed crowds of visitors **1**.

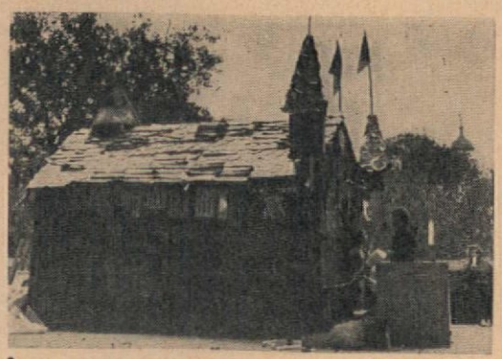
Significantly, it was not the unusual structures, but rather the activities they encouraged, that aroused most interest—a pity that the hard, grey buildings surrounding the fair could not elicit a similar, positive reaction from the 9–5 onlookers.

Simon Conolly, Mike Davies

1 *Central Press Photos Ltd.*



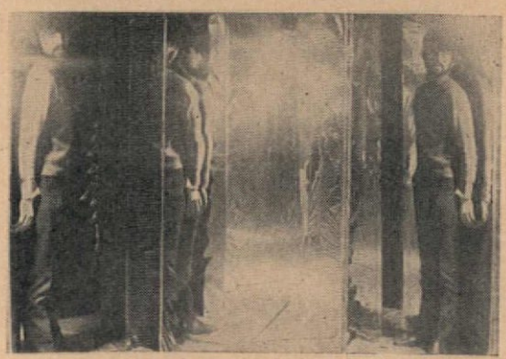
2 *Photo S. B. Conolly*



3 *Photo S. B. Conolly*

Spectrum

For Margate's Dreamland, Keith Albarn has designed a new environmental toy, Spectrum, an intricate, wriggling, 8ft diameter fibreglass tunnel (in red, blue, green and orange) that offers a range of experiences from 'feelies' (in which you have to push through rotating cylinders of soft foam) to 'a self activated experience' (where you can adjust the light and sound effects yourself). The games can be played by anyone, but the St Albans hospital is interested in adapting them for the rehabilitation of autistic children.



Exhibitions

Till August 31	Coventry	British sculpture	Coventry Cathedral
Till October 20	Venice	34th International *Biennale di Venezia*	
August 6 to 24	London	Soviet comprehensive exhibition (Includes architecture, engineering, industrial design)	Earl's Court
August 21 to September 28	London	The Victoria Line, design and construction	Design Centre, London
August 30 to October 27	London	The surveyors craft since 2800 B.C.	British Museum
September 4 to 11	London	Surveyors' contribution to human progress	Little Dean's Yard, adj. Church House, Westminster SW1
September 19 to 25	Garston (Herts)	BRS goes public	Building Research Station (Tickets from Miss Hurd)
September 20 to October 27	London	Bauhaus	Royal Academy, Burlington House
September 24 to November 11	New York	Architecture of Museums	Museum of Modern Art
October 7 to 10	Mexico City	Spaces for sport and culture	
October 3 to 8	Nancy, France	International exhibition of Urban Equipment	Inf. 54 Nancy 01, PO Box 593
November	London	New materials	Building Centre, London
1970			
March 15 to September 13	Osaka, Japan	EXPO 70	

Conferences

August 18 to 24	Eindhoven, Holland	3rd ICOGRADA Congress	Inf. Sjoerd Bijlsma, "Bijland", Kreiël 16, Winterle gem. Vessem, Holland
September	Rimini	17th international congress of artists, art critics, & art students	Inf. Sec. Generale del Convegno, 47040 Verucchio, Forli, Italy
September 3 to 12	London	12th International Congress of Surveyors	Inf. Secretary General, FIG Office, 47 Tothill St., London SW1
September 4 to 13	Manchester	Town and Country Planning Summer School	Inf. Sec. 26 Portland Place, London, W1
September 9 to 14	New York, USA	7th Congress International Bridge and Structural Engineering Assoc.	Inf. E. K. Timbly, c/o Howard Needless, Tammen & Bengendorf, 99 Church Street, New York
September 10 to 13	Harrogate	Northern Floor Coverings fair	Exhibition Centre
September 12 to 16	Bristol	MOPBW Building	Hengrove Park (formerly Whitchurch airport)
September 16 to 21	Manchester	Industrial equipment and services	City Hall
September 18 to 23	London	ILA Symposium and Conference	Inf. Sec., Institute of Landscape Architects, 38 Russell Square, London WC1
September 23 to 28	Paris	European seminar on problems of the disabled	Inf. RIBA (Overseas Relations Dept.) 66 Portland Pl., London W1
September 30 to October 9	London	Business Efficiency	Olympia
October 7 to 11	Ottawa, Canada	4th International Congress for Building Research and Documentation (CIB)	Inf. Miss Milroy, Information Division, Building Research Station, Garston, Watford, Herts.
October 7 to 10	Zacateno, Mexico	Meeting of architects under 30	Inf. Arg. Ruth Rivera, Organizing Committee for Olympic Games Avide la Fuentes 170, Jardines del Pedregal, Mexico 20DF.
October 8 to 19	Manchester	Building Trades	City Hall
October 17 to 27	Bucharest	British Industrial	Piata Scinteii
October 20 to 23	Ottawa	Canadian Conference of Housing	Inf. Canadian Welfare Council, 55 Parkdale, Ottawa 3
October 20 to 26	Milan	10th International convention/exhibition of automation & instrumentation	Inf. FAST, piazzale Rodolfo Morandi 2, Milan
October 21 to 23	Budapest	2nd Conference on Industrial Architecture	Inf. Sec. of Scientific Soc. for Building, Budapest V Szabadság ter 17. III Technika Háza.
November 13 to 15	London	International reinforced plastics conference	British Plastics Federation, 47–48 Piccadilly, W1
November 15 to 17	London	Art, technology and society	Inf. DIA, 13 Suffolk St., London, S.W.1
December 2 to 6	London	Engineering materials & design	Olympia
1969			
February	London	Reinforced plastics in building	Inf. Plastics Institute, 11 Hobart Place, London S.W.1
January 27 to February 8	London	Interfurn 69	Earl's Court
February 24 to 28	London	Carpex 69	Earl's Court
March 5 to 16	S. Paolo	British Industrial	International Pavilion, Ibirapuera Park
April 22 to 30	London	International Engineering & Marine	Olympia
May 17 to 23	Amsterdam	6th International Congress of the Bureau International du Béton Manufacture (BIBM)	Inf. British Precast Concrete Federation, 9 Catherine Place, London SW1
June	Amsterdam	6th Congress of International Prestressed Concrete Bureau	Inf Simons, Bd A. Reyers, Brussels 4
July 2 to 6	York University	RIBA Annual Conference	Inf. RIBA, 66 Portland Pl., London W1
October 10 to 15	Buenos Aires, Argentina	10th UIA Congress	Inf. UIA Secretary, RIBA, London

Competitions and awards

Investiture souvenirs	Entries by September 30th, 1968	Inf. Council of Industrial Design (Michael Kitt)
Products for children of 3 to 14 years old	Entries by September 30th, 1968	Inf. Abitare/Concorso, Bambini, 3 via Giuseppe Sacchi, 20121 Milan
New Town research project. Redevelopment of a town centre	Applications by September 30	Inf. Grand Prix Internationaux d'Urbanisme et d'Architecture, 48 Bis Ave Kleber, Paris 16

Study tours

September 1 to 15	Germany and Czechoslovakia	Inf. Victorian Society, Dr Paul Thompson, Sturricks, Great Bently, Colchester, Essex	
1969	South Africa and Australia	Inf. Concrete Society Ltd, Terminal House, Grosvenor Gdns., London S.W.1.	
February 3 weeks	Brazil	From England via Zurich (£390)	Inf. Moxley, Jenner & Ptners, 7 King St., Bristol, BS1 4EJ

Briefly

Expo 67, having taken its farewell last autumn, has reopened for a further season under the title 'Man and his World', and after October 14th will become a permanent cultural and popular centre. Mayor Drapeau has persuaded all but three countries (Czechoslovakia, Yugoslavia, and the USSR) to donate their pavilions to Montreal and at least 40 of them to put on national exhibits. The Theme Pavilions, Labyrinth and La Ronde remain as before; and Habital apartments are being rented (about $180 to $350 per month).

The Villa Savoie has been handed over to the French Ministry of Cultural Affairs to create a Le Corbusier Centre of Architectural Studies.

The UIA Professional Practice Commission, after its meeting in London in June, support the RIBA's case against competition in fees. They also recommend the creation of a comprehensive bibliography of documentation on architectural practice in each of the 70 member countries.

A new organization is being set up to interpret the various branches of environmental design. *Anyone* interested (including students), please contact either of the following people: William A. Bowles, 41 Louisville Road, London S.W.17; or Robert H. Browning, 9 Cheyham, Cheam, Surrey.

The Council of Industrial Design is planning a Design Centre December exhibition of *prototype* furniture, toys, clothes and equipment for children under five years old. Would-be exhibitors should contact Philip Fellows at the COID, Haymarket, London, SW1.

Charles Rennie Mackintosh's centenary has inspired an excellent map guide to his buildings in Glasgow, designed, written and illustrated by Ian MacDonald in association with the Centenary Committee and the Corporation's Information Bureau who sell it for 1s. (George Sq., Glasgow C2).

In collaboration with the Acoustics Group of the Department of Pure and Applied Physics, University of Salford, Omega Laboratories Limited, of London, Manchester and Hounslow, has set up a new division—Omega Acoustics—to investigate noise and vibration problems, and to provide solutions.

Squatter's rights

Instant architecture in a street in India
She May 1968

Emergency housing

Some of the earthquake victims of Montevago in Sicily were provided with durable, comparatively spacious emergency housing in which they were able to create familiar environments. Even externally, not to be put off by the strangeness of the factory-made housing, the villagers composed settings that related to those of the destroyed town. Stone steps, rough timber railings and planting were sufficient to make a place.

Notizie IRI **March 1968**

Working with American communities

Walter Bor[1]

The American urban poor can be largely equated with the coloured people, particularly the Negro. But, as Melvin Webber points out 'rather than race, the issue is one of disparate stages in human development. At a time when the scale of the society is rising rapidly—that is, when the processes of cultural urbanization are accelerating, a large sector of the nation is out-of-phase and being left further and further behind'.[2] For instance, the market mechanism which dominates the supply of housing has resulted in a good standard of housing for those who can afford it but has by-passed the 40 per cent of the total population who cannot. Only two per cent of housing in the USA is public; and as the affluence of one section of the population grows, the gap between it and the ghetto dwellers widens.

There is a growing awareness that the problems of the urban poor must be solved quickly and radically if serious riots and even urban civil war are to be averted. Both the Federal Government and local institutions are beginning to face up to this problem. The Office of Economic Opportunity has been charged with conducting the Anti-Poverty Programme. Under the new Model Cities Programme, HUD (the Department of Housing and Urban Development) encourages cities with major ghetto problems to submit proposals for dealing with their problems, coupled with applications for grants to pay for the technical services required. Grants are also being made available for action programmes for the immediate improvement of housing, transport and social facilities.

Watts, Los Angeles

In response to these acute socio-economic and environmental problems in the ghetto areas, local leaders are emerging who organize with great energy, skill and intelligence, constructive and often highly imaginative self-help. One of the most outstanding examples is the Watts Labor Community Action Committee (WLCAC).

Greater Watts is a Negro ghetto with about 120,000 people, only six miles from downtown Los Angeles. In that community, before and during the 1965 riots, the WLCAC organized a group of male residents, mostly members of industrial unions. The driving force has been Ted Watkins, WLCAC chairman.

WLCAC has involved thousands of people from the larger community. The committee has acquired the capacity, and gained the necessary confidence and community support, to increase its operations rapidly, but has lacked the funds to acquire the materials, tools and sophisticated technical services needed to carry them forward.

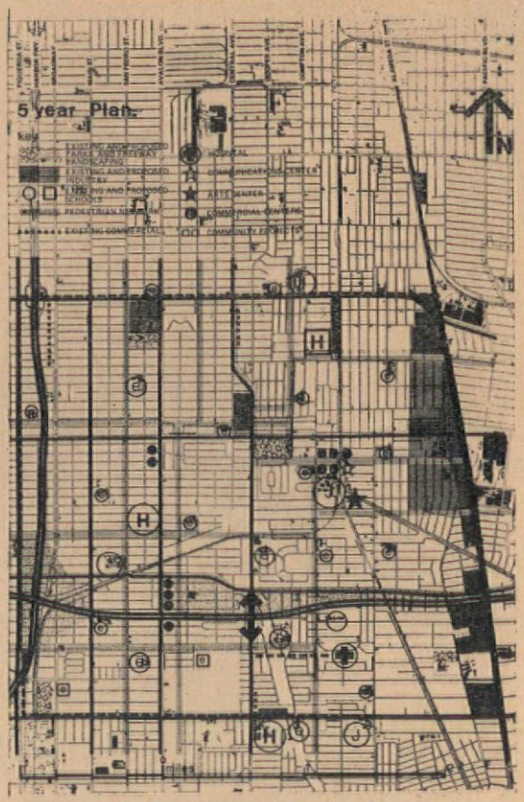


Diagram of the five year plan proposed for Watts. H high schools, V junior high schools and E elementary schools.

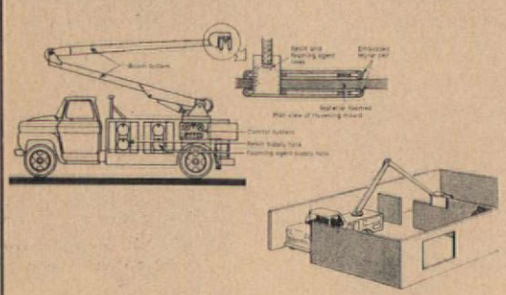
Resurrection City

Resurrection City, the site of the poor people's rally in Washington last June, was a carefully planned and organized happening. A Structures Committee, consisting of John Wiebenson (University of Maryland), James Goodell (Urban America), Ken Jadin (Howard University) and Tunney Lee (architect), worked to a clearly defined and specific programme over a period of three months. Goals and responsibilities were defined, a site selected, services planned, materials solicited, plans drawn up, prototypes made and tested (with the help of students from Howard University) and construction organized. Finally the Committee reviewed the project:

'We feel that the extensive development and testing of shelter units was probably one of our most important accomplishments. They meet the goals of construction and environment.'

Left bottom
Two-family living units made from standard 8ft × 4ft plywood panels, on framing, with skylights of plastic and doors of canvas.

Left top
A church adapted from the basic dormitory unit.



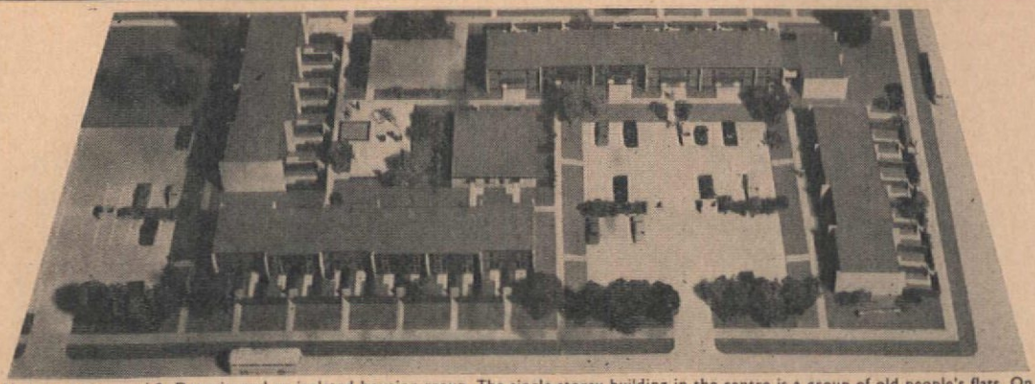
Foamed architecture

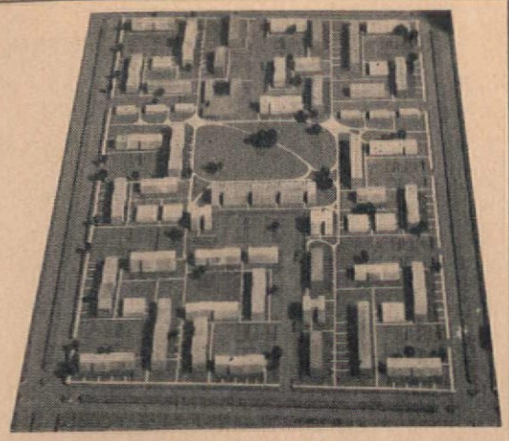
Circular, square or what-have-you houses can now be 'spun' from an epoxy foam fed from the end of an articulated boom set on a five ton truck. The technique similar to that devised by the Dow Chemical Company (*AD*,4/66 p. 165) has been developed byt he Midwest Applied Science Corporation in the USA. The cost of experimental houses, 1000 sq ft in area, is $3·8 a square foot, well below conventional costs of $16 to $20, and significantly less even than the most advanced modular systems being used, which are around $10 a square foot,

New Scientist, June 27th, 1968

P/A's New Deal

In these times of Strategic Hamlets, it seems appropriate that *Progressive Architecture's* first Design Award* this year went to a large slum clearance project by Jan Wampler in San Juan, Puerto Rico, **1, 2** an area vividly observed in Oscar Lewis's epic *La Vida*. The 3000 squatters of La Perla 1-A, a spectacularly beautiful sloping site on the north coast, are to be relocated on an area of filled land, La Puntilla 1-B, a decayed dock wharehousing centre outside the city walls. The Project provides 500 low and 500 high-rise units, of which half are for La Perla replacement—3000 into 500 seems a bit tight by any standards. The other half—





Models of Elmwood 2, Detroit, and an isolated housing group. The single-storey building in the centre is a group of old people's flats. On the left is a green, with a playground; on the right a sunken garage court.

This was made clear in January 1968, when a Model Cities Application, urgent renewal activity and new freeway proposals come dramatically to a head. 'The Model Cities Programme', according to Mel Webber,[3] 'is explicitly aimed at fostering innovation in confronting the social problems of lower-status groups.'

So an unusual interdisciplinary group of consultants was built up (through the efforts of Hortense W. Gabel, consultant to the Social Development Corporation who was initially retained). The core group comprised my team, the Organization for Social and Technological Innovation (of Cambridge, Massachusetts), an interdisciplinary team of social planners and technologists, and Mrs Gabel. (This group had previously worked together in Detroit.) We were joined by Smith & Williams, the Pasadena architects already working for the community, a gifted writer on WLCAC's staff, two Los Angeles economists, a local systems analyst and a remarkable group of young but technically untrained Watts residents.

Led by Ted Watkins and through WLCAC's network of community counsellors, the group made immediate contact with hundreds of Watts residents, in seven weeks translated their needs and aspirations into technically sound proposals, conscious always that WLCAC and the community were the client.

Elmwood Park, Detroit

A somewhat different situation prevailed in Detroit —when the MDCDA (Metropolitan Detroit Citizens Development Authority) called us in to advise them and the RBCC (Ralph Bunch Community Council) on the planning and redevelopment of Elmwood 2.

Elmwood 2 is the second phase of the 450 acres project to provide homes for 15,000 people one mile east of downtown Detroit. The Elmwood area, which in 1950 housed 25,000 people (adjoining Lafayette Park by Mies van der Rohe), comprised traditional two and three-storey weatherboard detached houses for single and two families each, and shops; it dates back to the last century and is now predominantly occupied by Negroes. Lafayette Park (1952-62) displaced Negro families, the poor to Elmwood, the better-off to the suburbs.

The Elmwood Park Urban Renewal Project was conceived in 1962 as a middle and upper income housing development by the City Planning Department and the Detroit Housing Commission, with Detroit architects Crane & Gorwick as consultants. Elmwood 1, between 1964 and 1967, aroused mounting opposition by the resident community of negro poor represented by the RBCC, and caused the mayor to make land available in Elmwood 2 for low and low-middle income housing by the MDCDA, a private citizens' organization concerned with the urban poor.

About half of the 100 acres of Elmwood 2 will be allocated to housing, the remainder to parks, commercial uses and a new high school.

Phase 1 included the appraisal of existing plans in the light of the new housing policy. Our basic approach, which favoured low-rise housing in the form of inter-related enclosures, also provided for a community building containing nursery school and a primary unit. The proposals were accepted by the Detroit Housing Commission and City Planning Commission early in the new year.

Phase 2: Acting as housing and planning consultants to the RBCC and MDCDA we prepared drawings for 480 units, with the San Francisco architects Leefe & Ehrenkrantz and local contractors, Campbell Engineering. One of the major problems was to keep within the relatively low ceiling price of $12/sq. ft. Since no suitable industrialized building system was available a rationalized traditional system consisting of concrete block crosswalls, precast concrete floors, timber roofs, sandwich panels finished with cedar boarding and aluminium sliding windows was decided on.

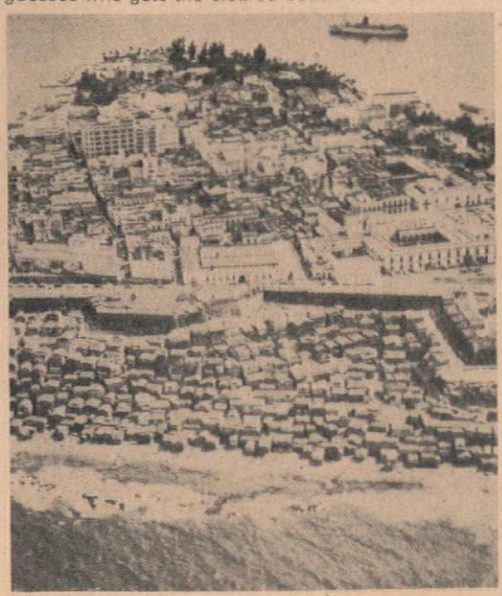
[1] Partner in the firm Llewelyn-Davies Weeks Forestier-Walker & Bor who have been working as planning and housing consultants to Negro communities in Watts and Detroit.
[2] *The new urban planning in America* TPI Journal 1/68
[3] TPI Journal 1968
[4] Richard Llewelyn Davies and myself as partners in charge, Steve Osgood (resident senior planner), John Roberts and John Corrie.

clearly separated—is for private housing. The public housing is contained within a basically symmetrical closed arrangement of square courts, with a stepped section, curiously placed at 45° to the town grid. Interiors will consist of the basic concrete structure, and utilities only—so it's bring your own wood and tar paper, folks. (The editors coyly refer to the shanty dwellers particular 'sense of aesthetics.') Now there's a brainwave for cutting contract costs. After an editorial which talks about Pluralism, Growth and Change, and of avoiding Paternalism and the imposition of a Rigid Order, this is a bit hard to take. Meanwhile, any guesses who gets the cleared beach site at La Perla?

Much closer to the point is the second P/A Award **3, 4, 5** by Robert M. Oxman for Puerto Rican village housing. Remarkably close in scale and grain to existing settlements such as La Perla, this skeletal grid system is capable of incremental growth as well as a great variety of configurations. A pre-fabricated service core is provided and the precast structural units can be individually handled; though this would probably require skilled labour, which would limit it's application.

David Wild

*Progressive Architecture 1/68



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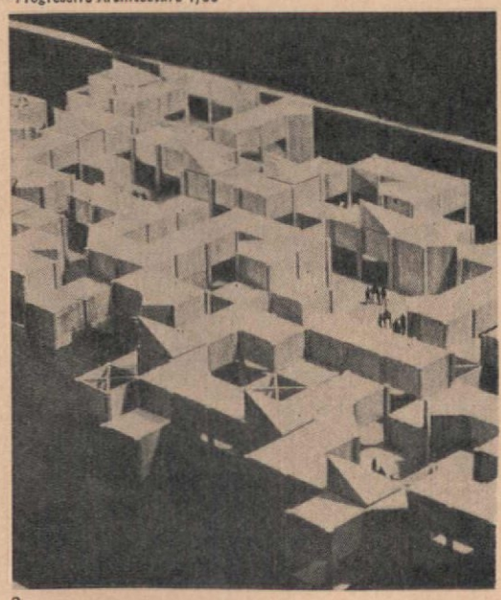

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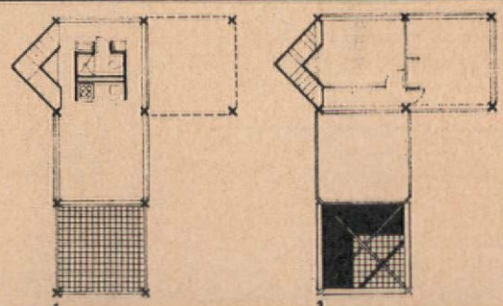

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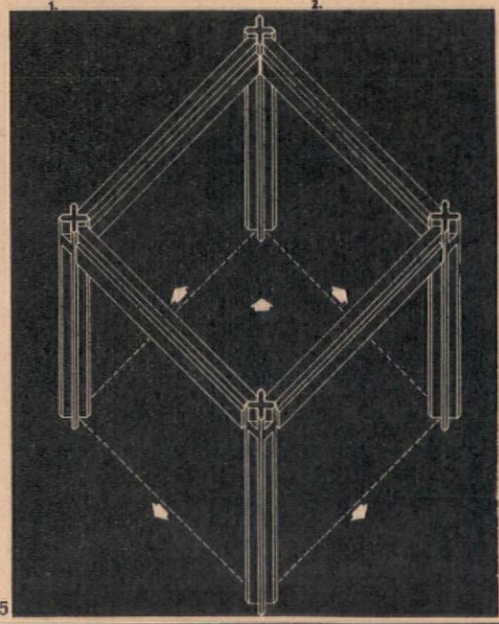

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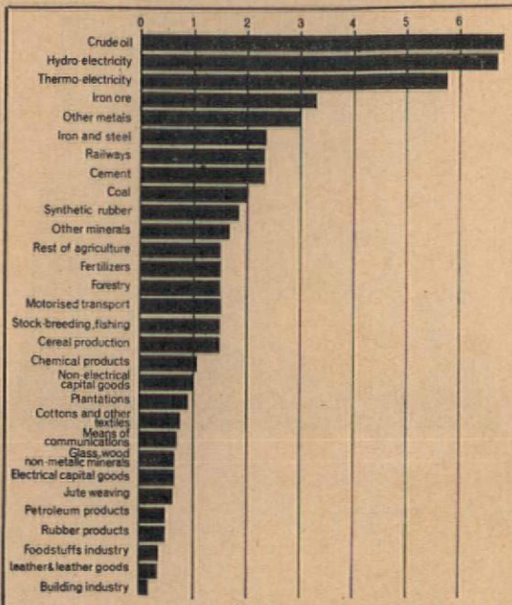


Capital-output ratios for various sectors of industry in India. Although the building industry stands lowest on the list this should be seen as a positive advantage when it comes to organizing rapid self-help building programmes. If the product is transportable and generally applicable any surpluses of manufacture can be sold, providing a ready industry as well as satisfying immediate needs.
Jan Tinbergen *Development Planning* World University Library

What strategies for emergency housing?

Emergency housing for disaster relief requires a no more shoddy answer than any other 'normal' housing problem. Any man, anywhere, without shelter protection is an emergency situation. Joan de Katz survived for three days in mid-Atlantic in his rubber life raft. His rescue has been stated as costing £33,000. Thousands of refugees on the East bank of the Jordan are still making do with Miami Beach type cotton tents that blow away in the wind. The difference is that the man in the sea is totally helpless whereas refugees are still recognizable as a social group, presumed capable of organizing themselves into a fully functioning community. In fact their predicament is not so much different, for they have been deprived of the occupations through which they formerly recognized themselves as an operational people. This factor is evident even in the difficulties encountered in this country when for instance coal mines are shut down. No amount of charitable gifts and incentives to change a way of life will help these situations, as Lena Jeger illustrated in the *Guardian* earlier this year: 'What is the saddest, and what is the gladdest sight in Jordan? The saddest is the ghostly lines of 2000 frame houses—homes for about 10,000 people—sitting like skeletons upon the aided concrete. The idea was that the refugees might fill in the skeletons with concrete blocks and thereby make a little home inside the wind. The United Nations man, old in these torments is disappointed. My Arab friend says that the people will not accept the frames because they have a smell more permanent than that of tents. "Once the frame is on the concrete, there is acceptance". So the blank eyed people search for rocks to put on the hem of their tents and the women look defeated at the holes the wind has torn. Politics is all and the frames of nascent comfort must be left to blow in the gate.'

The whole problem of what to give and what to do must be reviewed in far broader terms. Milk is still flown out to places where lactic products are unknown and the digestive systems of the people are unable to cope. Housing itself, though always necessary in some form, can worsen a situation. At best it should release the energies needed for economic and social reconstructions. It is in this energy-giving sense that 'politics is all'. Housing is not a political issue, it is the provision of shelter protection and a symbol, not the mechanism, of the whole network of satisfactions summed up in *home*. As an issue it should be withdrawn from the filing cabinets and presented for general participation. It must create more freedoms than it causes limitations. What we must make available are the choices and the means, and the outcome will be dependent on the economy, level of understanding and the social structure of the recipients. If the architect and planner are to participate they will have to understand that their ideas will only be successful if they combine the most basic principles demanding the least expenditure of effort with the maximum economic returns.

This might appear a matter of policy and administration. It need not be if the designer himself takes the overview and sees his task as that of adapting 'universals' to particular case issues, and here the word 'universals' is substituted for 'policies'. Therefore any housing system, which does not have a specific application and can be presented and be useful across national, cultural and income level divisions (a precondition of emergency housing), will have to be based on the widest generalized principles. We can look for inspiration to the newly revealed molecular structure of matter for strategies of configuration and at the same time think on a global scale to anticipate the relationships our systems will have with the total world environment. Only when we can be confident on all the levels of understanding now open to us should we begin to wind down towards the particular and begin to adapt servicing systems to spatial strategies (ergo: a definition of architecture). Contemporary housing consistently shows a pre-occupation with the patterns of local functioning. The importance of criteria such as traffic flow, access, service cores, privacy, open space, density, etc, etc, are the *raison d'être* of many similar looking development schemes, and this is why they are parochial and excluding. Their failure is twofold, but inter-connected: the vocabulary of built form is limited to vertical and horizontal load-bearing elements and because of this the disposition and relationship of enclosures are rigid and impose a pattern of life that only the designer can call his own. The designer's task is first and foremost to concentrate on shelter—and shelter equipment as understood relative to the world where man's primary creative occupation is his use of and adaptation to the environment. Architects are worrying themselves silly about how best to restrict and order this energy when the individual, given the tools, is best able to manage himself. The real tragedy of the people who are involved in disasters is their lack of understanding of this creative role. They recognize their culture in the industries and places which they have lost rather than in themselves. But some communities suffer disaster annually, such as the nomadic tribes of North Africa whose pasture dries up at the onset of the dry season. They have developed a geographically flexible economy and a mobile habitat and although 'disaster' is a regular occurence their way of life is in no way upset.

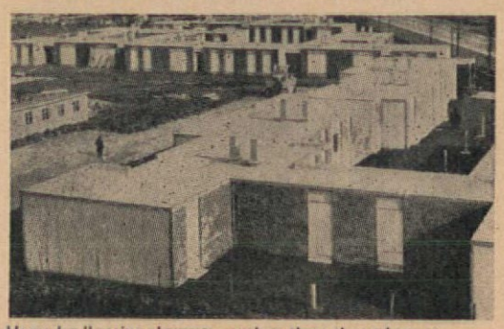
Therefore a positive approach in a displacement situation might be to build an industry around the predicament. When refugees find that the Red Cross gift parcels have more cash value than the contents have comfort, it shows how important it is to have an economy above all things. If help is to come from outside it will be most readily accepted if it smells of money, and to be comprehendable and useful it must be universal in application and not, like a plague-carrying rat, implant the obsessions of one culture into another.

H. H.

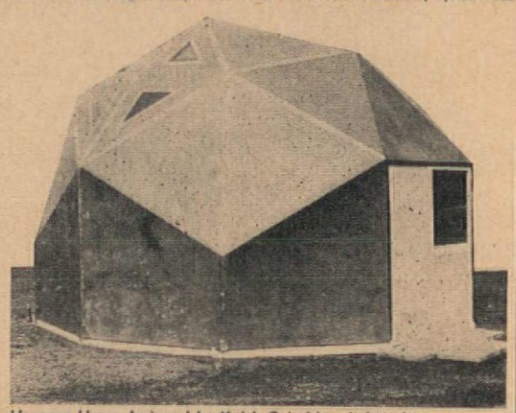
Courneuve Bidonville north-east of Paris where Algerian immigrants have set up squatter settlements. Their inhabitants would be no better off either economically or socially if moved into the slums recently built in the background of the picture. ***Photo: Michael Yeru***

Nomad camp outside the Mauritanian capital Nonakchott

Ben Wattenberg & Ralph Lee Smith *The New Naticns of Africa* 1963



Heavy loadbearing elements—such as those shown here at Bois d'arcy, outside Paris, but typical of thousands of other such developments—entomb the planner's ideas, imposing an arbitary pattern on people's lives
L'Architecture d'Aujourd'hui Feb-March 1968



***Hexagon House* designed by Keith Critchlow is based on nationally and culturally unbiased fundamental principles of close packing geometry. The methods of production and erection are applicable to the lowest or the highest technologies and the organic pulp materials from which it is made are the cheapest and most readily available of the world's resources. These materials have the additional advantage of being recyclable and are easily replaced as vegetation**
Photo: Polyhedral Developments Ltd.

A man must believe that the world is a world for him; if he exercises initiative and takes a step, his action will have an effect, however small, in the same real world . . . A man has faith that if he is well-intentioned, rational, not fanatical, he is not alone; there is a human community that is thinking the same thoughts as himself and his friends and ready to act in concert.

Paul Goodman

ARCHITECTURE OF DEMOCRACY

Rolf Goetze
Robert Goodman
Peter Grenell
Carl Linn
Lisa Peattie
Donald Terner
John Turner

Immaculate Heart

The Sisters of The Immaculate Heart occupy a peculiar place in the heart of the community in which they work.
The uniqueness of this place in our hearts becomes evident when we know that they will be torn from (what we on the outside have considered) their comfortable quarters.
The significance of the move and the potentials in the new relationship to the other colleges at Claremont, have all the dramatic expectancy and risk that we have learned to expect from Immaculate Hearts.
However, a new college means buildings and buildings mean architecture and architecture means architects and it all makes us break out in a cold sweat.
If only they were moving into an evacuated army barrack or an abandoned monastery or some really great old warehouse—then we would have complete faith.
But architecture on order is a different thing and those architects who could subjugate themselves to the real and evolving needs of such a community maintaining a relentless concern for quality—would be very rare.
What we, who love Immaculate Heart, want for the college is easier to taste than it is to say.
We guard ourselves against wants that could be hazardous—such as expressions of form or structure or monumentality or even an over-emphasis on beauty.
We want a college that will shelter those within it on the sad days as well as the gay days.
A system of buildings that will not be embarrassed by complete changes of programme.
A structure that can be Scotch-taped, nailed into, thumb tacked, and still not lose its dignity.
Spaces that will welcome and enhance teaching machines as well as celebrations and pageants.
Materials that will not tend to become shoddy and will still show a response to care.
One would hope that the experience of the buildings would seem so natural that the question of their having been designed could never come up.
We want these buildings to demand something of those who enter them and to enrich and shelter those who remain within.
We know now why Gurus choose caves.

Charles Eames

February 14, 1967

This issue of *Architectural Design* responds to a question set by the editors. They recalled the issue of August 1963 which drew attention to the architecture-without-architects of the squatter settlements in developing countries and which found, contrary to much popular opinion, that these serve a very positive function for their residents. Now, they asked, what lessons can we draw from this which are relevant to the very different situation in which architects work in the developed nations?

We came together to consider this question from various professional backgrounds—architecture, planning, landscape architecture, and anthropology—and from varying kinds of professional experience in both developed and developing countries.

As we tried to answer the question set by the editors, we began with a shared perception that there are many positive aspects of the squatter environment, especially in the flexibility of the solution and its adaptability to the changing needs of families over time, and in the sense of autonomy and self-determination for both individuals and communities in making their own environment directly. In contrast, the world which we saw around us in the United States, with all its relative economic lavishness and technical virtuosity, often seemed outside the control of its inhabitants, even alien to men. It began to seem to us that there was here an underlying and more basic theme: the necessity of making the dwelling environment a human world. We found that we shared a sense that what makes an environment right for man is more than either its aesthetic qualities or its technical appropriateness or even a combination of the two: that it is important also that an environment respond to us, that we have been able to make it ours. In this view, the means of making and controlling are tied together in experience with their physical product, and aesthetic judgments are and must be penetrated by human meanings and relevances. As a friend wrote to one of us, the point of view is *that the world of art and the world of society are not separate, that there is only one world in which we all live and in which all our activities take place. . . our sense of any single activity can only be made rational by our sense of the whole.* This requires us to look at the city, its neighbourhoods and its dwellings, as not simply artifacts and/or as the format of human activity, but as the vehicle and expression of our human life which, being human, is also communal, in the Greek sense, political.

This is easy to see in the squatter settlement, which is why we began seeing it in that, and why we begin this issue with an analysis of squatter settlements. We looked, then, for instances where something analogous to the squatter settlement, in vitality and human response-ability was happening in the developed societies we knew. We did find instances, and a few we have reported here—not as a survey but as illustrations of our theme. We also found ways in which our very technical and managerial development stands in the way of an environment which responds to man. We tried to consider how that technical capacity might be turned to more human account. Finally, we tried to consider how our concern might suggest changes in the practice of architecture and the training of architects and planners.

We know that we have made only a beginning. We hope others will follow.

THE SQUATTER SETTLEMENT: A

by John Turner

ARCHITECTURE THAT WORKS

The material for the following article by John Turner is from a work in progress funded by the Olivetti Foundation through the Joint Center for Urban Studies of M.I.T. and Harvard University, and to be published under their auspices.

The squatter *barriada*-builder[1] who chooses to invest his life's savings in an environment that he creates, forms himself in the process. The person, as the member of a family and of a local community, finds in the responsibilities and activities of home-building and local improvement the creative dialogue essential for self-discovery and growth. The *barriada* is ground for living that the housing units, marketed or allocated by mass-consumption society, do not provide.

The *barriada* in Lima (like the *geçekondu* of Istanbul or the *villes extra-coutoumiers* of Kinshasa) is one element of a typical, rapidly growing city in a transitional economy. It is a suburb and, like the suburbs of modern cities, the *barriada* represents a step *up* from the inner city—and the vast majority of squatter home-builders are ex-city slum dwellers. Contrary to common belief, the majority of suburban or peri-urban squatter settlements in large cities are not temporary encampments of miserably poor rural migrants unable to find a job and a home in the city proper. The suburban *barriada*-builder is busy consolidating an *improved* status and, by doing so, he is further improving it and himself. Typically, he and his very young family have escaped from the depredations of the inner-city slumlord (often a renter of clandestine shacks costing half a minimum wage) thanks to a steadier and better-paid job—enabling the wage-earner to commute, the family to buy their water from lorries until it is laid on and to start building a permanent house. At least one quarter of Lima's population now live in *barriadas* and the majority of these 500,000 people are of 'consolidating' blue-collar class families. They are the (very much poorer) Peruvian equivalents of the Building Society house-buyers of the suburbs of any city of the industrialized world.

The cities of the incipiently industrializing or transitional world, such as Lima, respond far more readily to the demands of the poor majority, than cities of the industrial or post-industrial world, like Chicago or New York, respond to their poor minorities. Because the poor are the majority in Lima and because the government controls neither the material nor the human resources necessary for the satisfaction of essential housing needs, the poor must act for themselves—and if the official rules and regulations get in their way these, along with any policemen who may be sent in to enforce them, are generally swept aside. Consequently, the very poor are able to find some corner for their private life, even if it's only a temporary shack in one of the interstices of the city—on an unguarded lot, in a ravine or even under a bridge. And the somewhat less poor are able to choose between renting one or two tenement rooms and squatting on the periphery. The urban poor in wealthy and highly institutionalized mass-consumption society do not have these freedoms. At best, like the Algerian and Portuguese immigrants

Invasion shack *Photo J. Turner*

to Paris, they are able to set up very poor *bidonvilles* on the edge of the city; more commonly, like the ghetto inhabitants of the United States cities, the poor can only rent tenements, from slumlords or from public housing authorities. There they must stay until they can make the far higher grade of suburbia in one leap—unless, of course, they are an ethnically discriminated minority in which case their environment will hold them down for ever, or until they burn *it* down.

The man who would be free must build his own life. The existenial value of the *barriada* is the product of three freedoms: the freedom of community self-selection; the freedom to budget one's own resources and the freedom to shape one's own environment.

The freedom of community self-selection

Barriada inhabitants, unlike institutionally or corporatively sponsored and controlled project 'beneficiaries', are self-selected. The *barriada* squatters have a homogeneity of purpose but maintain the heterogeneity of social characteristics vital for cultural stimulation and growth. The project beneficiaries, as one result of the perhaps inevitable political constraints, have a far greater homogeneity of social character but are rarely unified by common purpose—except in opposition to their 'benefactors'. Anyone, or any household is free to join a *barriada* association as long as there is enough land to go round and as long as dues are paid—the only common rule is that the member must live on his plot. As dues are low (and not always collected) and as a family with a very low income can afford to build a shack and live in the typical *barriada*, the lower socio-economic limit is very low indeed. On the other hand, the *barriada* offers many opportunities to the small businessman, the (lower-echelon or exceptionally unpretentious) professional or, even, to the aspiring political leader. It therefore attracts a wide range of individual interests and, naturally, the wider the range of its members the better served the community and the greater the opportunities of those who most need them.

The freedom to budget one's own resources

The outstanding difference between the *barriada* and orthodox modern housing is between the ways in which they are built: the squatter—when his tenure is secure enough to risk investment in permanent structures—builds by stages, in accordance with his priorities and budget; the modern housing development is completed to 'minimum standards' at least, before it is occupied.

The traditional 'progressive development' procedure is essential for those with low and uncertain incomes who are using their property and environmental improvements as socio-economic boot-straps. Those who are constantly threatened with loss of income through unemployment or because they have no health insurance and little free medical care, must depend for their security on relatives or on home-ownership. A new, largely young immigrant population will have few relatives on whom to depend for food and shelter in time of need—both necessities are too scarce to share for more than very brief periods. The young low-income family obliged to spend one-third or more of their cash income on rent for a slum tenement in constantly increasing demand is extremely vulnerable: as the landlord can get a higher rent when his tenants change he will have little patience with those in arrears. Eviction in time of domestic crisis is a sure way of destroying a poor man's hope—without which he will never seek opportunities or progress. But if the family is the owner, or *de facto* possessor of their home, even if it is no more than a shack on a plot of undeveloped land, they have an excellent anchor for their hope. In time of need their cash expenditure can be reduced to a much lower minimum as they have no rent to pay; in addition to that vital advantage, the family (or the abandoned woman with children) can get income from their property by renting part (or attracting another man), by using it as a shop or workshop or, in the last resort, by selling it in order to move on to greener pastures. 'Property security' is a vital function of housing for the 'consolidating' masses in cities like Lima and it is eliminated by the 'instant development' procedure. The threat of foreclosure on the mortgage demanded by heavy, initial capital outlay can be an even greater one than that of eviction. The family can lose a good part of their savings as well as their home. The disadvantages so impressive from the point of view of the modern middle class—the necessity of living in provisional or incomplete structures and without all utilities for long periods—are small by comparison with the advantages. In addition to the incalculable value of securing their hope and sustaining their expectations through the steady improvement of their inalienable homes and local environment, the squatter families have far more space, light and fresh air than in the rented slum.

The freedom to shape one's own environment

Not only does the authoritarian 'instant development' procedure demand the mortgage of a life's savings but it also imposes a sudden and drastic change of space-use and of personal relationships, both within the family and with neighbours. Perhaps only a minority of such families can use a modern standard dwelling effectively, even when they are in great need of a home of their own. Their highest priority is for secure tenure, but it is

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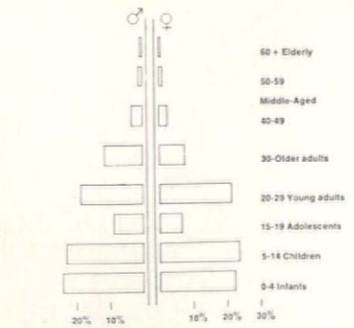
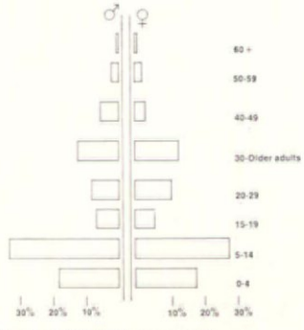
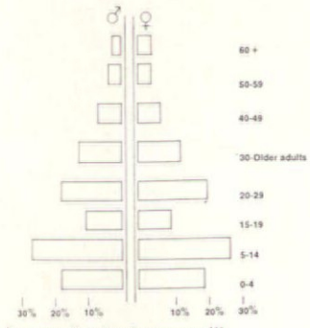
[1] A *barriada* is the Peruvian term for squatter settlement.



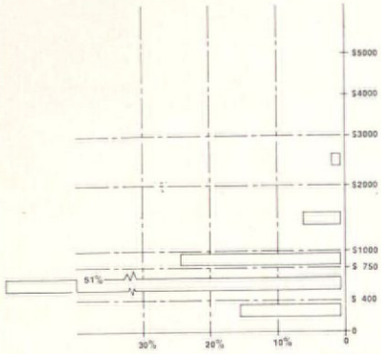
A1 Age-sex distribution: stage I
source: El Ermintaño, UNSM survey 1965



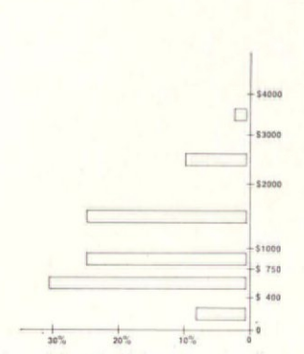
A2 Age-sex distribution: stage II
source: 'Manuel Prado' Arequipa J.N.V. 1963



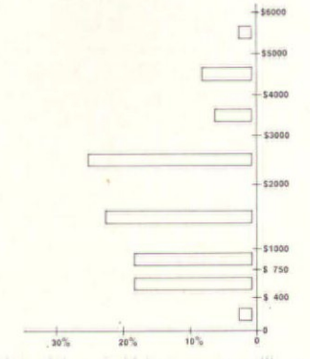
A3 Age-sex distribution: stage III
source: San Cosmé, Lima, J.N.V. 1964



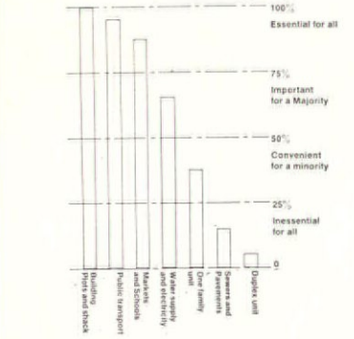
B1 Annual household income: stage I, average $680
source: El Ermitaño UNSM survey 1965



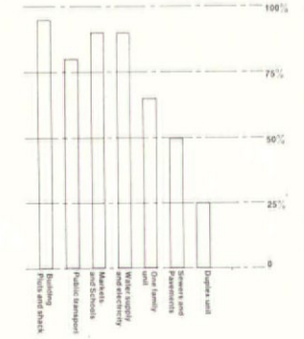
B2 Annual household income: stage II, average $1092
source: Pampa de Cueva survey, J.C.U.S. 1965



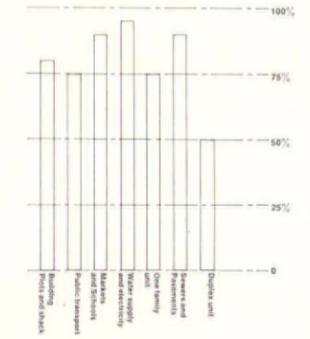
B3 Annual household income: stage III, average $1930
source: San Martin de Porres J.C.U.S. survey 1965



C1 Demand: stage I



C2 Demand: stage II



C3 Demand: stage III

D Schedule of barriada development at the three selected points in time (or stages)

	Stage I: at 1–2 years (incipient)	*Stage II:* at 4–5 years (developing)	*Stage III:* at 10–12 years (completing)
Land surface	20–30ft × 60–80ft *plots* allotted to each participant family on condition that it is permanently occupied by them *Sites* designated for anticipated community facilities; *public squares* serve as playfields, etc. *Streets* 30–60ft wide with rectangular grid varying between 150–250 × 250–300ft	No change	Some *subdivision of plots* in response to growing demand for rental accommodation and individual needs for capital and/or reduced space requirements as families shrink
Communications	Regular *omnibus services* are provided as soon as the land is occupied if, as is usual, the site is adjacent to an existing route; *communal taxis* (*colectivos*) often owned by residents provide additional service	No change	No change in transportation services (except for frequency with changing intensity of demand) *telephones* for public use are generally installed at this stage and, if the area is large enough, a *post office*
Community facilities	A local *market* and many small *stores* and *bars* are established at the time of occupation; *primary schools* are also organized and put into immediate operation (with volunteer or locally contracted teachers if necessary); a *chapel* or shrine is set up and neighbouring priests are invited to officiate	Commercial facilities are expanded and complemented by *artisan workshops* for domestic and building trades; TV sets with private generators provide local *cinema* services; a *parish centre* is often instituted providing many additional services: additional schooling, health, etc., as well as religious; locally instituted primary schools are adopted by the State and *additional schools* are provided; *medical treatment* will be provided by visiting doctors and dentists and a local *pharmacy* will be established	More specialized commercial facilities are established if the population is large enough—e.g. *commercial banks*, *specialized stores*, *cinemas*, *restaurants*, etc. Local workshops will develop into *small industries*, e.g. for the manufacture of furniture, delivery tricycles, etc. *Day nurseries* are often set up with outside agency help and *clinics* fully installed; all professional services will be available locally
Structures	Initially all structures are *provisional* but *starts* on permanent dwelling structures are made at the earliest possible moment in order to consolidate claims and invest savings before purchasing power diminishes	During the first years the *shell of a first floor* is generally completed enclosing an average of 1100sq. ft. of roofed space; permanent *school structures* are built during the first years	After about 10 years the ground floor *one-family unit is completed* and a (potentially independent) *second floor is started;* commercial and public buildings will be completed or built to modern standards
Public utilities	Initially *water* for domestic and construction use must be brought by lorry and sold by the 50-gallon drum (at about 1s. per drum); no other 'utility' is provided at this stage	Considerable and occasionally successful efforts are made at a relatively early stage to obtain *water mains* and *mains electricity;* more frequently water continues to be brought by lorry but local electric generators are set up to supply immediate neighbours	*Water mains*, *mains electricity*, sewers and the *surfacing of main roads* may be completed during this period

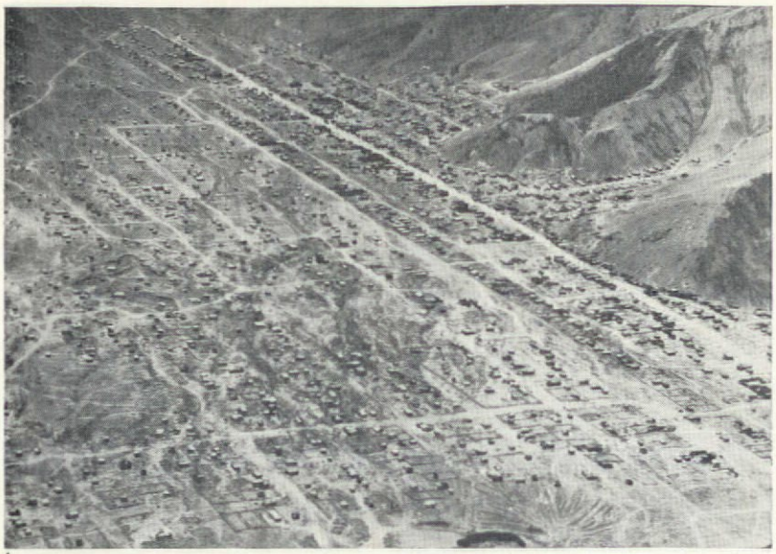
The essential lesson that I learned through long association with *barriada*-builders was how to distinguish between the architecture of *moulds* and the architecture of *systems*. Because the architecture of the *barriada* is based on a system it can respond to changing demands and it places itself in the hands of the user—it is a vehicle that he can drive in many alternative and unforeseeable directions. This cannot be said for the superficially sophisticated project which governments sponsor with vain intent of eradicating *barriadas*.

Charts A1, A2 and A3 show one aspect of the social change that takes place: the *barriada* is established by young families with a high proportion of very young children; after passing through an intermediate stage when the ratio of infants has dropped and the average age of the adults has risen, the local population structure is similar to that of the city as a whole. After 10 or 15 years, the *barriada* population is spread across the generations and is balanced between the sexes in the pattern typical of cities in rapidly urbanizing countries. These demographic changes, together with the changes of household structure, translate into changing demands for schools, health services, transportation and so on, as well as for the volume and organization of domestic living space.

Charts B1, B2 and B3 show the changes of income and income distribution that commonly occurs during the *barriada* development period. Very young families who establish the *barriada* have low or very low incomes; they are upwardly mobile, however, and their incomes increase substantially over time—if the three different cases of the same type of settlement (at three stages of development) are as representative as I believe, the average household income trebles during the most rapid development period. As the majority of the permanently resident families enjoy rising incomes, the socio-economic spread or heterogeneity of the population increases, along with the density, intensity and diversity of activities.

Charts C1, C2 and C3 show the changing demand and, by inference, the changing priorities for the basic components of the physical environment. Each column on the charts represents the percentage of the population, at each stage, that both demands and has the material means to obtain or to use the component. A study of the incomes and family structure of the incipient *barriada* in the context of Lima (which, for instance, has a very mild climate and virtually no rainfall) soon leads to the conclusion that the highest priorities are for building land, transportation and local community facilities—all of which are cheap and all of which are essential for the low-income family moving from an inner-city, rented slum to a peripheral *barriada*. With these components, the family can live, and generally much better than in the worst kind of slum, erecting a provisional shack and buying water delivered by lorry. A decade later, however, the vast majority can afford the full complement of modern utilities; the increased density also makes their installation necessary, just as increased income levels and status heighten the demand. It takes the average family at least 10 years to complete the ground-floor, first stage of their house and it is only when the structure is well advanced that the full complement of installations is required. The demand for rental accommodation grows, at the expense of owner-occupier properties, as the area diversifies and as land values increase. Opportunities for local employment will also increase, especially for those with very low incomes who cannot afford to build or own a property at the level achieved and who, therefore, demand rental accommodation. This demand is met by original settlers seeking secondary sources of income who sub-divide and sub-let their property in part. Although this process often results in slums that really are a health menace, there is no intrinsic reason why this should be so; sensibly regulated, it provides an economic and socially viable answer to an acute problem.

The schedule of actual development (Chart D) is self-explanatory and confirms the environmental 'fit' or 'response' of the progressively developing *barriada*. It is not a perfect fit, of course, either socially or economically and however enthusiastic one may be over the qualities emphasized in this article, the architectural form of the planned *barriadas* leaves much to be desired.



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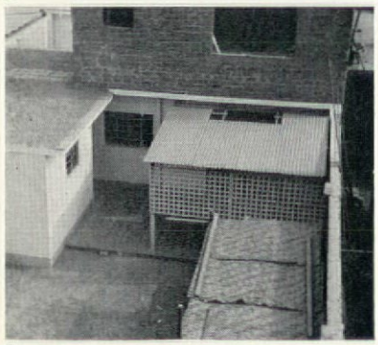

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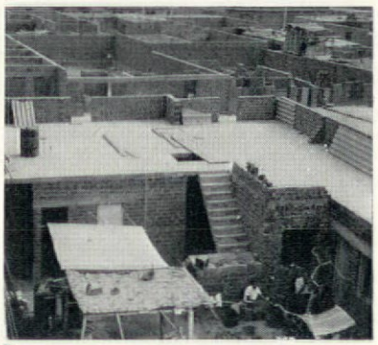

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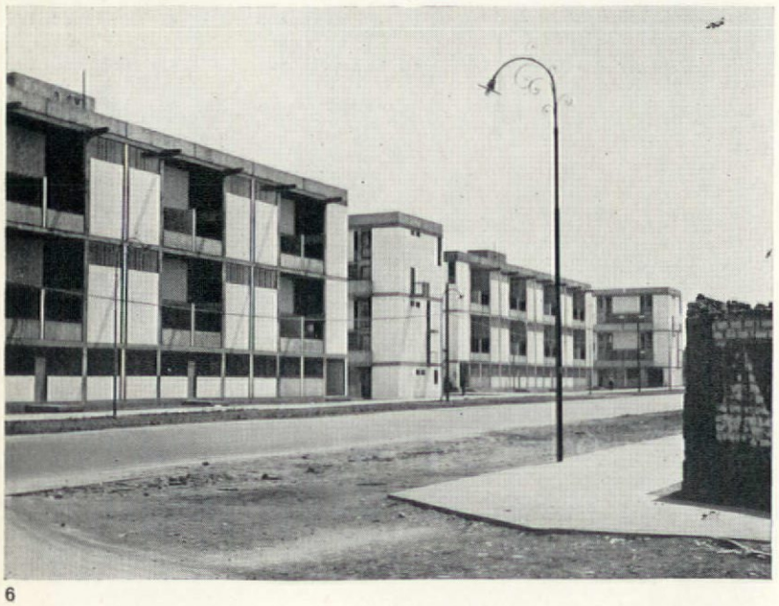

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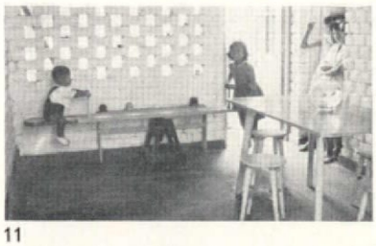

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13

1 Initial *barriada*, Señor de los Milagros, 1959

2 Initial development, permanent construction has started and electric light and power has been installed (an enterprise that failed here), Pampa de Cueva, 1963

3 Secondary and tertiary development, San Martin de Porres, 1963

4, 5 Housing, San Martin de Porres, 1963

6 Government subsidized housing for skilled workers and low-income white-collar employees, Lima, 1965

7 A new arrival prepares food in her rented, all-purpose room, 1961

8 An acculturated migrant in her kitchen, 1961

9 A newly established *barriada* with a primary school in the foreground, Pampa El Angel, 1963

10 A multi-storey *callejón*, an alternative for those who can afford it. Many flats have windows only onto the well. 1963

11 A children's playspace in a finished house, 1961

12 Families and friends building with the help of specialized labour for skilled operations, Arequipa, 1958

13 *Callejones*, rented tenements where the majority of the population live if they cannot move to a *barriada*, 1963

Photos: J. Turner 2–6, 9, 10, 12, 13; *Raul Becerra* 7, 8, 11

unlikely to be for plastered masonry walls and ceilings, let alone for modern kitchenettes and w.c.s. These are extremely costly items and, unless furnished properly, their naked dinginess is often alien and unattractive while the honestly poor shack is often personal and warm. The most important architectural advantage of the squatters' procedure is the consequent adaptability of space and structures to the changing needs and behaviour patterns of the family. Over one generation of a family the changes can be immense: a young couple can have had a dozen children and the household can have expanded into an extended family with 15 or 20 members (with the arrival of grandparents and sundry relatives) and it can have shrunk again to an ageing couple living alone or with an unmarried child or two. In the same period the family's life-style can have changed from that of the semi-peasant to that of the modern urban middle or lower-middle class. The typical *barriada* house starts as a shack or as a group of shacks and ends up as a two- or even three-storey house—often subdivided into several separate dwellings occupied by the original squatters' children or rented in order to provide the owners with an income in their old age. The ground floor is often used as a shop or workshop (7 per cent of the houses in Pampa de Cueva were used in these ways five years after its establishment). This freedom to manipulate one's own living space is extended to the community as a whole: it is the local association that generally decides on the number of schools, open spaces, markets and so on. Local community associations work hard to establish all kinds of facilities and services, from primary schools to sewer systems, but they often fail, mainly through lack of the administrative know-how and credit assistance which their governments should be providing them with instead of uneconomic and inflexible housing projects.

That the mass of the urban poor in cities like Lima are able to seek and find improvement through home-ownership (or *de facto* possession) when they are still very poor by modern standards is certainly the main reason for their optimism. If they were trapped in the inner cities, like so many of the North American poor, they too would be burning instead of building. The mass-designed, mass-produced environments for an increasingly homogenized market of mass-consumers are no more than assemblies of material goods devoid of existential meaning. They are not the product of dialogue. Decisions are made for a producer's market by those themselves bound by highly institutionalized norms and procedures. The occupant buys or rents a ready-made unit in much the same way as he gets his motor car or TV set—and if it is a flat or in a tightly controlled subdivision, he can do little more with his house than he can with the other manufactured 'goods' essential for his way of life. The intense dialogue that takes place between squatters planning an invasion, and the continuing dialogue of its development and administration are, with rare exceptions, totally lacking in the modern housing process. □

THE DILEMMA

architecture in an affluent society

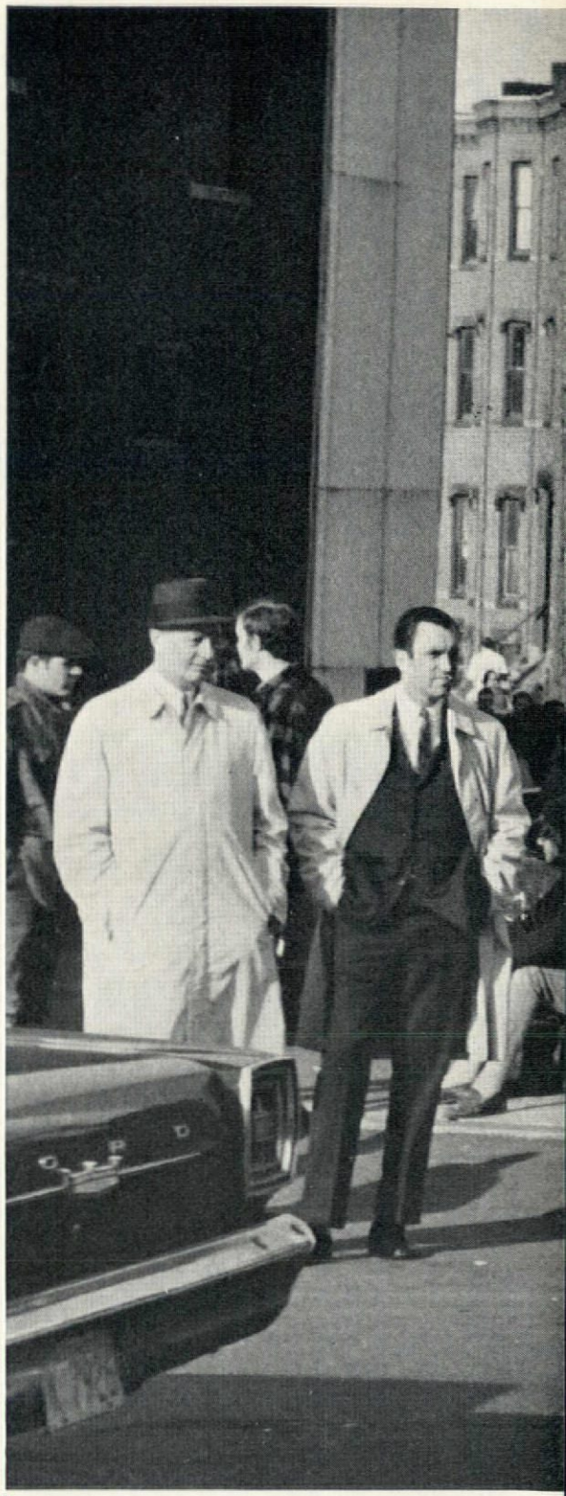
Lisa R. Peattie
Photographs by Hans Haun

1

1 Drop City, Colorado, a cluster of domes made up with timber frames and hammered car tops. The young inhabitants are dedicated to a communal life.
(See *AD* 11/67, p. 491)

2, 3 Demonstration to highlight neglect of poor people's housing.

2



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It is not true that the cities of the developed countries have no squatters, although many people believe so. In a recent autobiography dealing with life around the University of Chicago in the 50s, Mark Benney describes how when he told his academic colleagues he had found southern Negro migrants to Chicago living in self-built shacks on what had been vacant lots in the Chicago slums, he had to take them there and show them the squatters before they would believe him. It is not generally known that a part of the population of Hamburg are squatters, mainly of mature years, the residue of the destruction of housing by war bombing and the war movement of refugees. The Algerians of Paris have built squatter settlements in the classic pattern.

Perhaps a good deal of what might be called 'squatting' in the big cities of the developed nations does not involve the building of housing at all, but rather use and re-use of old housing stock, as in the 'crash pad' of the American hippies where a slum apartment becomes, with the help of a lot of mattresses, a place where people can stay for a time without ever entering into formal landlord–tenant relations.

But it does seem clear that in the cities of the developed nations, squatting is not general and does not serve as a major institution in the production of housing or the shaping of urban institutions. There are, also rather evidently, a number of reasons why this should be so. It is not simply the factor of climate, although it is true enough that the simple building techniques and rudimentary material resources represented by the squatter shack make a provisional sort of shelter much more tolerable as an interim dwelling in a warm climate than in the winters of Paris or Chicago. But it also seems to be important that the institutions of the developed countries constitute an environment unpropitious for squatting. Not that those of the underdeveloped world welcome squatters: it is not for nothing that squatter settlements of Lima or Istanbul are said to take place by 'invasion',

often involving almost military confrontations with the police. But the formal institutions of the underdeveloped world in effect leave a place for the squatter settlement which is lacking in their developed counterparts. Of course as cities grow and develop, it becomes progressively harder to find land which is not already both in ownership and in use; we may expect that with the passage of time many of the owner-occupied dwellings of the present squatter settlements will be rented out to tenants who may be expected to have a different relationship to their dwelling environment than the original founders of the settlement. But it is also that the developed countries tend to have a political and administrative capacity to control which makes it difficult for people to operate outside the formal rules of the system. The underdeveloped countries have rules, too—a person who intends to build legally in Caracas must get permits from, I believe, seven different government agencies. But at the same time, over a fourth of the dwelling units in Caracas are squatter dwellings, built without reference to any government agency at all. Inspectors and policemen may come and object, but rare is the occasion when they are able to prevent or undo the illegal building. I believe that in no major American city are building codes and zoning ordinances uniformly enforced, but the fit between book rules and actual enforcement is surely much closer than this.

This capacity to enforce is supported by the undeniable ability of the institutions of the developed countries to deliver the goods for most people. Our institutions may not satisfy everyone equally, or anyone completely, but it would be unrealistic quibbling to deny that our institutions do pretty well by rather a large proportion of us; this is why our governments enjoy the degree of support required for the kind of enforcement they can muster. The squatter settlement, as a major institution, exists in a setting where there are in effect no alternative working institutions for satisfying the needs which they represent.

Yet our institutions could do with a deal of

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Today.
BIRCH

The site of Tent City is the property of City Fire commissioner Fitzgerald. The purpose of the demonstration organized by the Community Assembly for a United South End (CAUSE) was to indicate that there are large pieces of vacant land which can be used to support human life and, therefore, to highlight the Boston Redevelopment Authority's neglect of poor people's housing. CAUSE was established in February 1967. CAUSE organized its first demonstration, picketing the BRA's local office on April 23rd, 1968. Since this led to no official response, an attempt was made to close the building on the 24th and, on the 25th, it was occupied by the demonstrators. On ejection by the police, it was decided to picket the Fitzgerald parking lot. An incident provoked by an impatient car owner, led to the arrest of 23 persons. It was then decided that the lot should be occupied and Tent City was established at 7 a.m. on Saturday, April 27th. The lot was held until 1.30 p.m. on April 29th. The City Council has now passed a resolution for the establishment of an Urban Renewal Board to be elected by local residents.

improvement. As vehicles for the kind of self-determination and creative shaping of one's own environment which any squatter house builder has within his grasp, the options lying between a Greenwich Village apartment remodelling, Drop City, and the owner-resident's dwelling at the outer edges of metropolis still leave a large proportion of the population fitted into the Procrustean designs for living of the builders of large multiple dwellings or mass-produced 'subdivisions'. Those at the lower end of the economic range are more constricted still, for one of the very considerable things which money can buy is a turf, a space, within which one can enact one's own view of the good life. The poor in American cities find themselves scrimping to pay the rent which is a substantial portion of their limited income on slum apartments in which they have no equity and which they have no incentive to improve, or fitted into one of the decent, safe, sanitary and bureaucratized slots of a large public housing project with its rules and regulations prohibiting pets, alterations, or the taking-in of relatives.

What seems to be needed is a set of strategies which will make it possible to use the productive and managerial capacity of our kind of system in new ways. We have a powerful set of institutions for producing, distributing and managing the buildings in which we live. But with all their power, these institutions serve many of their clientele indifferently well, and for a number appear as hostile, implacable, and self-serving. We need to change our institutions so as to make possible a building environment of greater flexibility, of greater responsiveness to the needs of human beings who are not, and we hope never will be, mass-produced units.

Surely a problem which has hardly been addressed in our technological system is the problem of how to produce housing which is not only cheap, in the way our technology could surely make it cheap if our system of institutions permitted mass production in housing, but also flexible. For the latter goal, the way surely lies through some sort of strategy involving systems and components, not through the 'complete package' sometimes envisioned by the proponents of industrialized housing production. We do not expect anyone to welcome enthusiastically a total packaging of their wardrobe for the next thirty years; we do not even expect that for furniture. There is no reason to expect that the total package will work in housing. Mass production means separation of the designer from the client, but anyhow, the client for housing changes as people move about, and any one client changes over time as his family needs change. We need a product or a set of components which can respond, one which will adapt to the needs of a particular client at a particular time, but which can take on a new organization when the need appears.

Meanwhile, with such a technical revolution still in the future, what can be done to make or find a response-able environment? There should be a lesson for architects in the fact that the successful strategies now used seem to by-pass the profession.

One sort of strategy is the Drop City strategy: find the spaces in the system and occupy them. Sometimes this means starting a new life-style experiment somewhere in the country. Sometimes it can be done within the cities. One of the elements in American slums has always been people who wanted to experiment, with art or with life, who found in the slums the low rents and the freedom of action which made possible a greater degree of flexibility.

Sometimes, by joining together, people find that they can occupy a turf and make it theirs, as no one of them working alone would be able to do. So, for example, a group of neighbours find that they can work together to make that vacant lot into a playground or a neighborhood common, or that vacant building into a community centre.

One of the aspects of the movement of the American Negro in recent years has been the evolution of the movement from demands phrased in individual civil liberties terms to a more communal demand for 'black power' and for a decentralization of urban institutions which would make it possible for black communities to control the institutions of their dwelling environment, to make the schools, the businesses, and the housing the black community's own.

This demand will be heard more and more in American cities, and it is clear that it must be recognized if American cities are to be feasible communities. But this kind of decentralization does not, and cannot, answer to all the problems of how to make our system answer to people. In the kind of complex interdependencies of the developed societies, no one part can cut itself off from the whole—if it wants to share in the capacity which that whole has to produce and manage because of its scale of organization. Goods are produced and decisions are made—on where highways run, on the management of the economy, for example—at a scale much larger than that of the local community, black or white. The cry from the black ghetto to 'let us control our own institutions' could eventuate in a system in which black people run black programmes with whatever resources dribble into the black community, while the basic decisions on the pattern of city life, of economic development, of the job market which are the basic parameters of life in the black ghetto continue outside their control. The members of the black community would be then in the position of those who have the freedom to arrange and re-arrange the hand-me-down furnishings of a prison.

So it comes to be that the consideration of architecture not as the shaping of buildings but as the shaping of a human environment comes soon to a consideration of forces and movements which are social and political in nature. Such forces and movements are hard to show in an architectural journal. But the view of architecture as the creation of a human environment makes it necessary for architects to see themselves as part of a world where these are basic themes. It is this world which shapes architecture, and which the architect himself may hope to help in creating. □

RECREATING RESPONSIVE ENVIRONMENTS

Rolf Goetze

The pressure to demolish is great; but rehabilitation can provide living space for half the cost of new building.

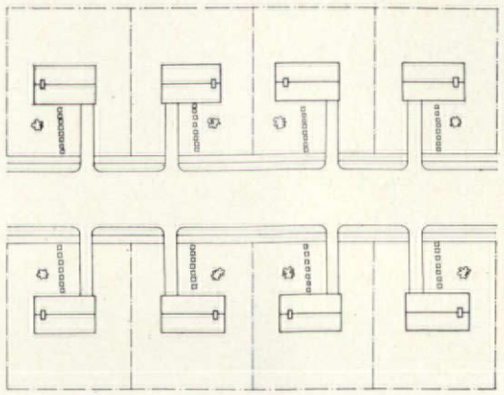
Photo: King-Bison Co.

Learning that the United States must double its housing supply by the year 2000 indicates the need for a fantastic number of new units. But this also points up the need for maintaining the entire existing supply. Improved techniques for renovation, rehabilitation and maintenance could make a major difference in attaining this goal. Approached from a purely economic standpoint, enabling outside operators acting under subsidy to rehabilitate units which are then to be 'doled' or rented to occupants of limited means has pitfalls if the dwellers are antagonized by this outside intervention. Many housing projects clearly suffer from trying to maintain themselves in spite of their occupants. The simple observation that the owner-occupied housing does not suffer the deterioration of rental units, *ceteris paribus*, offers some clues which we can pursue without blindly accepting the 'ownership panacaea'.

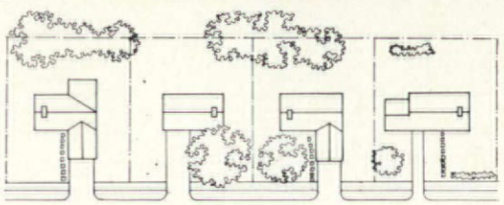
Whether it is a matter of creating new units, or basing one's strategies on the existing stock, no government appears to have the resources to maintain houses *for* people without engaging their complementary co-operation. The problem of accommodation must be viewed as a common task. Acts done *for* someone, without enlisting his support become the *entire* responsibility of the actor. Resident involvement serves as a check to ensure his accord with the action—if he does not accept efforts on his behalf, they are in vain.

Here we argue thus for a very simple but much neglected concern: dweller involvement of one sort or another—more particularly, we class these as *responsible* environments, ones in which the dweller's actions offer the opportunity of a positive, self-satisfying response. This response can be perceived on an individual basis, or communally, or it may be too broad to be felt at all. The environment we are presently approaching, in which actors are divorced from feeling the consequences of their actions, suffers from this lack of felt responsiveness. I offer the notion that 'how well an environment works' is a function of its responsiveness to the dweller inhabitants.

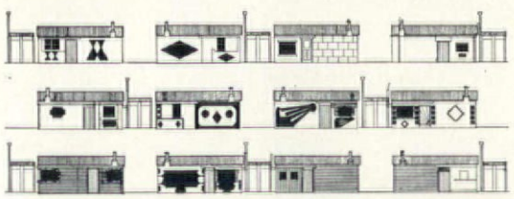
What does this mean? Let's look at a whole range of illustrations, starting with much maligned suburbia. The frequent criticism is lodged against suburbia when it looks like this at its 'date of completion':



But, actually, this is just the date of sale to the occupants. The housing continues to evolve, units develop, change hands, families lose and add members, and the sterile appearing original, with its average family of 2·7 children, has evolved an interesting diversity and variation within an orderly framework provided by the standardized layout. This has occurred because the owner can adapt the unit to his needs and wants, adding trees, ells, patios in accord with his desires:

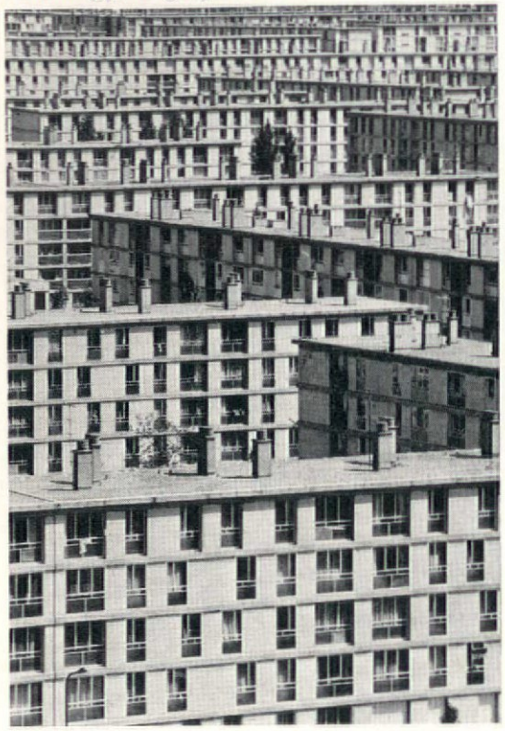


An interesting parallel example comes from South Africa. In this case, the occupants were resettled into government built estates, originally all drably standardized. With paint and imagination, these were transformed into multi-hued variety:



With increasing density and the stacking of units in high rise structures, the chance for individual expression is reduced. Below is a photograph of the imaginative open structural system, developed by Carl Koch, as a flexible, inexpensive framework, permitting a wide variety of dwelling unit variants within it (see *AD*, June 1968).

Must this be finished in the mass produced, standardized manner of so many products of our technological society? This strong framework permits an unrecognized potential for greater variety in the expression of the infilling dwellings. Is not the endpoint of present technological trends summed up well by the following photograph of Sarcelles, outside Paris?



Inhuman monotony Photo: Jacques Windenberger

Actually it is unrealistic to expect or demand that 'environmental responsibility' manifest itself visually.

The real question is in what ways responsiveness can be offered to residents. The following cases, all dealing with the accommodation of persons of limited means within the existing housing stock, offer some promising new developments.

An effort in St Louis has received considerable recognition. There the Bi-Centennial Improvement Corporation (BCIC) has had considerable initial success in extending ownership to individuals whose means were too limited to participate in the regular market. Initially a church-sponsored group carefully chose individuals to become owner-occupants of 62 units. These persons had been designated as poor risks by local lending institutions, but to date there have been only two cases of payment arrears. But how can one increase the scale, by substituting objective criteria for the 'extra-sensory perception' presently used to ascertain the reliability/risk ratio of prospective owners? BCIC relies on its ability to offer risk assurance to investors on the basis of superior knowledge.

Housing Innovations is similarly focused on facilitating resident ownership in Roxbury, Mass. In fact it is modelled on the success of the effort in St Louis. The director Dennis Blackett conducted an extensive survey of all households in the target area. He tracked down absentee landlords, discovering that they range from professionals to returned Negro Korean war veterans, who were able to purchase them with veterans benefits, have now upgraded themselves and moved out using the property as income producers.

In this survey he found a very close correlation between resident ownership and the maintenance standard of the building. Although Housing Innovations has not yet rehabilitated any units, its strategy is clear. The goal is resident ownership of 'triple deckers'. Two units in each structure would be rented, either directly to tenants or via the Boston Housing Authority. The owner-occupier would have lower personal housing expenditures to offset his time and energy inputs in maintaining the building. The effort here is primarily 'preventive maintenance'—a matter of controlling vandalism and neglect; skilled repairs are of only secondary importance, and would presumably be contracted out. Housing Innovations intends to become interim owner only in cases of present absentee ownership, preferring to collaborate with residents. Strategies provide for the input of 'sweat equity', whereby occupants may spackle, paint, and clean up themselves, or get such help as they desire. There is also a counselling service.

It should be emphasized that Housing Innovations' main role is one of providing assurance. Blackett's surveys show that there are adequate resources in the target population to amortize the necessary loans. It has identified a broad group of people who have been able to obtain personal loans, but who are at present unable to obtain mortgages because of conventional bank practices in risk assessment. Armed with a modest capital endowment, and backed by a Ford Foundation pledge, HI is using this capital as a lever to attract conventional investments and guarantee a competitive rate of return.

The third case for scrutiny is even smaller, and closer to the grass roots. The King-Bison Realty Trust has been active in rehabilitation since July 1964. Basically, they have been exploring ways to get more from each rehabilitation dollar. Observing the low level of skill required for the bulk of the rehabilitation work, and drawing on the indigenous, under-employed population, they have proceeded to upgrade several score of dwelling units while training an indigenous work force in the necessary skills. Typically, they have bought a building for $7000 and invested another $10,000, making it stand out among its neighbours. Until the values of the renovated building can be judged, it will remain unclear whether the operation is a success financially.

King-Bison offers several notable achievements. They are training indigenous workers in the necessary skills outside union shops. The programme is open and advancement is commensurate with ability and acquired skill. Thus they have constructed a 'ladder of opportunity' that is rare in the ghetto community. By being realistic about the skill level required to perform a given task, they have avoided the 'unnecessary' costs of having a $6/hour man do $3/hour work. On the one hand they are revealing that significant economies are possible in this realm—fixing existing structures—and that these economies are sufficient to support a training programme, but on the other hand, they know that this area is closely and jealously guarded by unions.

The remaining example is in Manhattan, and involves tenant participation in the maintenance of apartment buildings. The Lower Eastside Neighbourhoods Association (LENA) is setting up tenant management cooperatives for the maintenance and improvement of existing buildings. In doing this LENA is leaning heavily on the prior experience of a landlord in their target area who successfully managed to create tenant participation when the cost-price squeeze restricted his ability to meet their demands conventionally:

He compensated tenants for improvements they made by adjusting the rent.

He hired a skilled tenant to do the difficult maintenance, and provided a workshop, complete with tools, under his charge.

He hired tenants where possible to make repairs and improvements.

He furnished materials and basement space for the tenants to fix up as recreation area.

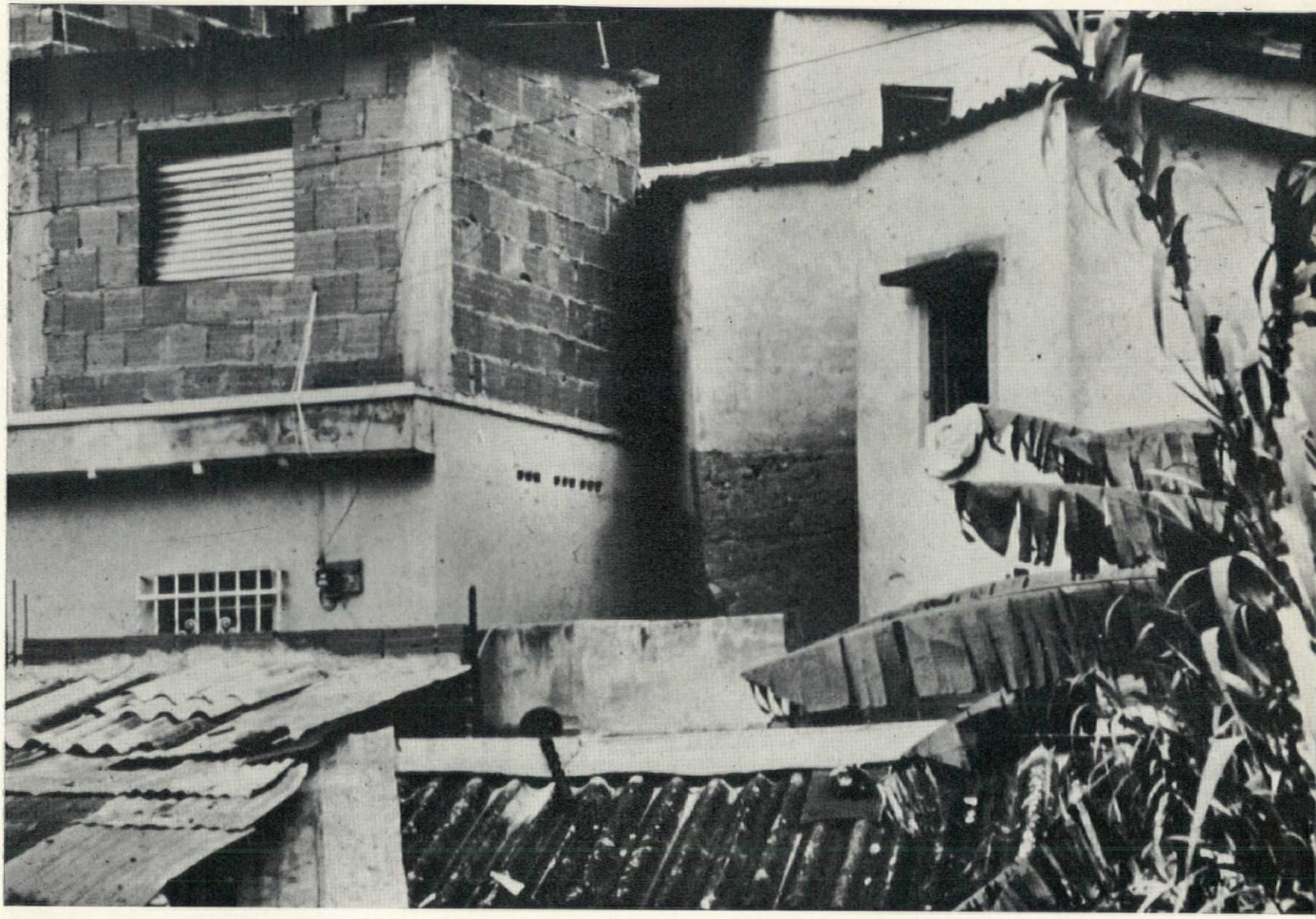
Where other non-profit groups have failed in their efforts to be benevolent slumlords, it appears that where residents have a stake in the maintenance of their building, the conditions improve.

A clear contrast to all these promising efforts is the much heralded housing rehabilitation project in Roxbury, Mass. (2000 apartments, $24·5 million). Robert Weaver, US Secretary of the Department of Housing and Urban Development, came to Boston to announce it this spring. Even before his arrival, George Morrison, acting director of the American Friends Service Committee (Quakers), had termed this Federal Housing Administration-financed programme 'the greatest gift for the white absentee owner that ever came down the pike'. The programme includes $3·6 million in rent supplements.

At the dedication Mr Weaver found the festivities threatened by underlying hostilities, which interrupted the proceedings. Representatives of the affected community read this charge to Mr Weaver:

Secretary Weaver has come to Boston to dedicate a robbery of the Roxbury community. The programme being dedicated has given no consideration to local developers; non-profit developers, cooperative ownership, or local management. It has been marred by racial discrimination in employment and inadequate relocation procedures.

When a cabinet member of the US Government runs into such wide-spread organized criticism of a federally sponsored project at the dedication ceremonies, underlying policies are called into question. The criticisms are well-founded. For lack of time, local involvement was minimal. Non-profit contractors generally get bogged in months of red tape dealing with the FHA—this went through in two weeks. □



SQUATTER-INSPIRED

Ian Donald Terner and Robert Herz

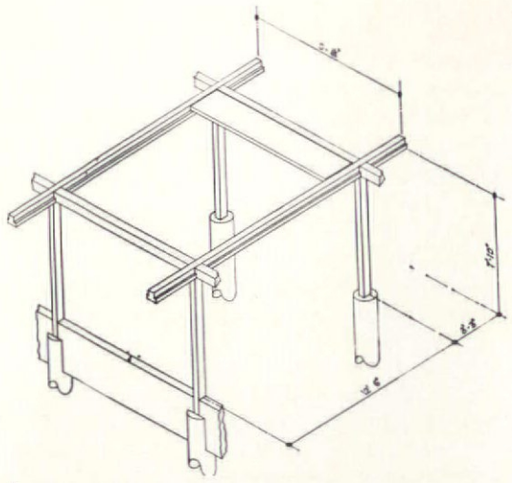
Poverty and social isolation form a common bond between the squatter settlements of Latin America and the US Negro ghetto; yet the two communities are direct opposites on the spectrum of public control. Squatter settlements, with a minimum of public control, suffer acute problems of health, safety and amenity. Located at the city's effective frontier, they are untouched by many of its restrictions, services, and institutions. Yet filling the vacuum created by the absence of public controls is a vital and optimistic sense of direct, independent manipulation of the immediate living environment. The Latin squatter, operating at the social and geographic frontiers of his society, is thus less constrained in his personal attempts to meet his environmental needs. He has taken the problem of his living environment into his own hands by seizing land and constructing an initially crude but improvable shelter, using only his resourcefulness and determination.

His house is demonstrably an immediate and independent product of what John F. C. Turner has called the 'popular sector', rather far removed from the activities of the traditional 'public' and 'private' sectors of the economy and society.

In contrast, the American Negro in the urban ghetto, trapped within the confines of the surrounding society, is economically dependent, and has no access to any as yet undeveloped area where he can 'stake out his claim'. Employment, education, housing, finance, and even crime are controlled by whites from outside the ghetto. Far worse than being excluded from participation in these areas, the Negro's place there has been decided for him; and that place, whether 'out front' or 'out back', is one of dependence and sub-servience. There remains no frontier where he is able to take matters into his own hands.

Traditional ghetto housing, provided by the public and private sectors, has been the tenement, public housing projects, or houses that have 'filtered down' by virtue of being desirable to no other segment of society. Usually owned by non-residents, they offer the occupant neither the sense nor the substance of control over his environment.

The type of housing system described below was specifically designed for Venezuelan squatter families as a response to their ability to fashion their homes with their own hands, although one of its first applications is in the Detroit ghetto, scene of the most serious of the recent urban riots in the US. The system is presented as



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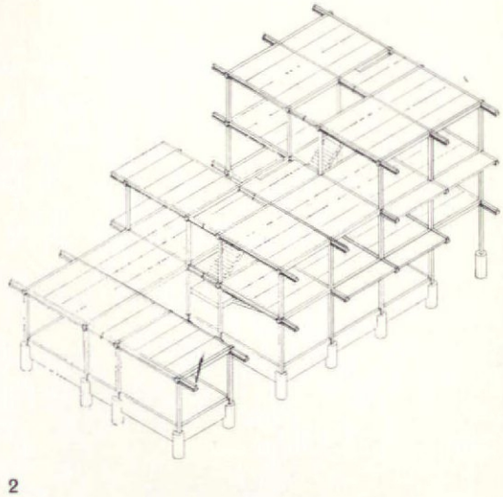

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3

being generally representative of that kind of physical design effort that has benefited from a translation of the attributes of squatter settlement into policy guides for the US ghetto.

The specific system described was developed by Prof. Neal B. Mitchell, Professor of Construction and Director of the Architectural Technology Workshop at Harvard University. The system recognizes the squatters' success in providing housing for themselves that is extremely inexpensive, and capable of expansion in response to their own desires and requirements. However, the system seeks to counter the unhealthy, unsafe, and chaotic growth of the settlements which has hindered their eventual integration with the adjoining city. The system, therefore, is designed to permit squatters to develop their homes independently, as they have in the past, but within a framework which precludes the defects of traditional squatter settlements by assuring structural integrity and orderly growth. Accordingly, the strategy employed a concept of incremental improvements with small components on a self-help basis.

The system is based on prefabricated lightweight structural components that can be assembled rapidly into the frame of a single or multi-storey building. There are four components: a column, a cantilever beam, a tie beam and a slab, as shown in **1**. All are made from precast, reinforced cellular concrete. They can be erected at a building site by people who have no prior construction experience, and no construction machinery is required since all components weigh less than 150 pounds and can be set in place by two men.

The system is designed so that a one-room building can be expanded incrementally into a multi-bay four-storey structure as shown in **2**. It is therefore possible to construct a wide range of building types—from small homes to apartments, offices and stores.

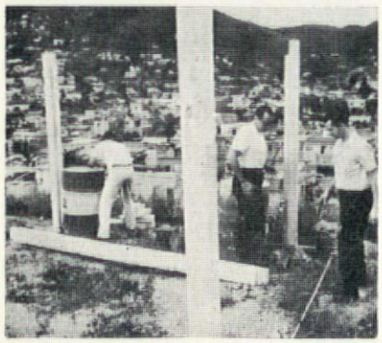
Since the frame bears the total load of the structure, the walls may be supplied and erected by the resident in accord with his means and requirements at any point in time. The structural frame permits the use of non-bearing wall material that functions merely as a climatic barrier, providing the required privacy and security. In addition, the frame allows the dwellers to choose any locally available and culturally appropriate material for low-cost walls, without regard to their structural or load-bearing properties. Within the modular dimensions set by the framing system the walls can also be panelized and mass-produced under factory conditions, and can be attached to the frame at the job site.

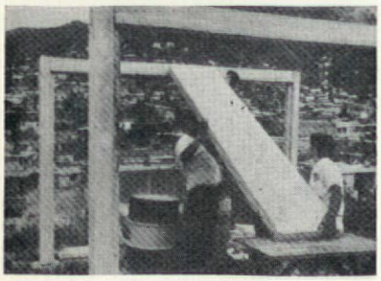
Phase one

Sixteen footings are drilled and poured for each lot by a trained construction team, as shown above, **3**. This is the only step at the construction site which requires trained labour. A stockpile of the prefabricated components may then be delivered to each lot.

The stockpile may consist of as little as four columns, and four beams—enough to build one structural bay. Technical assistance may also be provided which could include a set of complete assembly instructions and sets of step-by-step plans leading to several alternative multi-storey homes.

A time lag between the placement of the footings and the erection of the first homes is possible because the footing excavations do not require destruction or stripping of the vegetation or top soil, and the footing holes are immediately filled with concrete to prevent erosion. Furthermore, the footings do not protrude above the surface of the land to hamper continued cultivation or other use of the lot. ▷

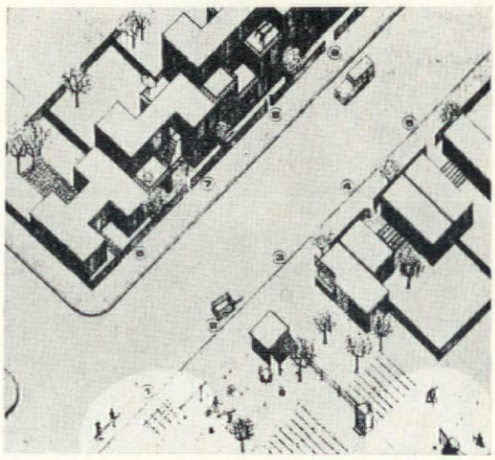


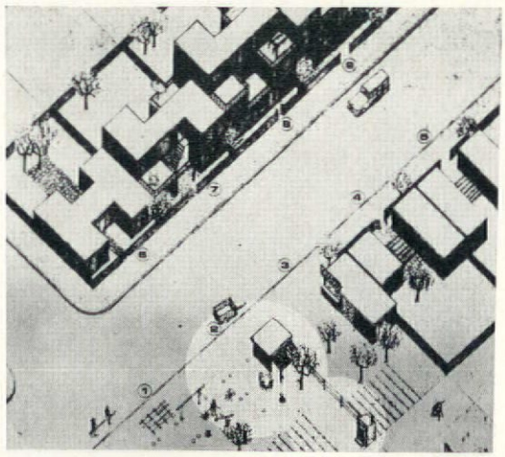


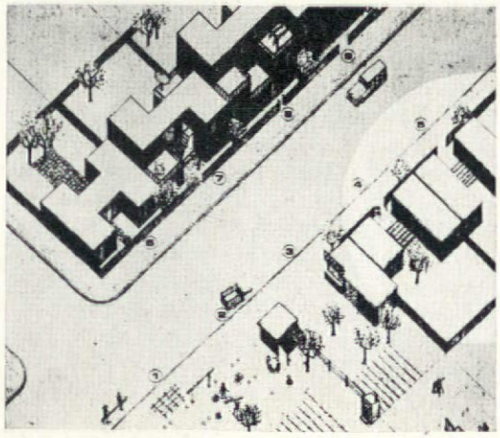
Phase two

The first frame can be assembled in 15 minutes by two men who can lift every component into place without mechanical aid. The men need have no construction training or experience. The product of their effort will be a safe and secure structural frame—resistant to heavy rains, winds, and seismic loads. This frame thus forms the basis of a rudimentary dwelling.

The initial programme, depending on available resources, may include as many optional accessories to the frame as desired. These may be supplied from stockpiles of local roof and wall materials and may include any number of additional finished frames with installed electricity, plumbing, etc.







Phase three

The house can expand, one bay at a time, perhaps with a small shop in the front. Marginal cultivation continues at the rear of the house, and around the unused footings. In this phase, the outdoor privy has been replaced by indoor plumbing. This phased introduction of utilities is made possible by laying the lines under planned roadways or easements, thus avoiding the massive dislocations that would have to accompany the extension of utility services through an area settled intensively and chaotically. Furthermore, the non-structural nature of the scheme's wall system is such that the walls may be replaced and upgraded, and plumbing may be installed in the individual homes without costly modifications or threats to the structural safety of the building.

Phases four and five

The house continues to expand, as a second row of bays is built back from the street, joined to the first, in this case, by a trellis. The second unit may be rented or used by relatives of the first family, or it may simply provide more spacious quarters for the original household.

Phases six to nine

In the final phases, the owner may choose to join the two units permanently and add second, third, and fourth floors, forming a series of roof terraces, gardens, and patios. These variations and alternatives are made possible by the standardized modular character of the frame, the planned configuration of the footings, and the designed development of the total land tract.

The programme described provides less initially than more costly programmes offering completed dwelling units. But it can serve from two to five times as many households with the same commitment of resources. Furthermore, although this kind of minimal programme does not provide a completed house, neither does it commit a large fixed investment to a unit built for a specific set of needs which may soon be outdated. Rather, it represents a challenge to the idea of 'fixed construction'. Starting with a minimum yet safe shelter, it is specifically designed for easy and incremental enlargement and improvement, if and when the needs of the dweller dictate.

The twelve unused footings serve as an incentive and a reminder of the ease with which the family can expand its home. Use of such a system thus attacks the problems of squatting because it is in the dweller's self-interest to build, maintain, and expand the structure within the system and on the footings provided—an economic way of exercising design control that cannot be achieved through legal prohibitions. The programme as described above would depend upon the occupants initially buying or scavenging for wall

infill, as they do now for their entire buildings in squatter settlements throughout the world. However, since the walls in this kind of system are non-structural, they may be of simple reed or bamboo mats, mud or adobe brick, tar paper, scrap wood, gypsum, or even specially manufactured modular panels made from honeycombed and impregnated papers, vinyl, plastics, or metal. The infill serves merely as an environmental barrier, and is selected according to the cost, needs, culture and aesthetic traditions of the residents.

Although completing the house depends on the resourcefulness and skill of the resident, this system assures the safety and structural integrity of every dwelling. Each structure can grow and mature with the fortunes of the dweller without destroying the investment in the original frame, and infill materials can be upgraded simply and systematically from temporary to permanent quality within the matrix of such a prefabricated structure.

Obviously, it was a long way from this kind of programme to a specific project in Detroit's ghetto. Although nearly all of the details were eventually changed, the spirit behind the application of the system remained, and governed all modifications.

The philosophy of the system, derived from the squatters, specifies a very flexible environment subject to a maximal degree of direct and independent control by the resident, thereby encouraging development of the house in response to changing residential requirements. In addition, and perhaps more importantly, control of the immediate environment by those most directly concerned assures that the specific problem of housing will be seen as part of the larger problem of general socio-economic mobility. Squatter housing thus is more than an attempt at shelter and security: it is part of the greater effort to achieve mobility in the society at large. Thus, if the home-owner requires additional income, he can enlarge or rearrange his house to accommodate a renter. If he feels the need of expressing improved social standing, the size of his home or the finishes of the façade or interior spaces can be modified appropriately. Rather than constituting a drain on his already strained resources, the capacities and potentials of his home represent additional support to the squatter in dealing with the full range of problems which he faces; and it is one of the few ways he can capitalize his efforts in a labour-rich economy. Furthermore, with respect to joining the drives for housing and socio-economic mobility, continuous urbanization and population growth have made his creation of housing an increasingly valuable investment.

Accordingly, in the Detroit project, an attempt was also made to exploit the ties between housing and mobility. For example, self-help labour was included not only as an economy measure to bring the housing within reach of the poor, but also as a form of job-training, offering construction experience and job opportunities to the unskilled. The system was designed to permit residential amenities above the level found in the ghetto and to permit a broader economic range of the population to live in and contribute to the ghetto community's long-term development and mobility.

All of the units are designed for expansion, with open and unfinished bays which invite and challenge the family to expand its living space by enclosing them as extra rooms. The naked frames, which can be provided at a cost of less than $2·25 per square foot, provide the immediate amenity of outdoor terraces, patios, and balconies above the grade level.

The same philosophy governed the selection of the sub-systems which had to be integrated into the framing system in order to create a complete house. Prof. Mitchell and his design teams, under a grant from the US Department of Housing and Urban Development, worked closely with industrial manufacturers to develop specialized subsystems such as heating, plumbing, and roofing which would also reflect the lessons of control and independence learned from the squatters.

For example, the heating system used in Detroit had to be perfectly compatible with the expandable and upgradable potential of the framing system. The manufacturer, Lennox Industries, produced a total air environment system that could, in fact, grow and improve at the same pace as the house. The core of compact unit is a very inexpensive ($230) furnace with a standardized, prefabricated vertical duct distributor which can be installed by unskilled or self-help labour. Not only can the system expand simply by adding extra standardized distributor ducts, but, more importantly, it is specifically designed to evolve from an initially austere system into one of considerable luxury, which can include air conditioning, humidity control, and electrostatic precipitation of dust and pollen. Thus the family starts out with one of the most inexpensive air systems available; yet in no way is it 'locked in' to the original solution. On the contrary, the family is actively challenged to expand and upgrade the system, at a pace uniquely determined by it's own interest.

The plumbing system also reflects strategies derived from the squatter. Like the framing and heating systems, the plumbing package had to represent a minimal initial cost, with a capacity to expand and improve. In developing this design, it was the Detroit ghetto community, and not the professional designers, that articulated the key trade-off. They insisted that even in the largest five-bedroom houses, one bathroom was all they absolutely needed, and all that they could afford at the moment. This is contrary to conventional standards which require one and one-half to two baths for a house of this size. Instead, the families wanted plumbing that ran the full height of the house, with stubbed pipe connections for possible future bathrooms. They envisioned the installation of second and third baths at some future time when it might suit them, but wanted only one completed bath initially. Again, they valued a system in which initial economy to the point of austerity was coupled with inherent future luxury.

As in the case of the heating system, it was crucial for Mitchell and his designers to work closely with plumbing subsystem manufacturers. Together with Genova Products, they developed a single-stack polyvinyl chloride (PVC) drain-wastevent system. Although systems similar in some respects have been employed in Great Britain for several years, the combination of the new thin-wall plastic pipe and the single-stack configuration produced a 46 per cent saving over traditional American plumbing costs, making the request of the ghetto families for three stories of plumbing economically feasible.

Moreover, a standard plumbing tree was designed so that identical piping would be used for every storey of every house, permitting high quality-controlled and standardized prefabrication in the factory, and installation by low-skilled workers on the site. The joining of PVC sections is accomplished by a simple solvent weld, replacing the more difficult and expensive procedures for joining conventional plumbing materials.

This kind of strategy aims at the employment problem which underlies the housing problem itself, and uses the construction of the houses as a vehicle for education and job training, and as a spur to indigenous builder and contractor entrepreneurship within the ghetto community. These low-skill jobs are seen not as dead ends, but rather as means of access to better positions; for example, in the case of the plumbing system, as entries to jobs as skilled journeymen in either the broader plastics or plumbing fields.

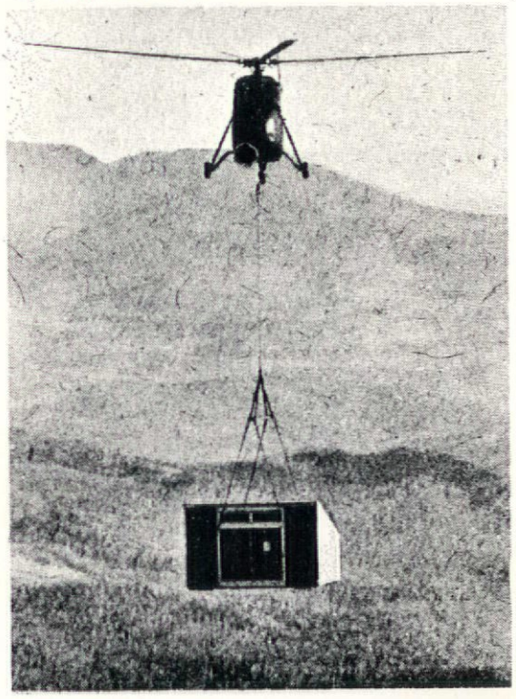
Furthermore, the plumbing system as a whole is another application of the strategy originally employed in developing the framing system for use in squatter settlements: that of employing the most sophisticated technical innovations to produce, under controlled factory conditions, compatible components of low cost and predictably high performance. These components had to be capable of assembly and erection under field conditions by unskilled people.

The peripheral squatter settlement and the inner-city ghetto present opposite problems: of premature deterioration through unplanned investment by squatter-owners on the one hand and, on the other, of accelerating decay resulting from the ghetto-renters' lack of opportunity and incentive to invest at all. Two opposite and complementary policies are therefore suggested: a transfer of control to the ghetto dweller, through the transfer of ownership and the freedom to invest, and the disciplining of the spontaneous action of the squatters.

One such attempt has been presented here—an architectural, engineering, and planning approach to housing which seeks to impose a small degree of control on the squatter—to channel, but not stifle, his independent action; and to infuse an element of freedom and independence into the slum to recapture, in part at least, the spirit of the frontier that has largely vanished from the society of the United States. □

THE MOBILE HOME

prototype for a flexible architecture
by Peter Grenell



Opposite: a GRP igloo, 14ft diameter, by Cohos, De Lesalle and Evamy of Calgary, Alberta. Made up of 12 sections, weighing a total of 480lb, it can be bolted together in 90 minutes. Straight intermediary sections are made to allow for an elongated covering.
Photo: Forum 4/1968

People in post-industrial societies like the United States rarely design or build their own homes. They must choose their dwellings from the rather limited offerings of private developers, public and quasi-public institutions, and so-called co-operative projects. Only the very wealthy can afford to pay an architect to design their homes, or give of their own time and energy to do the job themselves. The recent rise in popularity of loft apartments and old free-standing large houses in urban *grey areas* attests to the existence of a critical but largely unsatisfied human need: the need of individuals and groups to mould their own environments.

Ironically, the fruits of this technologically sophisticated age are only just beginning to be applied to the problems of creating physical environments responsive to individual human needs. Trailers and mobile homes, clearly products of this technically advanced society, represent an increasingly significant option for people who cannot find suitable accommodation within the conventional housing stock.

More than 5·5 million persons now reside in over 2 million mobile homes throughout the United States, and the number is growing rapidly. The modern mobile home bears little resemblance to its forebears of the hirties and forties. Ranging from 10ft in width to as much as 65ft in length (65 per cent of all mobile homes are 12ft × 54–65ft), mobile homes are now equipped with a full array of comforts and services, and are completely independent of outside services except for basic utilities like water, electricity, gas and sewerage. The sheer bulk of these rather sumptuous units has resulted in a paradoxical decline in mobility, and some manufacturers try to avoid the mobile image by calling their products *relocatable homes*. Statistics on moving tell the story graphically. The average American family moves once every five years, while a recent survey of mobile home residents showed that only 23 per cent moved once in five years, while 54 per cent had not moved at all.

Thus, by choice or by force of circumstances, individual preferences are shifting away from mobility toward more living space. This has been recognized by mobile home manufacturers, who now provide 'double-wide' or expandable units. The former are no more than two units which are joined together on the site to give living room space up to 24ft wide. Such units must be broken down and transported separately because of highway regulations limiting wide loads. The latter are single units, portions of which ingeniously telescope for travelling, but which expand on the site to provide extra interior space.

One senses the approach of an evolutionary dead-end, especially when one recalls the shortage of well-maintained, adequately appointed mobile home parks, and other disadvantages of mobile homes such as higher financing charges and lower resale values than conventional site-built homes. Nevertheless, some observers see the mobile home as the vanguard of a fully mobile society in which people will live in factory-built houses. Such

. . . mobile houses will be built all of a piece, or possibly in two or three sections, and then trucked from the plant ready to hook up to utilities at the site. If you don't like where your house is tomorrow, you can just lift it bodily off the foundation posts, put it on a big trailer, and haul it away to a new site you like better. Or if you like your location but your house no longer fits your needs . . . sell it . . . let them move it away, and put a new house . . . on your lot.

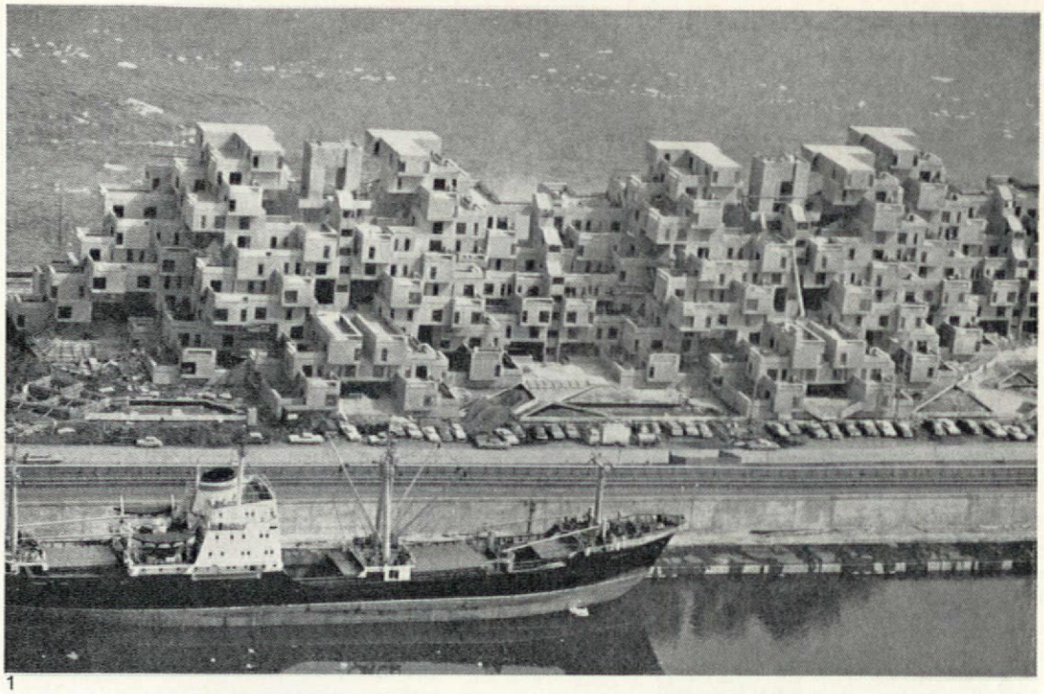
Contemporary mobile homes still have a long way to go to correspond to the above image. For example, certain disadvantages like the limitation to ground level development, even at moderate to high densities, is a definite constraint on the ability of mobile homes to provide a mass solution to America's housing problems. And, although the mobile home dweller can dispose of his unit for a new one, either larger or smaller, more or less luxurious, he still has little more freedom to redesign or fix up a particular unit than the inhabitant of most conventional housing. Moreover, like the house or apartment dweller, he must ultimately choose his unit from the selection provided by others, in this case the mobile home manufacturing industry. In general, it appears that mobile homes do not take into account human fickleness, but are designed more for those with relatively few demands on their immediate environment.

Yet the mobile home is an important and necessary addition to the total housing stock, both for its direct contribution to meeting the demand for housing, and for its implications for future housing design. Designing, planning, and building with boxes have been attempted in a variety of contexts, as reported by *Architectural Forum* (April 1968): Moshe Safdie's Habitat at Montreal, the offices of the Syntex Corporation in Palo Alto, the pre-fabricated apartment blocks of the Soviet Union, the Massachusetts-built 'Nutshell' vacation cottage which can be flown to any desired location, and the proliferation of metal shipping containers in the United States, are only a few examples. All these efforts have at least one thing in common with mobile homes: the design is based on a box or box-like element as the basic building unit. But with the exception of the vacation house and the shipping containers, all the above are designed to remain in one spot after assembly or construction. Mobility is thus limited to the factory-to-site link only, in most cases. Furthermore, except for the shipping containers, the other attempts seem to be based on a conventional view of design and the architect's role, in that the inhabitant or user has relatively little scope for personal expression or articulation of requirements other than those on which the original design was based. Again, in such pioneering designs as Habitat, one senses a deep concern of the architect with creating the best possible environment for someone else *as envisioned by the architect*. As one commentator on Habitat's basic concept described it, '. . . modern architecture must become involved in making an appropriate total environment for modern life.' The question remains as to what the total environment means to different people. As

to flexibility, one may well ask how much is really wanted and needed by different kinds of people. The 'anti-climatic' interiors of Habitat suggest that the confrontation of modern technology with human behaviour in the design arena is only just beginning to be understood by the architectural world.

Perhaps a more promising approach might be to think in terms of living space rather than buildings, and of human needs and desires as flexible over time as well as in space itself. Ideally a basic design unit of the not so very distant future might have the mobility of a small mobile home, both vertically as well as horizontally; interior flexibility approached by Japanese *shoji;* simplicity enabling it to be mass-produced as a complete unit or in component parts; and economical enough to be the primary living unit for most of the population. To start with, there is evidently no reason why the freedom of choice provided by provision of electrical outlets in every room of a conventional dwelling unit cannot be extended to plumbing and other utilities. At a somewhat different scale, this is essentially what is done with mobile homes, which can be 'plugged in' to services as complete units in mobile home parks across the country. The idea here is simply that a person's total living space should be his to do with as he wishes, within certain social limits. He may want his 'room' arrangement altered periodically, and should be able to accomplish this. But he may also be content with the same space allocation forever, in which case he can leave things as they are in his fully-flexible unit, or perhaps buy or rent a cheaper but less flexible unit, just as people now do with mobile homes. Such flexibility would be considerably greater than that presently available with mobile homes, which in certain respects close off many avenues of expression even as they open up new ones. On the other hand, it would not be as limited as the admittedly mobile but fully-packaged (and therefore inflexible) box systems now being built. The latter may be perfectly adequate for hotels, but will probably be lacking for permanent residences.

At present, integrated housing components can be purchased on the market, complete bathrooms and kitchens being the major example. This is in essence an intermediate level of scale between the total dwelling unit and a particular utility function. The principal embodied above could reasonably be extended to encompass the entire concept of housing. Thus, in a completely flexible housing system, complete dwelling units or portions thereof could be attached to common utility cores maintained by public agencies through taxes. Such units could be moved to different locations just as mobile homes or military installations are now shifted, but they could also be shifted up and down as well. That is, one would have the choice of multi-level or ground-level living in addition to horizontal mobility. Moreover, one or more units could be put together to provide larger living spaces, much as 'double-wide' mobile homes or Habitat units function. Such units could also be split off to provide a person with two



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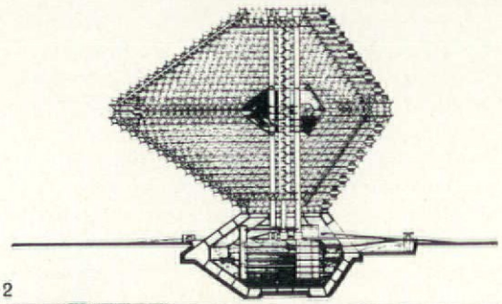

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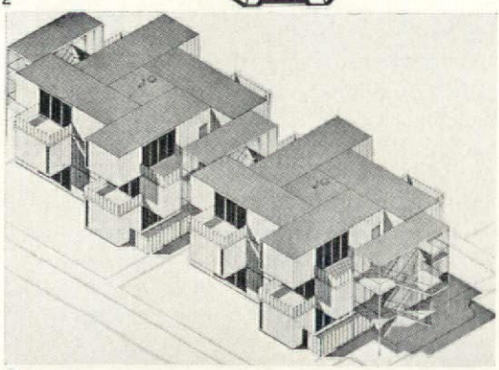

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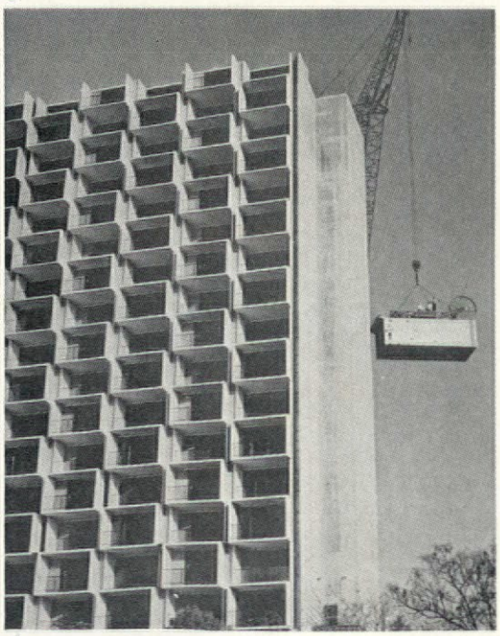

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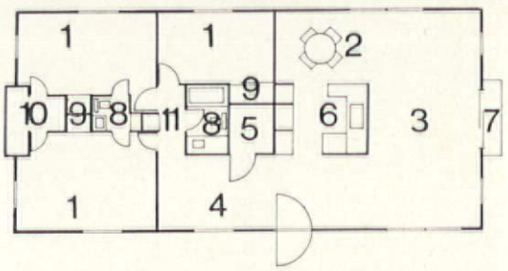

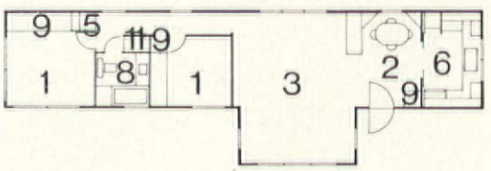

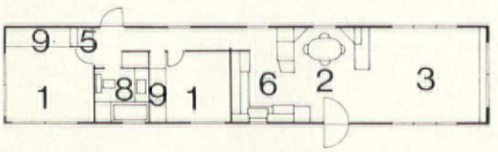

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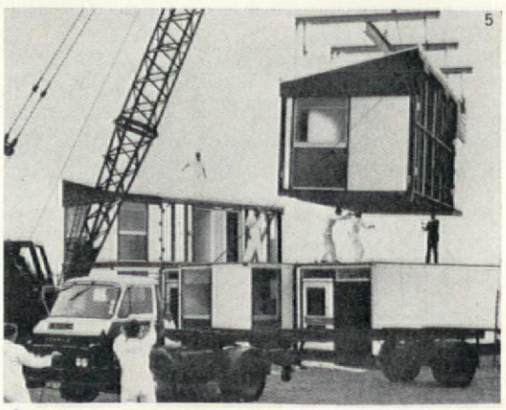
Key to plans
1 bedroom
2 dining area
3 living room
4 family room
5 utility
6 kitchen
7 porch
8 bathroom and w.c.
9 cupboards
10 walk-in cupboard



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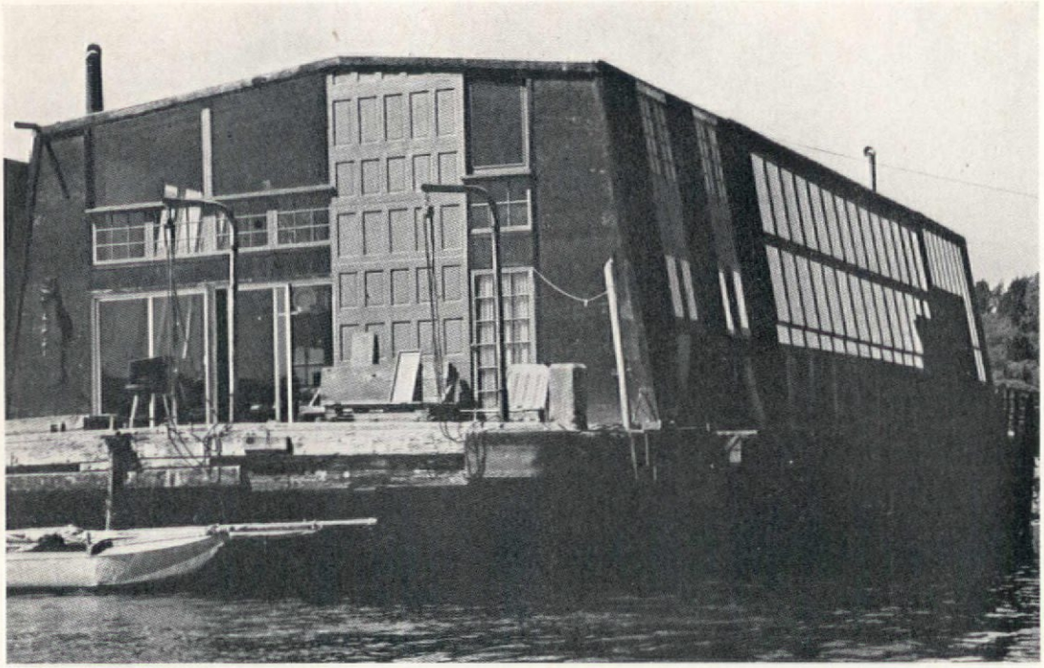

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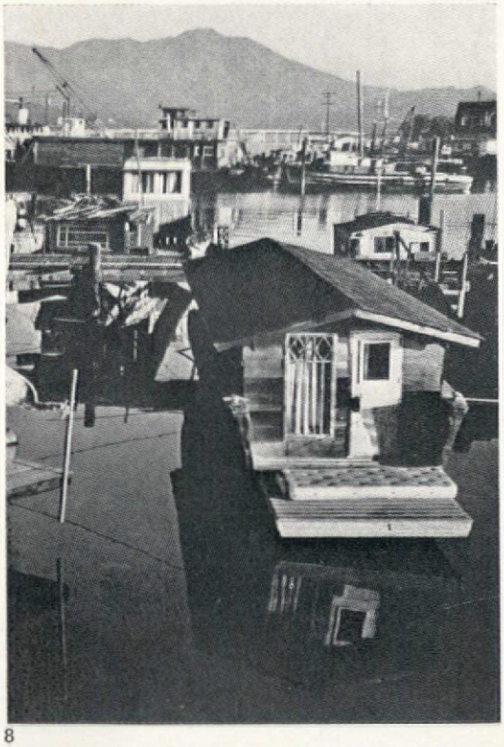

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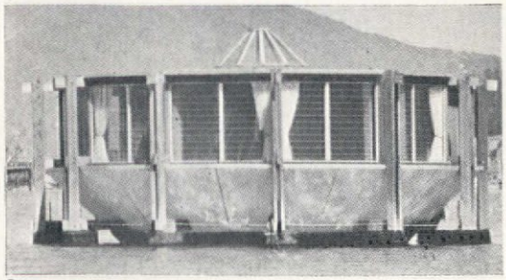

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1 Habitat '67, Montreal, by Moshe Safdie and David, Barott, Boulua (see *AD* 3/67, p. 111–119)
2 Housing project by Kenji Ekuan (see *AD* 5/67, p. 213)
3 Mobile housing project by Ken Fryar and Associates and Ronald Goodfellow for the Department of Housing and Urban Development (see *Architectural and Engineering News* 12/1967 p. 34, and *AD* 2/68, p. 55)
4 Hilton Palacio del Rio Hotel, San Antonio, Texas, by Cerna, Garza and Associates (*Forum* 4/68, p. 84, *AD* 6/68, p. 295)
5 Three variations of mobile home floor plans (see *AD* 5/67, p. 217–223)
6 Row housing, Lydiate, England, designed by Hardman and Horsman for Calders Ltd.
7, 8, 9 Houseboats at Sausalito, just north of San Francisco (*Forum* 3/67, p. 49–53)
10 Urban housing project by Neil Pinney and Peter Ong (*Forum* 6/67, p. 58–59)
11, 12, 13 Mobile homes in the U.S.A.

dwellings if desired. Thus, one might take a vacation in the country by moving or establishing a portion of one's house elsewhere. A department of Housing and Urban Development (HUD)-sponsored study reported in *Architectural and Engineering News* (12/1967), advanced a proposal for the stacking of mobile home units in three-storey blocks around prefabricated or site-built utility cores. The units would be a maximum of 12ft wide to meet road transport regulations. The estimated cost per apartment is 38 per cent less than that of standard building methods, largely the result of standardizing interior room layouts. These ideas are not new; architects have been talking of 'megastructures' for some time, in which similarly flexible dwelling units could be bought or rented, and then placed anywhere along a 'linear city' consisting of a central transportation, communications, services, and entertainment core. But why not keep open the option of locating dwelling units alone as free-standing structures, which could become part of a linear city or a Habitat-like cluster as well? And inside, one could have a variety of choices for interior layout, ranging from a standardized set of component parts to what would be little more than a living 'shell' (also standardized) in which the inhabitant could be free to create, destroy, and change as and when he desires.

Depending upon the constraints of technical and economic feasibility, an arrangement of this type could take any number of different forms and sizes. The total social cost might well be cheaper than that of the existing collection of privately built and mass-produced housing. It would undoubtedly be more efficient technologically. Finally, and most important, it would provide people with at least as much flexibility as is now enjoyed by the more affluent segment of our population, and probably even more.

Of course, the idea outlined above cannot be expected to rise like a phoenix out of the rubble of our existing cities. Parts of it could be implemented, however, even under present conditions. For example, there is no reason why designs for contemporary housing cannot incorporate more flexible arrangements of utilities along lines suggested above.

Ultimately, the concept outlined above implies a considerable restructuring of the traditional roles of planner, architect, and engineer. Planners might be expected to give much greater concern to planning of infrastructure and transportation systems (as in developing countries at present, interestingly enough), and also to the relationship of natural resource development and preservation to creation of new settlements. Engineers would broaden their views of human functions and would have to be more aware of the relationships (or lack of relationship) between different human functions, and the technological supports to human life. Finally, architects might be expected to have even fewer direct relationships with clients than they now have, and they themselves could expect a much greater proportion of their work to find application through mass production. □

MAKING ARCHITECTURAL EDUCATION MAKE IT

Joint Housing Proposal

Mrs Andrea Ballard, Community Organizer,
Lower Roxbury Community Corporation

Professor Robert Goodman,
Massachusetts Institute of Technology

Students:
Michael D. Curd
Edwin D. Child
Robert W. Gobel
Mark R. Haber
Ole Hammarlund
Conrad R. Heeshen
Richard W. Hessdorfer
Walter Rous
Bruce G. Silverman
Robert J. Slattery

Teaching Assistant:
Pietro Ferri

1

1 & 2
Design sessions with students and families
3
The Whitt family.
The children: George Jr., 12; Jesse, 11; Shirley Anne, 10; Timothy, 8; Kenneth, 7; Ricky, 4; Gregory, 3.
Mr and Mrs Whitt have lived in Roxbury for eight years at 21 Haskins Street.
Mr Whitt works at Avis Truck Rental in the North End. Mrs Whitt, who is membership chairman of the LRCC, spends most of her time at home caring for children.
The present apartment is not large enough. The six boys share a 100 sq ft bedroom; the entrance is off the main bedroom; the kitchen has through circulation, and the single bath is not adequate for nine people

2

The project described by Robert Goodman

Traditonal methods of producing low income housing have often involved massive, institutionalized government programmes, removed from the actual needs of their supposed clients. At the other end of the scale there is almost complete self initiative, as seen in the dramatic examples of squatter settlements. Between the extremes there is as yet a great range of unexplored possibilities for responding more sensibly to the housing and planning needs of low income people. One possibility is to apply the energies of students and faculty at architecture and planning schools, in close parallel with the effort of local community groups. It is an approach fraught with a multitude of political problems for the academic institution and the community group. But the possibility for contributing solutions to problems both of the academic world and the community are so rich that it makes the effort worth serious consideration. A great many characteristics of this approach are evident in the project that my architectural design class at the Massachusetts Institute of Technology has been engaged in over the past year.

The class problem may at first seem a modest one—we have produced a design for rehabilitating an apartment building for five, mostly large, low income black families. We have been working directly with these families for over six months. Our task was not simply to present an analysis of their problem and a hypothetical design. The families asked that we produce a real building and although we constantly cautioned them about our own inadequacies in terms of guaranteeing results, they pushed us to the point where we had to try every available housing programme and financing gimmick to meet their request. In effect they forced us into the benefits of a learning situation which we normally don't provide in an architectural design course. We had to develop detailed cost analyses, mortgage tables, speak with financial lending institutions, foundations and a myriad of government agencies. We learned that since there were no government programmes which were aimed at solving the housing problem of large families of low income we had to cut and paste a number of programmes together and sell them to government officials.

We were also forced to re-evaluate our own preconceived notions of housing design. In the search for an available site, for example, the students were concerned about such items as sun orientation, interesting topography and views and 'character' of the surrounding neighbourhood. When the families were actually given a choice of six sites, the students were surprised to find the ones that they preferred given a low preference by most of the families. The families chose a site that was relatively flat surrounded by rundown buildings, and had no interesting views. What the families liked about the site, as one of the local people described it, was its closeness to a major shopping area and public transportation and especially that it was close to where they were living at the time.

A background of protest

The project itself grew out of the battle of a low income, predominantly black neighbourhood to revise the city's official renewal plan for their area. The Lower Roxbury Community Corporation, representing the local community, working with Urban Planning Aid, a group of advocate planners, was able to win a commitment from the city to include new housing for residents who were to be displaced by the renewal plan. Having won the battle, the community group was faced with a three-year time lag between the City's designating the area for renewal and the date people could actually move in. As months passed, the apathy that had characterized the neighbourhood before the renewal fight, began to reappear. Long and tedious negotiations with government officials and potential private developers dragged on. Landlords, knowing the Government was soon to condemn their property and purchase it, were reluctant to make improvements. Housing conditions got worse, and people began to leave the area.

At this point, Mrs Andrea Ballard, the community organizer, asked me about the possibility of doing something that could help at least some of the families living under these conditions and at the same time dramatize the group's efforts to improve the area. As she described it, people felt their lack of power to effect a change. They said, 'We can't even move a brick from one side of the street to the other.' We settled on the idea of using a class of MIT architecture students to help the community. We also decided to use the school's contact with the community as a chance to train some of the local people in architectural skills.

It's not clear now whether we will be able to move that brick across the street, although our chances seem somewhat better than when we started; several public agencies have tentatively committed themselves to our housing programme. Although the training programme was dropped for lack of funds, our experience with it has shown that it is possible to train people with little formal education in many architectural skills including design. What emerges most dramatically is the enormous untapped potential available, in the service of 'enlightened self interest', of both architecture and planning schools and local neighbourhood groups.

Utopia versus reality

For the school, it becomes possible to bring reality into what has traditionally been the world that is neither real nor utopian. Studio problems in architecture and planning schools attempt to 'simulate' the real world by bringing into the classroom a problem which has all the trappings of reality. A real site, with existing conditions, and a programme which is usually something the instructor was doing, had done, or wished to do in his own office. The critics act as pseudo-clients, giving their judgments as to how a client might react, based on either previous experi-

ence or conjecture. At the same time, the critic will usually encourage the student to be innovative, be utopian (but not too utopian) and in general not to be overwhelmed by the 'realities' of the situation. The student is thus left to drift between pseudo-reality and near utopia. On the one hand the fact that the students have no real situation to operate on results is no real test of the practicality of their solutions. On the other hand, being constrained to a vague near utopia severely limits the degree of radical and innovative thinking—a dilemma which is indeed unfortunate, since one of the great assets of an academic environment for architectural studies is the possibility for free wheeling, far out thinking in the best sense of being 'irresponsible'. The present educational process thus tends to develop neither innovative thinking nor the ability to act in the real world.

For local neighbourhoods, faced with the everyday problems of physical deterioration, and the usual massive and insensitive government programmes to 'alleviate' the problem, the possibilities of a close working relationship with more sympathetic and enthusiastic students and faculty could be an important alternative. Since the number of students that could be made available for a project would normally be greater than the number of employees an office could assign, the possibility of personalized attention becomes real. Each of the families in our project, for example, was assigned a student 'advocate' who had the task of determining the family's needs and preferences and to make certain that these were part of our final design. On an individual basis, the students were able to tailor their own methods of communicating with their assigned families—some used verbal interviews, others, models and sketches, while still others used tape recorders.

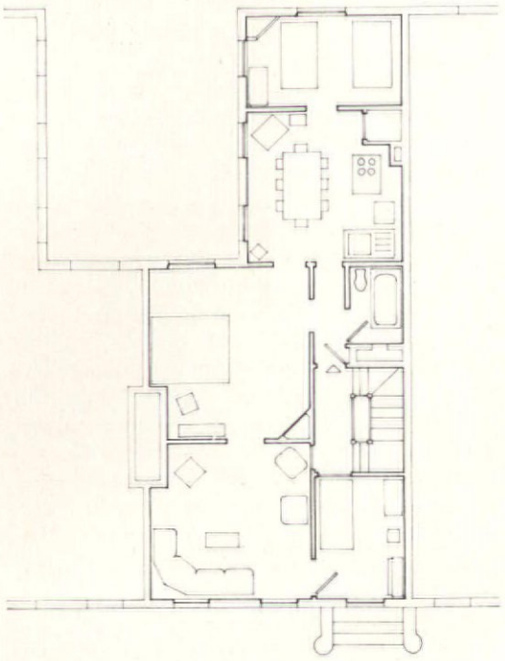
To approach a problem this way requires time and energy on the part of faculty and students to deal with things which seem to have little direct relevance to architectural form. For most architects, including myself, it is frustrating, dull and often seems to take time simply for the sake of keeping bureaucrats in business. Yet not to expose students to the mechanics of how buildings are produced as financial and political commodities is to give them a distorted and inadequate view of the world in which they will operate.

Becoming relevant

I should not minimize the problems of bringing 'real life' community problems into the classroom—they are in fact very difficult to organize in the normal operations of the academic world. Although the design class tends to be the biggest piece of time in the students' schedule, they and the faculty have many other demands. It is not often likely that a community project can be easily programmed to fit the rest of an academic schedule. For one, real projects tend to have a number of 'emergencies' calling for intensive work over a short period of time, requiring a great deal of flexibility in the work day. Lacking manpower and economic resources, low

Site chosen by families and building to be rehabilitated (left), 22 Dade Street, Roxbury

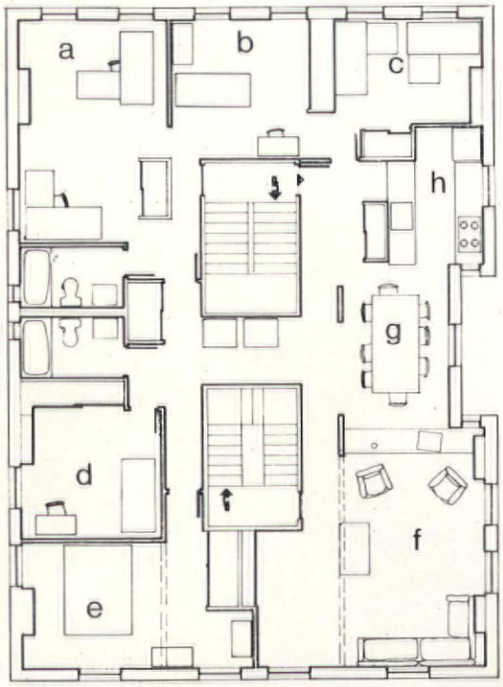
Timothy Whitt, an eight-year-old in one of the families participating in the project, contributed this design for his bedroom



Present Whitt apartment, 21 Haskins St.

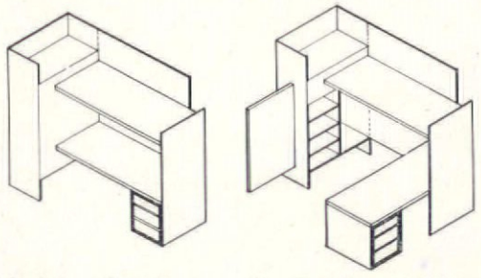
a boys' bedroom
b kitchen and dining
c bathroom
d main bedroom
e living room
f girls bedroom

0 20ft



a George & Jesse
b Ricky & Gregory
c Timothy and Kenneth
d Shirley Anne
e master bedroom
f living room
g dining room
h kitchen

Third floor of 22 Dade Street, as designed by the students for the Whitt family



Modular furniture units for the children. The unit bounds 60 sq ft; height 7ft

income communities run on very helter skelter schedules—leading to delays and a need to 'make work' for students while community decisions are being ironed out.

The community group sees collaboration with an academic institution is viewed in terms of its own problem solving needs, and these needs in its perspective, have little to do with training university students. In addition they have a deep and warranted distrust of the involvement of academic intitutions, especially in black areas. Not long ago the Grove Hall Community Development Corporation, a group of ghetto organizations in Boston, called for *a national boycott of all research projects on planning projects undertaken by the Harvard-MIT Joint Center for Urban Studies under its new* $6 *million research grant from the Ford Foundation.* As support for their stand they stated *Abstract, theoretical social planning has not and, in our opinion will not, produce results.*

A mutual benefit society

What is required then is a radical change in the present relationship between the academic institution for teaching architecture and planning and the community group who need these skills.

Although some of us like to think of the university as a source of enlightened philanthropy, the reality of the situation must be recognized. The model for participation must be one of enlightened self-interest for both the university and community.

For the university, the rationale for investing resources becomes the educational, research benefits of involvement—including public and professional recognition for its accomplishments. Solving their environmental problems and training local residents in design and management skills should act as the motivation for the community's involvement.

A work-study or co-operative programme should be created by the university, which would allow students and faculty to work on urban problems on a full-time basis, outside the normal school curriculum. During this programme, which would be optional and offered for one or two years, the student or faculty member would choose what he considered a relevant outside activity. This could mean involvement with advocate planning organizations working directly with low income neighbourhoods, government agencies, private architectural and planning firms, or the creation of entirely new projects.

Since neighbourhoods act as research and education resources for students and faculty, the neighbourhoods should be compensated by the university. Methods of doing this could range from direct financial payments to creating training programmes in urban problems for local people. This could be established within the university or the university could provide funds for an outside organization to run the training programmes. Such an organization has the advantage of giving people the opportunity to learn from 'on the job' work on specific projects affecting their own neighbourhoods.

Experience with both little educated and highly educated students in design problems and the experience of squatter settlements which John Turner describes, shows that many aspects of environmental design are not as technical as many professionals would like to believe. The layout of functional areas of space in a building, the planning of neighbourhoods both in terms of spatial arrangement and in the programming of desirable facilities are skills which many people with less formal education can accomplish. In fact, by having to deal with problems on a day-to-day basis—problems that planners and architects often only speculate about—the community people have in many ways more going for them than the professionals. In the MIT project we were not simply 'giving' the neighbourhood students information about how to design communities. They provided the class with important information about their community for use in our design work.

Spreading the experts

Too often, the poor find themselves as victims of the government's expertise—the displacement caused by highway and urban redevelopment programmes and the brutal environments of public housing are glaring examples. By refocusing its attitudes and energies, the universities could act as an important force in spreading the experts out on a more equitable basis, giving low income communities the power to respond properly to government programmes and initiate their own ideas. Such experts need not be restricted to planning and architecture problems.

The Action-Study Programme could be included in many other university departments. Community organizing, political activism, criticizing and developing education curriculum (instead of simply tutoring), are all relevant educational experiences. Unfortunately, many of these activities are relegated to 'after school' projects, which often come to the community as makeshift and incomplete. Furthermore, the potential information gained from such experience is usually not systematically collected and evaluated. One important result of an Action-Study Programme would be the use of student and faculty experience and research to generate courses in urban problems. A seminar, for example, could be based on case studies and attended by future candidates for the programme, community residents and programme 'veterans'.

The success of an Action-Study Programme will, no doubt, depend on the university's willingness to break with its traditional role of seeing independent scholarship about the poor and teaching about the poor in isolation from helping solve the problems of this group. The university already has a well and often badly worn tradition of creating new institutions to work with established government, military, and industrial agencies. It is a tradition now under attack by students and faculty in schools throughout this country. Initiating a programme which invites more socially useful participation by the academic community would be a giant step toward a more relevant university tradition. □

NEIGHBOURHOOD COMMONS

Karl Linn

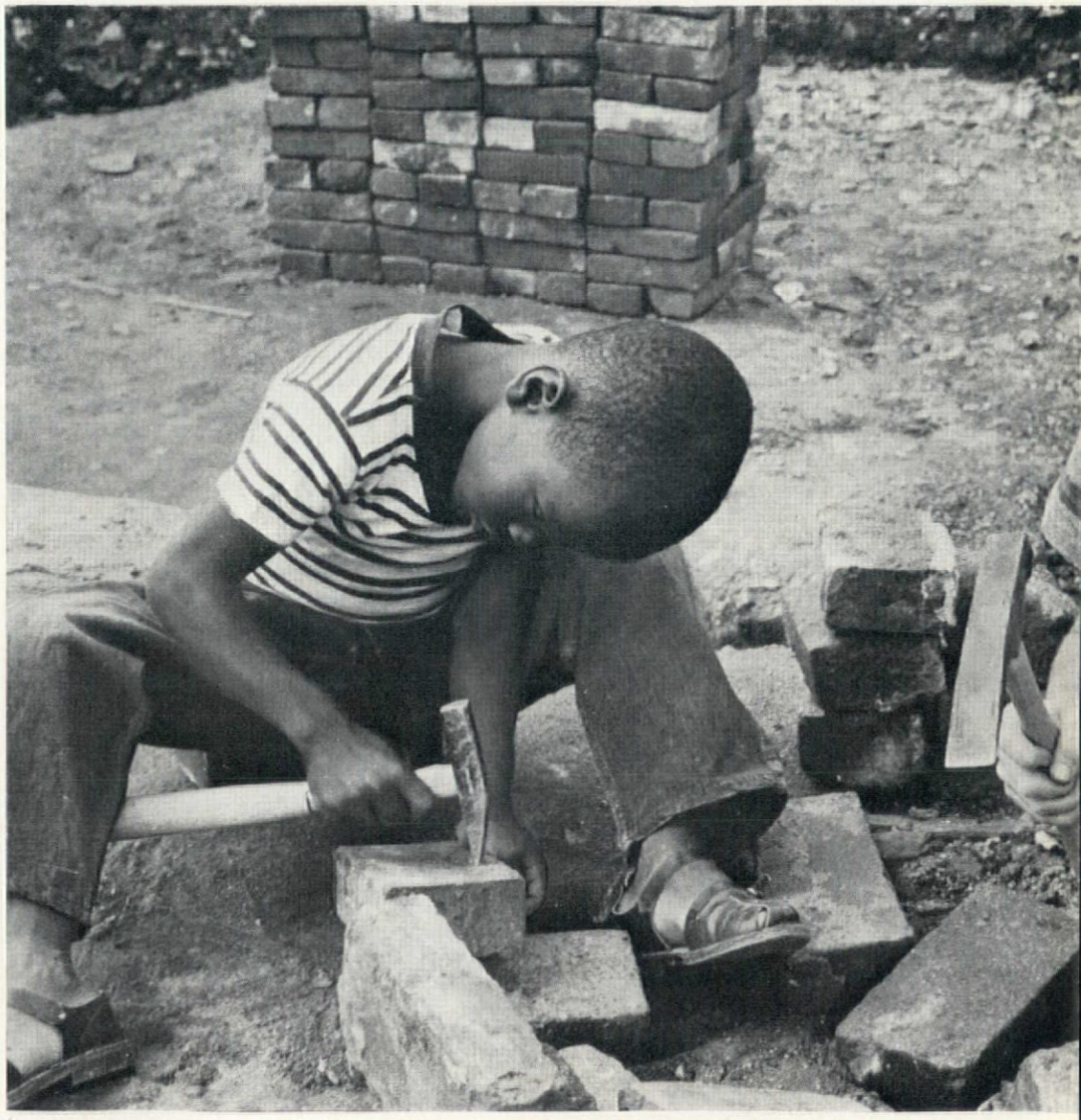
In 1959 I joined the Graduate School of Fine Arts of the University of Pennsylvania to share with my international students the search for a humane environment. The sciences of human behaviour provided us with our first clue. People are alienated from their physical environment if they are unable to leave their personal imprints on their immediate surroundings. Relegating human beings to the role of passive spectators of their environment threatens their mental equilibrium, and robs them of the opportunity to assert their authority, to develop mastery over their places of habitat. The challenge to the designer seemed to be the discovery of a process through which people could participate in making a house into a home.

How could one also accommodate the student's sense of professional calling? Design schools are known to inspire the highly motivated students which they attract, but when these students graduate and begin to work in professional offices, they soon become frustrated and cynical. They want badly to get their hands dirty, to learn about the nature of materials by using them for actual building projects.

Even then, my students at Penn craved contact with living communities to give a reality to their professional existence which anonymous clients and far distant projects never could give. We all desired the challenge of building spaces not for conspicuous consumption but for real needs.

Our search for a 'community-client' who needed professional service but could not afford to pay for it led us to the crowded poor neighbourhoods of the city. We found a lot of children playing in the streets in front of cars, teenagers hanging around at street corners, and grown-ups sitting around and talking on the steps of buildings. Despite the evidence of the prevailing poverty, these neighbourhoods were full of life—a sharp contrast to the seemingly deserted suburbs. We all wanted to earn the right to serve in the community and learn to be the designers working for and with the residents. We were contacted primarily by settlement house workers, ministers, and city officials. They introduced us to lady block captains who were concerned with the safety of their children.

As we looked around we saw that there were no benches, parks or playgrounds close by, only dilapidated buildings and open spaces filled with debris and trees and hordes of children at play. There seemed to be a need for a special place for everyone. A place for children to play safely, a stage where young people could dance, benches and tables for grown-ups to sit and talk, and a shady area of



1

repose for the old. There was a universal need for a block plaza, a meeting place for young and old, which, as time went on, we learned to call a *neighbourhood commons*. The building of neighbourhood commons, we hoped, would also create an opportunity for the unengaged youth and the rest of the community to become proud builders of the neighbourhood.

The learning was hard. Students, feeling liberated, designed monumental testimonies to their own existence. Though residents were outspoken critics, they were easily taken in by the prestige and glamour of 'professional contemporary design'. We should have made clear that our good intentions did not qualify us to become competent specialists in other fields. We were only apprentices of community design. There was no money to build the overly elaborate constructions the students had designed. But the harsh reality had a sobering impact. We learned to surrender to the discipline of the available and to let the project grow out of the existing resources and needs of people, which varied from block to block.

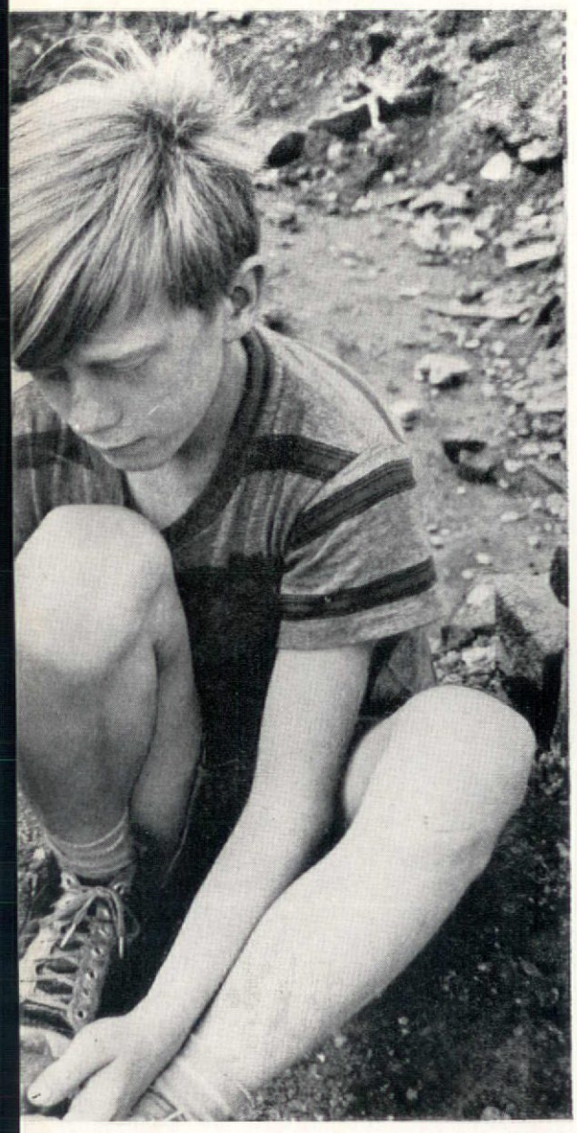
We learned that professional service in a neighbourhood context depends on the development of trust relationships, and not, as we were accustomed to believe, on administrative manipulations. We had to spend a great deal of time in each neighbourhood to become familiar with nuances of the daily lives of the residents and the invisible patterns of mutual aid. We became acquainted with Mr Jones who did not mind if the teenagers hung around his garage to fix their 'racing cars', and also with Mrs Smith who was entrusted with her neighbours' small children and had made room in her basement for their care.

In order to meet the growing demand for service, we had to consolidate ourselves into an 'advocate' Design Corps. However the students' time was limited and the community needed continuous service.

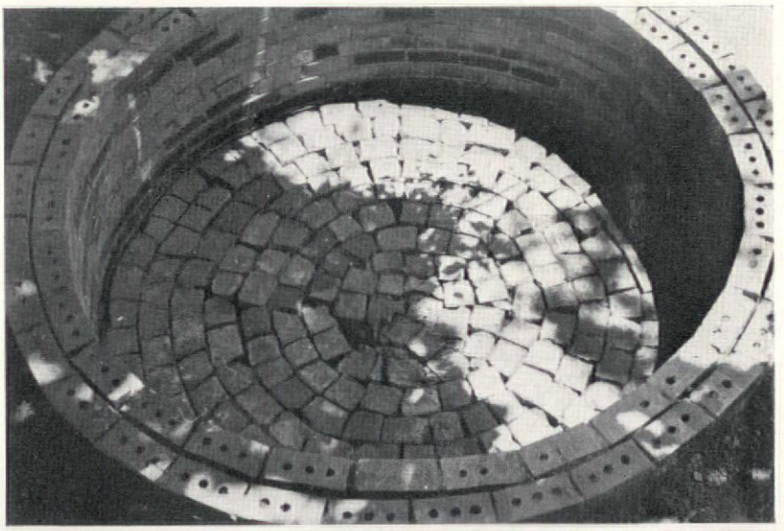
In 1961, we decided to establish the first non-profit corporation. Neighbourhood Renewal Corps of Philadelphia recruited volunteer designers, engineers, artists, craftsmen, lawyers, and others to give guidance to self-help building projects of neighbourhood meeting places. In 1962, a similar organization, Neighbourhood Commons, was established in Washington, DC, with the endorsement of the Washington Center for Metropolitan Studies, the American Institute of Architects, and the American Society of Landscape Architects. In 1963, Neighbourhood Commons of Baltimore followed. Each organization established a Design Review Committee which met regularly to pool information, compare experiences, and create an understanding of the new work. As the number of volunteers grew, we became better 'matchmakers'. Since each volunteer designer was related to a particular block, we suggested, for instance, to an architect with an Italian background, that he should serve his old neighbourhood, which he did most successfully.

A sense of belonging to an area will develop only if residents have jurisdiction over property and enterprise. We succeeded in developing special lease agreements between neighbours and public agencies that administered public lands. In Philadelphia the land was tax delinquent and the city reacquired it and leased it to block organizations. The neighbourhood had to take out liability and property damage insurance policies so that they could build on public land without committing a violation. In Washington, DC, land came from the city government, from the public housing authority, and from the federal government.

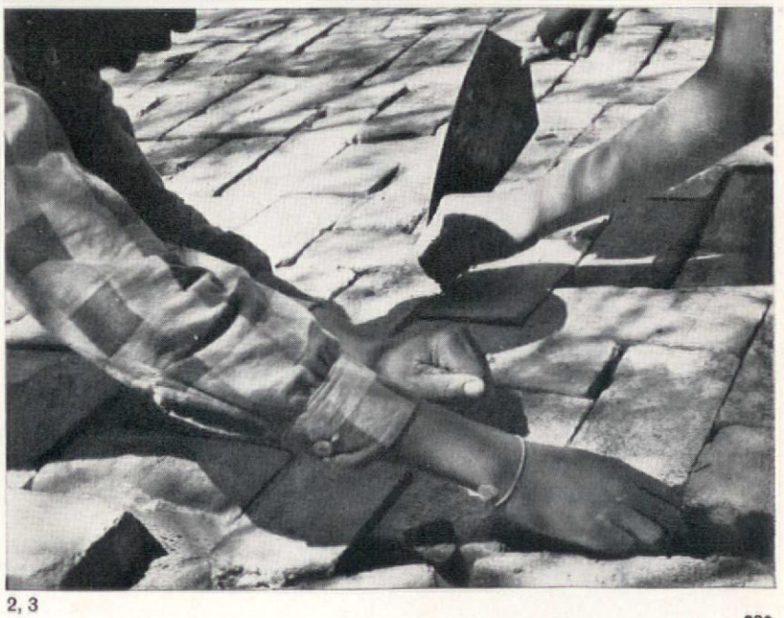
This approach which secured for the residents control over public land was not a special remedy for low income communities, but an adaptation of a trend that is growing in the white middle class suburbs. Already in the late 1920s, Clarence Stein and Henry Wright designed Radburn. In addition to owning their house and private land, residents also owned and administered some land in



1
Boys involved, sharing each others' presence



2
Planned indeterminacy: limited by two degrees of freedom, the shape of the pit and the uniformity of left-over bricks, young children invented this pattern for a drainage layer for a sand-pit



3
Machines alone can never elevate the quality of environment beyond impersonality, but an environment-craft technology can provide new opportunities for the touch of human hands

Photos K. Linn

2, 3

common. In the early 1960s the Urban Land Institute extended this approach and developed the concept of 'cluster housing' and 'town houses on the green'.

A lot of people have moved into non-ownership tenancy, especially in the congested urban centres, where rental housing was available to those who could not afford ownership or preferred not to be burdened by it. An open public space in the city should function like a 'backyard' or a 'country club' by being jointly administered by the respective public agencies and by the residents. We have to shift from the concept of passive spectator use of public open spaces to one that accommodates the emergence of an intensive urban style of living.

The most promising project developed in Chicago. A Neighbourhood Commons Corporation was established which strengthened neighbourhood authority as the residents became stockholders of the corporation.

Today the concept of neighbourhood block parks is well established throughout the country. In addition to the neighbourhood commons which we developed in various cities, the Philadelphia city government continued our work, establishing a special municipal department, while in Washington various public agencies created programmes for the building of neighbourhood parks, and in New York City an extensive vest-pocket-park programme has been launched.

The extension of professional design service into the community also caught fire, and today many universities and non-profit organizations, such as Architectural Renewal Committee for Harlem (Arch), the Pratt Institute Community Education Program in Brooklyn, the Urban Planning Aid of Boston (UP.A), the Urban Field Service of Harvard Graduate School of Design, and the Community Design Center of the University of Berkeley, and others, developed advocacy design service especially for minority groups.

In retrospect we had to learn many lessons: The agency personnel which introduced us to neighbourhoods in Philadelphia and the social service agencies which co-sponsored the project in Washington, were unable to develop trust relationships with teenagers and young men. Even the civil rights organizations which we contacted at that time were more interested in protesting than in building. Consequently our work focused primarily on the needs of mothers. We ended up building a lot of sandboxes, but soapboxes were not on our list, and teenagers often vandalized the projects, since their interests had not been taken into consideration. A neighbourhood park is neither an ordinary park scaled down, nor a tot lot. Since a neighbourhood is a place in which young and old, boys and girls converge, an open space within the block must provide for many uses.

Though the size of neighbourhood-block institutions is much smaller than the size of specialized facilities, such as community parks and playgrounds, the complexity of its uses is much greater. The neighbourhood facility has to accommodate the many simultaneous roles that each person plays throughout the

4
Concrete testing cones used to make a bench. The placement, however, was unfortunate as it did not withstand the assault of teenage gangs

5, 6
Volunteers from the University of Pennsylvania hoisting a cable reel as a merry-go-round

Photos: Karl Linn

4

5

6

day. In a neighbourhood the barriers of specialization break down, any one person is simultaneously a neighbour, a father and a lover. Because of the physical proximity people are known to each other as whole beings and are not identified by labels. The solidification of the neighbourhood as an emerging institution of grass root democracy could slow down the cancerous growth of specialized institutional expansion.

Responding to matriarchial needs of child rearing we seemed to perpetuate a pattern once established by slavery which kept the man away from his family. The welfare cheque reinforces the trend toward separation by making the man's presence financially unprofitable to his family. As we responded to the mothers' request to create playgrounds, not neighbourhood forums, the interests of men were again ignored. If black communities have any priority, it is the cultivation of male leadership, which socially aware designers should be able to facilitate through the development of the appropriate kind of space.

We learned another hard lesson from the reluctance of local teenagers and men to work on a self-help basis. Many were tired on Saturdays, having worked hard at physical labours all week long. But others were concerned that if they cleaned up their area and built amenities for themselves they would just give the city an excuse to invest more money in the white middle class areas which already are getting the lion's share and are not building anything for themselves.

The discouragement with physical construction also resulted from our multilevel approach which required heavy soil moving equipment and a lot of hard hand labour. We realized in due time how distasteful digging in the dirt was to the black community. We are now developing an approach which produces fast results, making the areas rapidly available for use.

Even rents might go up, some claimed, as a consequence of the improvements. All these valid concerns were never voiced by the enthusiastic ladies and their children.

Yet today the picture changes. The growing militancy among the black communities is accompanied by a growing territorial assertiveness which supports their ambitions to develop effective black neighbourhood environments.

We also did not realize how the use of salvage material pained people in low income neighbourhoods. Since we worked with very little money, we used old bricks, marble steps, flagstones from urban renewal demolition sites and built play equipment from industrial salvage material. Cable reels became merry-go-rounds and telephone posts were made into swings and slides. We white volunteers in fact were challenged and intrigued by the inventive use of this kind of material. It was refreshing when contrasted with the chrome and plastic veneer culture of suburbia. But people of run down neighbourhoods felt discriminated against since their dreams reached out toward the new and not towards the old. Even a granite horse fountain which we extracted from the American Society for the Prevention of Cruelty to Animals (SPCA) to be used as a garden fountain produced comments such as 'Only when the horses are through with it, then we get it'. But even the use of new materials did not solve the problem. During the last few years, the city of Philadelphia used brand new materials for the construction of neighbourhood parks. Still, new cinder block walls were destroyed by local teenagers who had not been reached by the community organization efforts of the city.

It is so easy to confuse perception with projection and to superimpose one's own frame of reference on that of others. The difference in our backgrounds created a veil which made it hard for us to see through other people's eyes. This difficulty was especially inherent in the very essence of the volunteer movement. A lot of enthusiastic young people came from fraternities and churches to help the poor, while actually they were desperately searching for a sense of purpose and commitment. To make it worse, the local teenagers resented the intruders on their turf.

Today, hordes of volunteers will have to find new pastures. No longer able to enter black communities *en masse*, I hope the volunteer movement will turn to the 'green deserts', the white middle class suburbs. The confrontation with young men from the Black Power Movement challenges the white volunteer to demonstrate his competence. 'How did you earn the right to tell us and advise us how to live? What have you done in your own suburban neighbourhood that can serve as an example?' This kind of encounter reveals the Achilles' heel of the white volunteer's position. He has escaped and deserted his place of origin because of boredom and frustration, but at the same time his suburbs are also the success symbols for black middle class aspirations. If the white volunteer movement could start to innovate at home, there could be a significant feedback to the black community. Only then will social and environmental innovations no longer be a *remedy for the slums*, but will carry the prestige of the successful American way of life. There really is no other alternative left for the white volunteer movement, since the rising consciousness of the black people compels them to work on their own.

One of the most severe stumbling blocks in our work was the fact that though we always considered our attempts to be experimental, our work in the context of a living community placed us under constant public scrutiny. If a bench did not withstand the impact of teenage energy, this was considered a failure rather than a progressive approximation. Today we know that in order to innovate effectively in a public domain one also needs to have a workshop, a 'sanctuary for failures'. Rather than focusing on the creation of finished products, we are much more intent on inspiring the establishment of neighbourhood workshops, that is 'process institutions' which ensure the growing participation of the community in the development of the environment. □

Environments of cooperation

The early American farmers were compelled to erect their barns through mutual aid. No farmer alone could provide for food and shelter and survive. In the same spirit, squatter settlers in underdeveloped countries had to cooperate with one another, conquering the right to settle by night.

In the past, a sense of community evolved whenever men joined forces to ward off natural and human enemies. Today, man has created his own eternal enemy, the atomic bomb. People and nations are stunned by this overwhelming threat to survival and fight rather than grow in community.

Yet, parallel to the growing global terror, a new awareness has emerged that our civilization must develop models of cooperative existence if mankind is to survive. We can no longer indulge in cut-throat competition and hope to close the gap between our advanced war technology and emotional immaturity which prevents us from living together.

The volunteer movement started with philanthropists and ladies bountiful, who, having raised their broods, sought new purpose and commitment in serving the poor. As it embraced the younger generation, the volunteer movement grew. No longer merely critical of their elders the younger generation started to give new forms to their own existence. During this decade, they have created the Peace Corps and spearheaded the Civil Rights Movement; and now, while some are leading the nation in an effort to stop a war, others are moving to the countryside to establish cooperative communities.

As the institution of the volunteer has evolved, a growing ecological awareness has started to permeate contemporary thought. Dog-eat-dog, rugged individualism and survival-of-the-fittest must soon become anachronisms, and be replaced by a vision of an existence rooted in interdependence.

No wonder the volunteers admire the spirit of cooperation of the squatters and the early American farmers, who erected their homes and villages with their own hands.

Modern machines have replaced most of these forms of building and their builders, and construction today is more 'efficient', but it is uninspired and without warmth.

Since society can ill afford military and social cataclysms, we need compelling visions of life and environment as a framework to unite men. As the building industry tools up to create cities on an unprecedented scale, we have the crucial chance to harness the growing surplus of human volunteer energy. The validity of our technological civilization stands or falls on its ability to engage the energies of man in uncoerced productive work. Machines have liberated men from drudgery, but if they also usurp man's opportunity for serious creative investment, this civilization will decline into idleness and wars. We are at a crossroads and must test ourselves by Buckminster Fuller's yardstick, which measures society's productivity not by its produce, but by the way it uses the creative energies of its people. □


ONG LIVE THE KING

MAUNDY THURSDAY MARTIN LUTHER KING WAS SHOT IN MEMPHIS.

Why must it take a demented mind that decides to pull a trigger to make us move where our reason should have told us to move so long ago? Why do we pour out our grief, with great pomp and circumstance, now that grief comes so cheap? Why this grand 're-dedication' to King's principles, when dedication without ceremony could have made his cause what it should have been—an unnecessary one?

Now business and government leaders come together in a great display of brotherhood, as though it were King's brand of brotherhood they agreed with all along. 'Let's get those civil rights programmes through, King would have wanted it that way.'

After that demented mind pulled the trigger the universities follow each other to create more scholarships for the black man. Where were they before the crucifixion?

How long must we continue to create our martyred heroes so that we can have grand symbols for our cause? Why isn't the cause enough to stand for itself? Why not our exhibit years ago or tomorrow—but not after that demented mind inspired us?

Robert Goodman

All photographs by Nanine Clay except where stated.

Elegy for Dr Martin Luther King

"It's cold, Dr King," said his chauffeur.
"You'd better put on your topcoat."
"Yes, I will. It's time to leave for dinner."
He turned to Branch.
"Be sure to play 'Precious Lord' for me. Play it real sweet."
Then he turned and he raised up his eyes and looked across the street,
and his face flew apart and his arms flailed
and he whirled around and fell,
where a moment before there was only his clear eyes,
now his blood leapt two feet in the air
and fell and began to drip down,
and it dripped down through the floorboards
and down the columns
and down the steps into the street
and down the street into the gutter
and from the gutter through the town
down to the river and flowed out of Memphis
into the fields and the farmlands
through the valleys between the mountains,
turning all the earth red,
so that people drew their blinds and locked their doors
and refused to see the red grass that began to grow up all around,
and the flowers and the vines that creeped up their fences
and struck down to their roots
till they toppled and the sidewalks were laid open,
and then the concrete slabs began to crumble into dust
and yards were undermined and the clapboards were subverted
and the windowsills consumed,
and the people watched in terror
as their houses fell apart
and their newspapers turned red
and then the rifles spit forth blood
and broke apart like wet bread
and flowed into their holders' hands
and at last the fiery curtain descended on us all,
and brought to broken men the taste of sweet golden peace.

Sunday noon
Three students and a professor who had recently turned their attention to working with and modifying the local MIT environment considered how this might relate to their work. King's own organization called for three days of mourning: discussions were planned in Kresge Auditorium.

Sunday at 5 pm
The same group plus another professor[1] talked about modifying their ideas for a contemplated memorial to the dead of the Vietnam War, to a memorial for Martin Luther King. They roughed out a sketch design to accommodate the overflow crowd from the auditorium discussions; create a 'hall of issues' and places where people could write back 'testimonials'; incorporate tables and chairs for groups to form; give a place for an open mike; and give places for booths.

Sunday at 7 pm
A model was started after dinner at half an inch to the foot; the model took up a good deal of the drafting room floor. How could the large space between Massachusetts Avenue and Kresge Auditorium be utilized? One idea was an exhibit to air questions of racism and MIT's involvement as an institution, as well as an exhibit of the life of Martin Luther King, excerpts from his speeches, photographs, etc. Another idea was to keep things low near the street
'THE KING IS DEAD'
and high near Kresge:
'LONG LIVE THE KING'

Monday at 9 am
The model was done after a night's work. A professor talked to his class about their apathy . . . The students left class to help with the exhibit. Others just arrived. The result was fifteen or twenty people turned on.

One group set up a headquarters in one of the faculty offices and ordered wood and supplies; one put up signs for HELP all over the Institute; one started looking for money; one started collecting material for the panels—written and photographic. They went to the *Boston Globe* and to a radio station; they called on organizations to man the booths.

Monday at 11.30 am
A meeting around the model with members of the administration and physical plant.

'What can we do to help?'

They ordered tables and chairs and supplied a truck to get the lumber. Someone suggested making the exhibit in the athletic cage in case of rain. Their main concern was about their grass and the safety of the proposed scaffolding— especially because of the large areas of wind-catching attached surfaces.

Monday at 12.30 am
The Provost and the Dean of the School of Architecture came and were shown the model. They were told that the exhibit was to create a place for dialogue. 'I've never heard of any group that didn't need money,' said the Provost; and both he and the Dean supplied funds.

Monday at 2.30 pm
Another meeting with Physical Plant and this time with the Safety Officer. Nothing was new in the model, but a scaffolding company had been contacted and they had assured the students that they could make their scaffolding safe. Physical Plant sent a truck and, with six students, went to get scaffolding.

There had been talk of flowers on the lawn in front of Kresge—a memorial of red geraniums.

Physical Plant was very up-tight about that. But then they suggested some parts of the lawn that had not been returfed and were suitable for planting.

Monday at 3 pm
The wood arrived—and volunteers. The materials were laid out in the athletic cage for assembly.

Monday night
The scaffolding arrived at 6—and was erected by 2 am. By 7 things were about done in the office. Material was being prepared in the photo lab—still sorting material without much of an outline. The strongest quotes were picked.

Noticeably absent were the philosophers and writers who could complement our spatial and visual strengths.

The material was rephotographed and printed on mural paper. The quotes were sent down to the cage to be lettered. One student wrote a couple of poems.

Another painted a portrait of King from a high contrast projection positive.

The professor and technician in charge of the photo lab kept it open all night to finish the work.

Tuesday
The photos were mounted, the banners strung up, the panels and booths constructed and everything including tables and chairs in place. Groups began to arrive about 8.30 to man their booths. Physical Plant came to take up the sod for the bed of flowers.

Kresge did not fill up as anticipated. But the sound from the discussions was wired to speakers outside, and people were sitting out there, but not because they had to.

The exhibit felt continuous from Massachusetts Avenue to Kresge only when there were many people in the space. The open mike didn't catch on until the afternoon.

Wednesday morning
The flowers (more than 100 had been planted) were taken out for fear of the cold on Tuesday night. But the people who run the gymnasium put them back first thing Wednesday morning.

Most of the groups for the booths didn't show up. By noon the tables and chairs were in use—the place was alive again.

Wednesday afternoon
The Caravan Theatre played in the outdoor space created by the banners and the scaffolding.

The designers, the administration and Physical Plant met once more to discuss the next steps. The idea and the concensus developed during the meeting. The impact of the exhibit had been felt; it was time to take it down.

Some had thought to re-use the exhibit for a memorial to the dead of the Vietnam War on the 15th, but it wouldn't have happened for the 15th as it did for King—hitting the undercurrent. Anyway, the administration did not support a 'day of conscience' on the war issue. And it was agreed that using the same physical setting for both events could only weaken the impact of each.

Thursday and after
How could other people share in it later and elsewhere? What kind of record should be made? Is the substance of the exhibit separable from the total physical and institutional setting of which it is a part? Or is it separable from the process by which it came about?

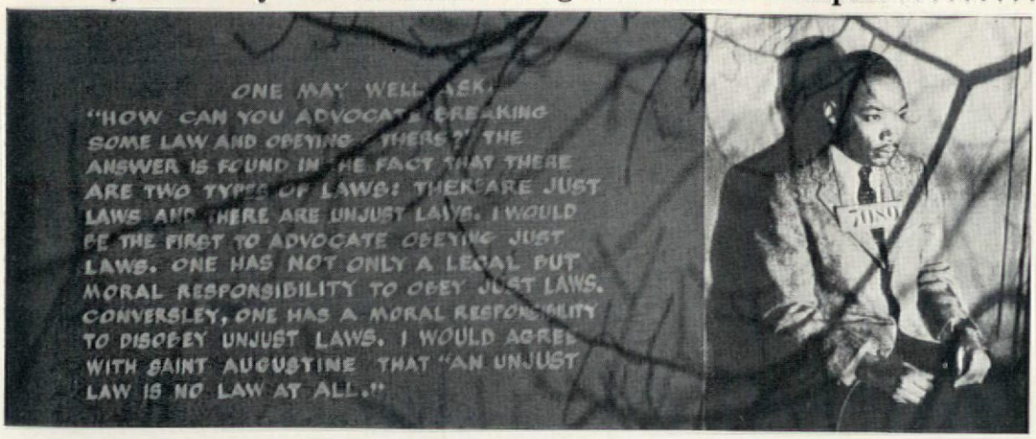
The exhibit has already been displayed at Simmons College and requests have come from other schools and groups wishing to borrow it. More recently the panels were used to make tepees for the 'tent-city' which was constructed in the South End. The designers are endeavoring to comply with these requests as well as to make available to others accurate documentation of what took place here in the few days of intense activity. It is their hope that MIT's success in showing the environment to be mutable, and capable of providing appropriate settings for the expression of timely issues and feelings, will enable others to make similar progress.

The experience of a celebration and of conceiving an architecture of celebration recorded by John Terry, Steve Leff, Arthur Stern, Bill Porter and Karl Linn.

[1] Steve Leff, Arthur Stern, John Terry, Prof. Karl Linn and Prof. Henry Millon.

▷

Maundy Thursday Martin Luther King was shot in Memphis . . . . . .



ONE DAY
THE SOUTH WILL RECOGNIZE ITS REAL HEROES.
THEY WILL BE THE JAMES MEREDITHS,
COURAGEOUSLY AND WITH A MAJESTIC SENSE
OF PURPOSE, FACING JEERING AND HOSTILE
MOBS AND THE AGONIZING LONELINESS THAT
CHARACTERIZES THE LIFE OF THE PIONEER.
THEY WILL BE OLD, OPPRESSED, BATTERED
NEGRO WOMEN, STABOLIZED IN A SEVENTY-
TWO YEAR OLD WOMAN OF MONTGOMERY,
ALABAMA, WHO ROSE UP WITH A
SENSE OF DIGNITY AND WITH HER PEOPLE
DECIDED NOT TO RIDE THE SEGREGATED
BUSES, AND RESPONDED TO ONE WHO INQUIRED
ABOUT HER TIREDNESS WITH UNGRAMMATICAL
PROFUNDITY: "MY FEETS IS TIRED, BUT
MY SOUL IS RESTED"

I WHO LIVED WITH YOU
I WHO WANTED TO LIVE WITH YOU
THE ONLY ONE
AM DEAD.

I SHALL NOT BE ON THE EARTH AGAIN
AND THE EARTH IS AFLAME
AS IT NEVER BEFORE WAS
I REST MY HANDS TOGETHER AS I PASS.

AND THEY FIND PEACE WITH EACH OTHER
AS MY BODY NEVER COULD UPON MY LAND
FOR I KNEW YOUR HEARTS
THAT PEACE WAS FAR AND EVIL NEAR.

WHILE WHITE RACISM AND THE WAR IN
VIET NAM CONTINUE TO PLAGUE OUR
SOCIETY, NO INSTITUTION CAN EXEMPT ITSELF
FROM BLAME BY CLAIMING "OBJECTIVE
NEUTRALITY" OR BY OFFERING TOKEN
GESTURES. THE GREAT UNIVERSITIES OF
OUR NATION ARE NO LESS IMPLICATED.
HARVARD AND M.I.T. REPRESENT ONLY
EXAMPLES OF HOW RACE AND WAR
PERMEATE THE PLACES IN WHICH WE
WORK AND STUDY.

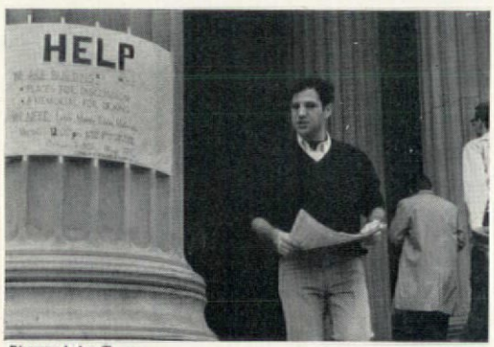


Photo: John Terry

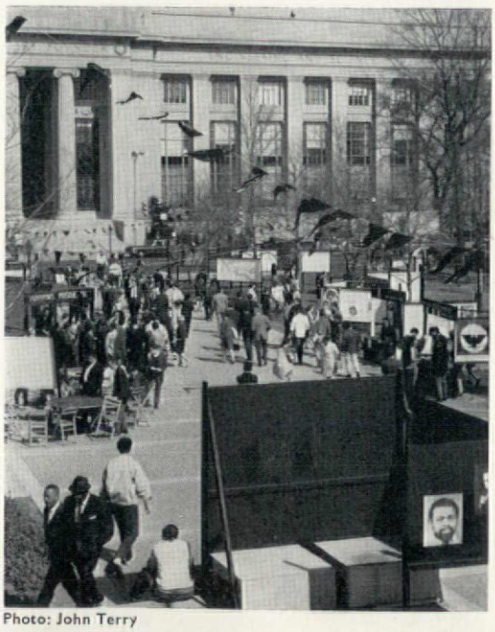
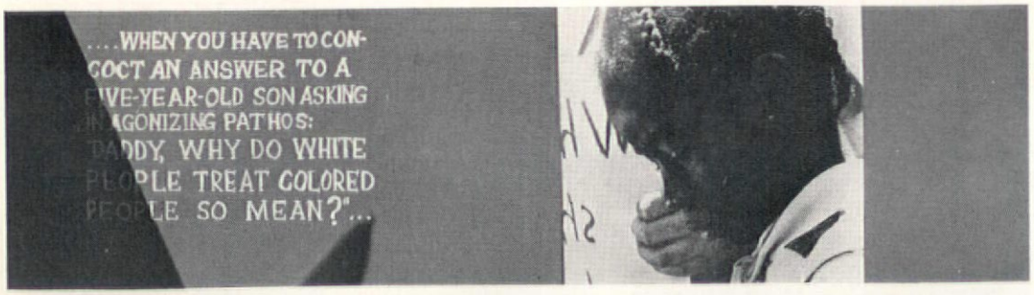
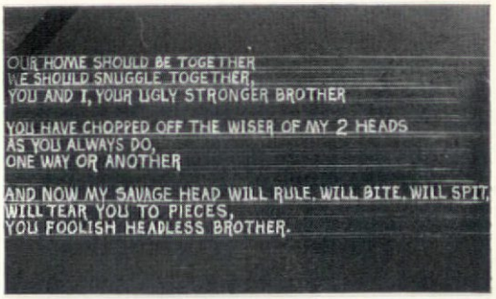
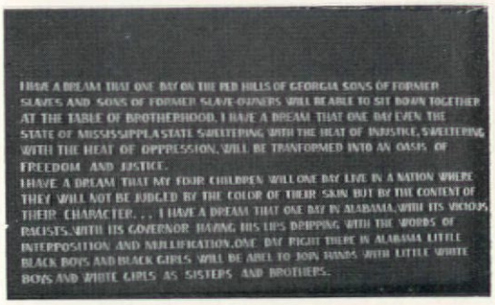


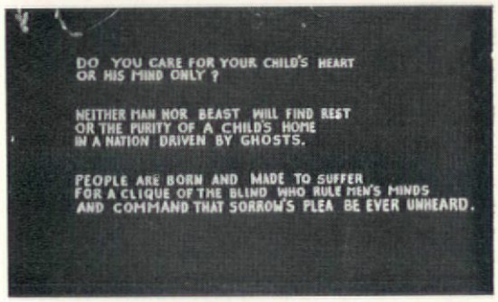
Photo: John Terry

WHY HAVE WE
SUBSTITUTED
THE ARROGANT
UNDERTAKING
OF POLICING
THE WHOLE
WORLD FOR
THE HIGH TASK
OF PUTTING
OUR OWN HOUSE
IN ORDER?









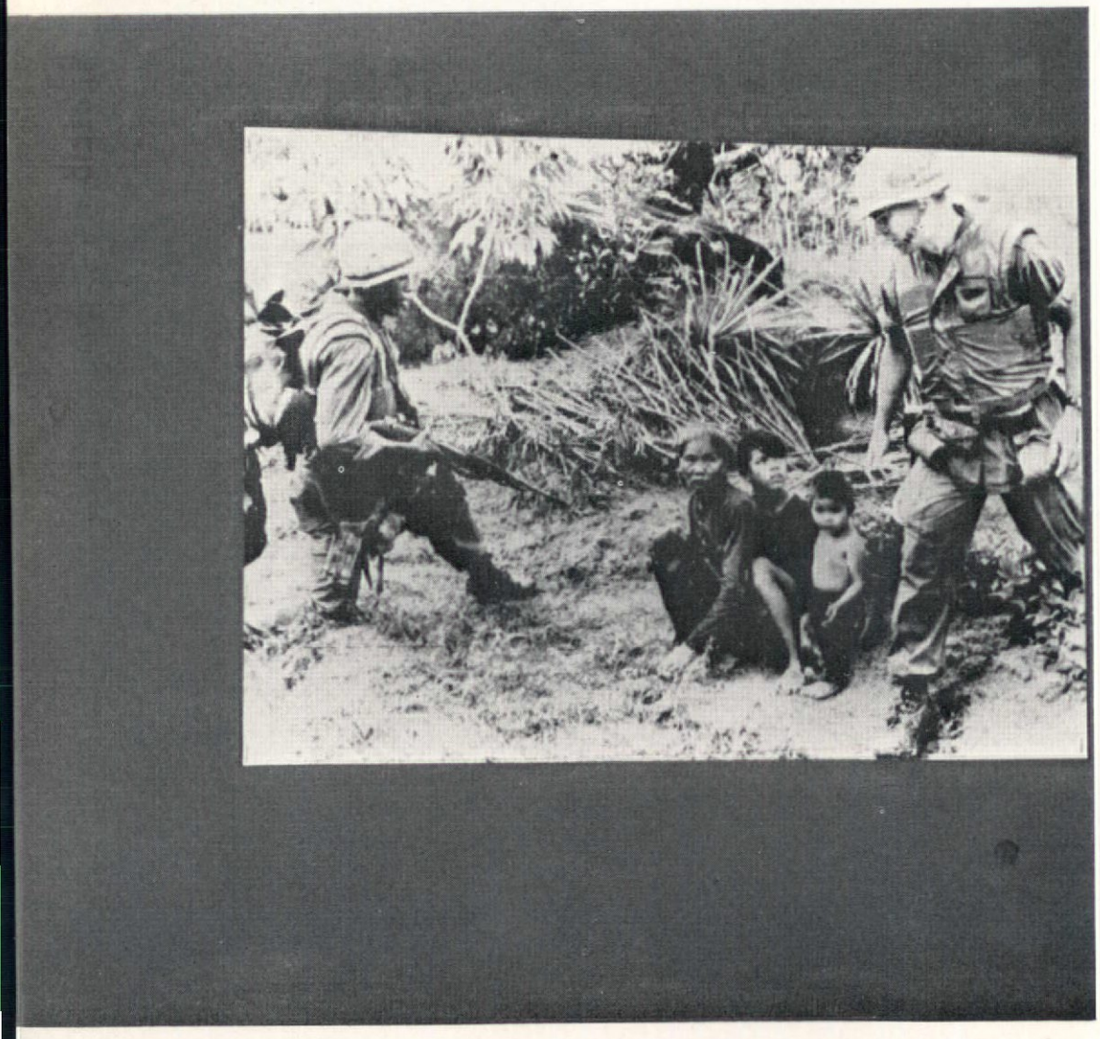


Photo: John Terry

Karl Linn collecting testimonials

Triggered by a lack of space, and wanting to do something, a group of architectural students at MIT last year spontaneously rebelled against the constraining environment of their drafting rooms. Scrounging materials, working clandestinely, they shifted block partitions and erected a series of mezzanines or platforms within their two-storey drafting rooms (centre). Three architecture students, Stern, Hanks and Owen, describe below the process as they saw it.

The design faculty, also cramped for space, solved their own problems more conventionally, through outside designers and contractors. This failed to generate a corresponding level of excitement, commitment or sense of achievement.

Rolf Goetze

No faculty member stepped forward to describe this process.

Now the curriculum provides for the building of platforms under faculty tutelage, but there is debate whether institutionalizing the process is a step forward. Some hold that the real spirit was born and nurtured through conflict and challenge.

Students are continuing their attempts to communicate with the faculty and the Institute in interesting ways. During the winter, students covered corridor walls with rolls of scratch paper, encouraging and challenging all to make suggestions for improving specific aspects of the environment. During recent 'Gripe Week' this practice was extended to bulletin boards set up in the main entry space.

Two classes of third and fourth year students, working autonomously, built mezzanines (markedly differing) in drafting rooms separated by a block infill wall. We thought it best not to fool with the walls yet. (They have since been fooled with.) This is the account of the group with which I worked.

Ideas for some major effort of this sort had been tossing about for some months, and the time became opportune soon after registration in the fall of 1966. We were pressed for sufficient work space—a general department problem—and need for more square feet became the rationale.

We began discussions some days after the other group began working. Most of the fifteen students in our group were involved in deciding the mode of construction and general needs of the class. Five of us met and decided on the form of the basic structure with respect to the given room and general needs. Being most familiar with the yard stock of a large wrecking firm, we decided to use salvaged lumber—of good quality. Two of us then prepared a drawing (the only one), detailed the structure, made a list of materials and cost estimate. Each member of the class was to contribute fifteen dollars. Four of us went to the yard, picked and purchased 6×10 posts and 3×8 beams, sufficient two-inch decking, and a box of scrapped bolts and lags. In several trips we transported the wood in students' stationwagon and microbus to MIT where a dozen students hustled the wood up the passenger elevator to the Architecture Department. Others bought more hardware and supplies. We used department shop tools and brought many of our own. The parts, measured and marked in the yard, were cut to size, predrilled and assembled. The new structure was fastened to the walls and columns of the building and hung from a concrete beam, drilled, leaded and lagged. With the decking nailed in place it became rigid. Salvaged oak stairs were installed. We cleaned up and moved in. This part had taken four days from design to finish.

Moving in was a distinctly different phase in the construction. Whereas the first part involved planning and building the minimum common structure for and with the entire class, we now operated independently or in neighbour groups to detail our own work areas to personal satisfaction. At this point the process became somewhat confused by demands to commence with the customary design work. Painting and detailing individuals' as well as common parts continued sporadically throughout the year.

The resulting clamour was entertaining and informative—visits from the planning office, safety office (who recommended sprinklers and more railings), the physical plant (who wrote letters of complaint to our dean), orders to tear them down, student petitions of protest, faculty meetings (voted support), a visit by the provost and president of the Institute. The president bumped his head on a low beam but kept smiling. Faculty and administrators showed their true colours. Agreement was reached that they should remain for the year. Over the summer several of us removed them.

Student feelings about building the mezzanines are as varied as the students themselves. But common to many, I believe, is a general feeling that the immediate environs and the physical/administrative policies of MIT (indeed many parts of our great society) are unresponsive to us as human individuals, moreover are often oppressive, unreasonably narrow, constricting our actions, denying our moral right to participate in matters which affect change in our environment, truly in matters which affect the course of our lives.

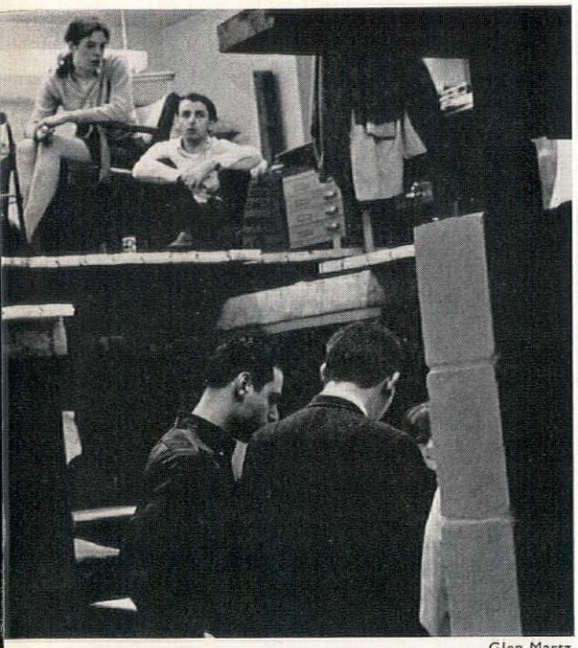
A major issue facing our department is the relation of students and their curriculum as pertains to their personal commitment to and feelings of accomplishment in their work. Many students find difficulty in concentrating on hypothetical drafting board projects of long-range educational value, if any, in view of raging social issues demanding immediate action for which the methods taught in our required curriculum have proven futile. We are unable to put out of mind that our country is engaged in a terrible and unjustifiable war, that poverty, if not oppression, plagues a third of our fellow men, that our own cities

Don Hodges

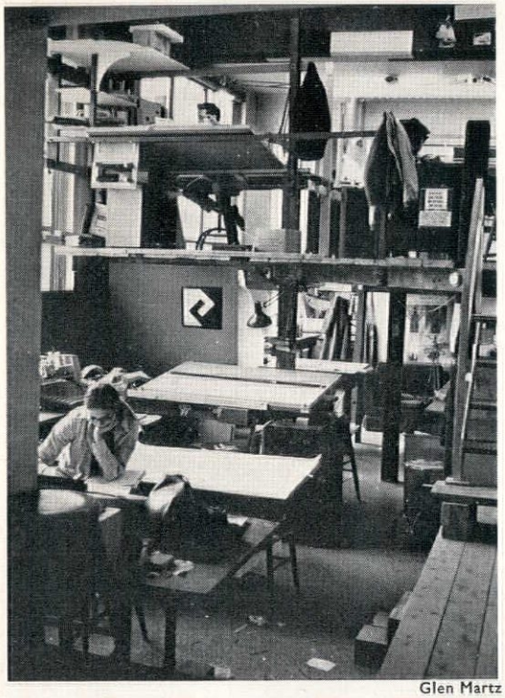
SQUATTE

are at the brink of racial war. Should we avoid being drafted into complicity? We traditionally face three years' apprenticeship under masters who know only how to build cheap or stylish or artistic buildings, who know little about the workings of human beings, masters who will cater to any client, self-emulating and corrupt alike.

The building of the mezzanines constituted on one hand a vindictive strike at the institution's policies, an insult to Establishment architecture and education, while on the other hand demonstrates our eagerness and ability to work long hours at our own expense



Glen Martz



Glen Martz

RS AT M.I.T

presented by Rolf Goetze

to accomplish tasks which we feel are worthwhile, to help our ailing environs.

Traditionally, architectural education has made little use of full-scale models and experiments, and students rarely have to live with what they design. The mezzanines were an eye-opener for many. When working in community development programmes, as we are beginning to do at MIT, we will be asked, 'You tell us that we can effect change in our environment. What have you done to yours?' We will say, 'Come and see.' When a man feels helpless to participate in—not control—his environment, when a man learns afterwards of decisions made from afar which affect his life—if this situation forms the context of his life—then he cannot hope to realize his potential as a human being—student, worker, anyone.

The building of the mezzanines represents a student effort and commitment greater than any before or since in our department. Construction began each day before the first classes and continued into early hours of the mornings. Spirits were high. People were enjoying themselves, getting dirty (dirtier than usual for some), having fun, feeling that they were doing something worthwhile. The notion was rare at MIT that learning takes place most significantly when people are enthusiastic, when intellects and emotions agree that their efforts are meaningful.

There are some implications for architecture and society. A mezzanine, says Webster, is an intermediate or fractional storey between the floor and ceiling of a main storey. But that is just a label. What would it be called if it were to have more than one level or if it extended ten feet out from a fourth storey window, up and over part of the roof, or down and into the third 'main storey'? Such a mode of building might become a generality more responsive to human usage, where the building structure only frames and supports usage, rather than restricting and confining it within an envelope. Our society might work better like that—as an enabling framework rather than an enclosing cultural envelope.

In some ways, more often in theory than practice, the society does seem to work that way. In practice, people, not buildings or institutions, make decisions and policies. Buildings and institutions can be frameworks long after builders have passed. People as policy makers can work *freely within and around* a framework (changing it only with much effort, when serious need arises); or policy makers can design an envelope to confine everybody's activities within bounds suitable to the purposes and values of the policy makers, preserving their *status quo* at our expense.

The builders of the mezzanines ask for a new relation between policy (if we must) and the frameworks, so as to strengthen the role and affirm confidence in the individual, to allow for participation and not control.

Arthur Stern

The mezzanines are a built proposal. We propose that one way to achieve the 'synthesis', to learn architecture, to structure a programme 'which encompasses study of history, engineering, psychology, sociology, and economics within a design programme oriented towards current problems of our society and its environment'—a quote from the MIT catalogue—is to build projects. By this we mean full-scale working environments in which we or other people (or both) could live and work, and that by building these projects, we could confront not only the 'associated' problem studies and their relevance to architecture, but also other factors such as the *status quo* of the profession, the building industry, the problems of organization in building, the restrictions of the law and building codes: in short, the entire gamut of real problems of building.

Toby Hanks

The following fall (1967) *under a new department head, the building of mezzanines was included in the curriculum.*

Early in the fall term, the architectural drafting rooms at Massachusetts Institute of Technology were designated a 'Space/Use Workshop and Experimental Area' in which students were allowed and encouraged to build for their own use (subject to supervision by a committee composed of one student, one design instructor and one representative of the physical plant).

Within three weeks the spaces had been transformed from segregated studios to a demolition site to an inter-weaving complex of lofts and dens with a string of mezzanines built from salvage timber. Within these spaces each student laid claim to his own particular territory—some crowded between light fixtures on the mezzanines; some sheltered by posts, walls and head-caressing beams; and others standing clear in the remaining pockets of high space.

The use of these structures, their impact on class organization, their cost and the procedures for building and maintaining them, were subject to study during the year. The accompanying photographs sample the spaces, their construction, their use—and their havoc.

Donlyn Lyndon
chairman of the MIT architecture faculty,
(AIA Journal, *March* 1968).

Finally, an evaluation-comparison of the earlier with the more recent mezzanines, by another architecture student in the final year of study:

The recent mezzanines, built in the fall of 1967, faced different conditions. The process, in terms of concept, techniques, and resources at least, was simply copied from the year before; the institutional authorities had been pacified by an administrative *carte blanche* for environmental experimentation within the department. When all four studios of the combined third and fourth years increasingly felt their formal class work to be meaningless and empty, their mezzanines soon became empty too. In this context, the rationales of space and experience seem doubtful at best.

One might conclude from this that, without the 'excitement' of doing something contrary to establishment procedures and values, the vitality of such a project is doomed. But the second year's mezzanine, carried out at this time, was and is highly successful, lively, and much used. A more reasonable conclusion is that to achieve vitality one must go beyond the basic physical need for more space to the *meaningfulness* of that space, based on the *enthusiasm* in its use.

The message of the mezzanines is clear: meaning in the environment can no longer be given to or made *for* people by the architect. Instead, the architect, having come to terms with himself and his own environment, must make his skills available to people to do whatever becomes meaningful to them in the process.

George Owen

'. . . the overriding characteristic of the new technologies is their enormous simultaneous potential for enhancing or degrading man's environment, man himself.'

Donald N. Michael, 'Technology and the Human Environment,' *Public Administration Review*, Vol. XXVIII, No. 1, Jan-Feb. 1968, p. 57

RESPONSE

The need for more responsive institutions seems to fly in the face of present trends toward ever more monolithic bureaucracies, built of human cogs, assumed interchangeable.

Individuals respond to individuals; organizations to organizations. When individuals attempt to influence or confront organizations, they chance being ignored or crushed unless they, too, are organized. Faced with insulated bureaucracies exercising control over them, students, blacks, and the poor are repeatedly rediscovering that disorder and riot are more effective means of communication than proposals and reasoning together.

Coordinated bureaucracies have made notable achievements, but the price paid for these fruits may be too high if not accessible to all. Many of these institutions are insulated from outsiders, providing insufficient channels for feedback. Reaction to them is eroding the fabric of our society.

Either we must discover more responsive forms for these institutions, or we must develop better means of communicating with those we presently are building.

If real life is a dialogue—between man and man, between man and his environment—which is confrontation and response, then, in reality, the process of making is inseparable from the object made. A man-environment dialogue (involving many between men) is a history of change and exchange between people and buildings, through building. Yet housing problems are commonly seen as material states and not as mismatches with human lives. Without reference to the builders and the inhabitants, the shape and appearance of a dwelling place is insignificant. The value of an environment is proportional to its support of the life within. Housing problems are dialogic and dialetic—springing from incommunication or incommunicability.

For 'totalitarian' is not only a terroristic political coordination of society, but also a non-terroristic economic-technical coordination which operates through the manipulation of needs by vested interests. It thus precludes the emergence of an effective opposition against the whole.

Herbert Marcuse, *One Dimensional* Man, p. 3.

. . . Suppose you are moving into a large bare room with a window. Your first aim would be to make the room livable in an animal sense; you might put in plumbing, build furniture, and so on. In doing these things, you are shaping the room so that it is responsive to you, so that it is an easy, comfortable place to live; but ease and comfort are not the only human needs. The blankness of the walls may offend you; you might run a Greek key design around the top of the walls, thus making the roof seem farther away. This activity is not useful but ideal; nevertheless, you are still humanizing the environment. You might want to hang a picture—perhaps a picture of the garden outside the window. The aim of the picture is not to produce a substitute for nature, but to add to it; picture and garden taken together form a satisfactory unit. Furthermore, you are going to have to think about how the whole thing goes together; the picture would have to go with the Greek key design, and the Greek key design with the plumbing. From this point of view there is no clear distinction between useful and ideal; the man who sits on the chair and man who admires the picture are the same man; he must ration his resources and energies according to his sense of the relative place of chairs and pictures in his life as a whole.

Now for Santayana the world we live in is like that blank room; we begin from nothing and gradually make it liveable through our creations, art, law, custom, religion, all those thing taken together constitute our culture. . .

. . . A city is the environment and the property of a community; it should express that community's sense of the commodious and the beautiful. Since the basis of community life is not love but justice, or rather justice made vital by occasional love, so the final product will not be reached by pure agreement, but by the rough-and-ready consensus of politics.

There are plenty of arguments against politics as the basis of community action, but they are all wrong. Since Plato at least, people have been telling us that we would be better off if we got some expert to run our affairs, a philosopher king, perhaps, if we could hire one, to run our affairs, or failing that a city manager with a Ph.D in Administration. But I think, just as I want to make my own moral decisions, so I want my community to make its own decisions; to give this up is to lose some essential humanity. Politics is living well for a whole community, just as morality is living well for an individual; it is not a means to something else; rather a healthy political life is itself the end at which all acts of public policy aim.

Letter from James Redfield to Lisa Redfield Peattie, June 18, 1965

The American black man should be focusing his every effort toward building his own businesses, and decent homes for himself. As other ethnic groups have done, let the black people, wherever possible, however possible, patronize their own kind, and start in those ways to build up the black race's ability to do for itself. That's the only way the American black man is ever going to get respect. One thing the white man can never give the black man is self-respect! The black man can never become independent and recognized as a human being who is truly equal with other human beings until he has what they have, and until he is doing for himself what others are doing for themselves.

Malcolm X, *The Autobiography of Malcolm X*, Grove Press paperback edition, New York, 1966

Designers like to think of an ideal situation as one in which a designer finds a client whose values are similar to his own so that the two have an easy, largely non-explicit communication. The problem of design then becomes one of adjusting the designer's vocabulary of forms in a way which accommodates what the client wants, and the adjustments of the forms are exactly those which are important to the client. Criticisms of the product are made in the same frame of reference, and these criticisms become part of the demand of the next client and part of the sharpened perceptions of the next designer.

What is wrong with this characterization of the role of the designer? Nothing. What's wrong with this characterization of the world?

Such a world never existed for all men; and even if some pseudo-historians would have us believe that it did, we certainly cannot afford to believe it now exists. We conceive of society more broadly on the one hand and with greater discrimination on the other: more broadly because we are not satisfied with serving only an elite or with thinking about only the small percentage of the environment which gets professionally designed; with greater discrimination because we have become at least dimly aware that others' values may not be exactly the same as ours and that what we worry about in design may not concern many others in the least.

Modern large institutions tend to cut direct communication; so the professionals and the administrators, forced to rely upon their own experience and knowledge, tend to impose their own values. The results are often inappropriate for people undergoing rapid social change in a developing economy and inappropriate for those caught in the cycle of poverty in the United States. In order that the professional can serve his client properly, institutions must be restructured so they become channels rather than barriers to communication.

But the design professional himself can act. First, he can analyse much more carefully the needs and problems of the people who will use environments and can establish procedures by which these people can participate in the sequence of choice making which is the design process. Second, he can evaluate carefully the effectiveness of built environments in terms both of the stated goals for which they were built and in terms of what they are accomplishing for their users. Third, he can challenge the institutions which stand in the way of achieving a closer relation between designer and client. And fourth, he can turn his design skills to the creation of environmental systems and components which are capable of being combined by the clients to fit their wants, and which are adaptable to more democratic and responsive styles of control and management.

DESIGN

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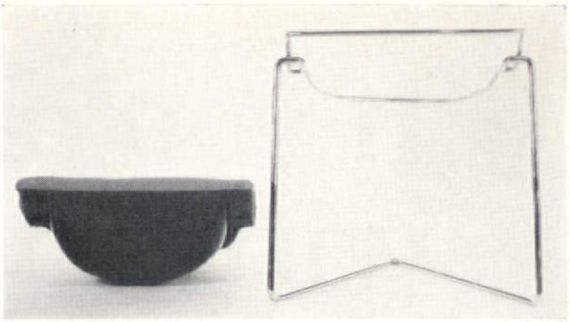


2

In the supermarket

The organizers of the French section at the recent ill-fated Triennale would have nothing to do with furniture which 'could not be sold in the supermarket', with a maximum value 100 NF (about £9). An example was the vacuum formed plastic KD stacking chair **1**, **2** with chromed steel frame, which they showed by Kwok-Hoi Chan, which sells for 60 NF in Steiner's 1968 'Pussycat' collection[1].

Photo. J-L. Dumont

A commendable aim, subscribed to with enormous success by France's Prisunic 350 Supermarkets, who commissioned Conran Design Group[2] to design a range of KD furniture **3-9** for them to sell by direct mail. It is interesting to note how the price of the tote boxes has been slashed by mass production. (In London they cost £18 and £15.)

[1] UK agents, Druce & Co, Baker Street, London, W1.
[2] 5 Hanway Place, London, W1.

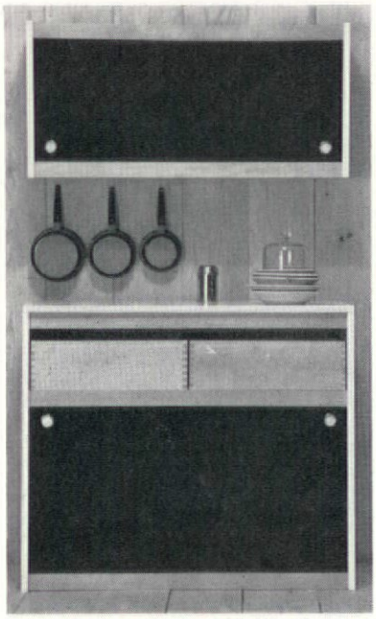
Paper

Bernard Holdaway's spool tables 10, a recent addition to Hull Trader's Tomotom paper furniture, could well qualify for the supermarket on price. Varying in height

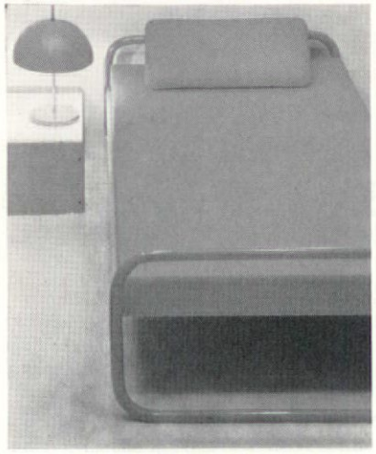
10

from 9in to 24in, and with a 24in diameter top, they cost from £5 10s to £6 15s; A larger version, 36in in diameter, costing £7 18s. Made of paper and wood chipboard, they are enamelled in bright colours, yellow, pillarbox red, bilberry, royal blue, and dark green.

7, Sedley Place, Woodstock Street, London, W1.



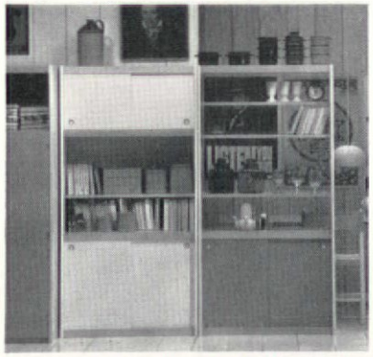
3 Storage: Hanging 400 NF. Cupboards 350 NF. Shelves 300 NF.



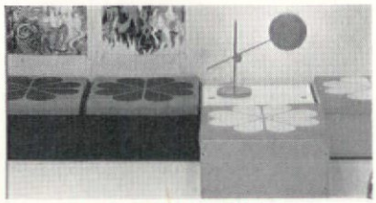
4 Bed: single 220 NF, double 315 NF.

5 Chair 175 NF. Table 110 NF.

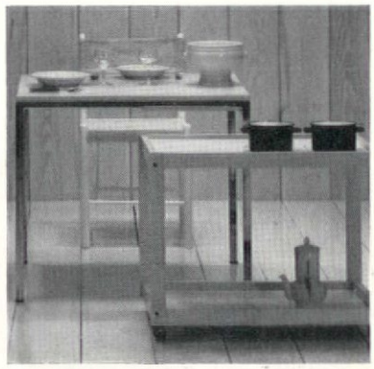
6 Table 250 NF.



7 Storage: wall cupboard 150 NF, base cupboard 300 NF.



8 Tote boxes 120 NF. (£10 2s.)



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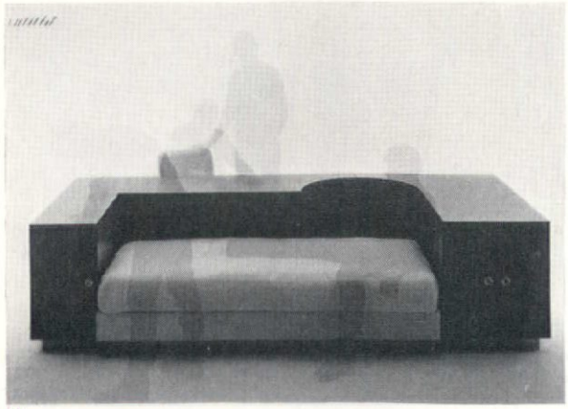
Multi-purpose

Talking of the Triennale, the young Italian architects Constantine Corsini and Giorgio Wiskemann were demonstrating there the possibilities of subdividing space for multi use, with laminated plastic and metal storage units **11**, **12** made by Gavina.



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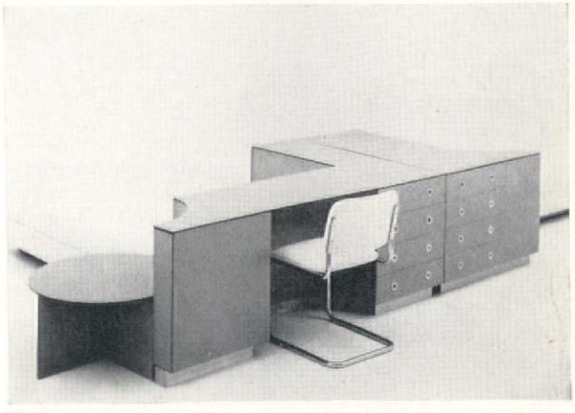
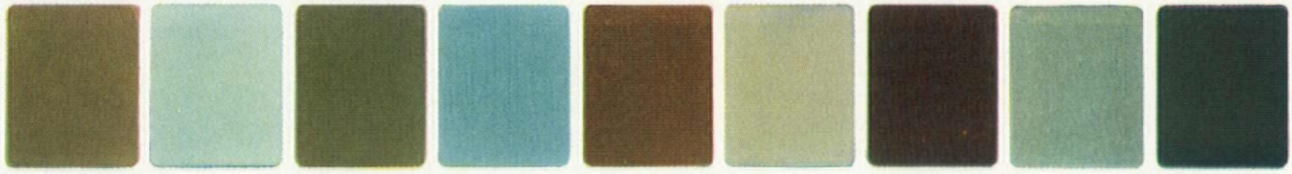


12

If you're an architect with an insatiable appetite for greens, try some of these.



Pale aqua green. Sprout green. Dusty olive. Leaf green. Yellow green. Wray green. Pea green. Glacier green. Wedgewood green. And that's just our range of nine plain greens. In all, Arborite have 52 plain colours—42 of them exact or close matches to BS colours.

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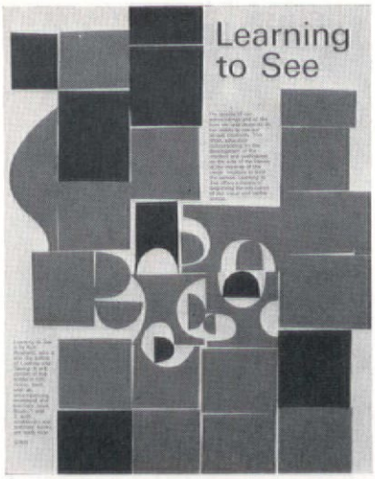
AD/10/2

DESIGN

Visual education

'The quality of our surroundings and of the lives we lead depends on our ability to use our senses creatively. Too often, education, concentrating on the development of the intellect and overloaded on the side of the literary at the expense of the visual neglects to train the senses.' This is what Kurt Rowland says about his new visual education course *Learning to see* 1, published by Ginn. His earlier course *Looking and seeing*, (see *AD* 10/64), by the same publishers was designed to make good the deficiency in secondary schools; the new series will do the same for the primary schools, in five books, two of which have appeared so far. As before, each is accompanied by a teacher's manual; but the accent being much more on the pupil's participation this time; there is also a workbook related to each book.

At first sight this might be dubbed a 'basic design' course. But such is not Mr Rowland's intention, for he holds that most basic design courses have failed to help students to 'make the anticipated contribution to creativity: their ability to solve real-life problems was hardly affected'. So in his visual education courses, he tries to ensure that the child will at all stages 'verify what he has learned in the world of reality. This will mean that imagination does not have to be *applied* to problem solving: it will both grow out of it and in turn feed it'. Two-dimensional design **2** is covered in Book 1, three dimentional **3** in Book 2, their relationship being constantly reiterated **2, 3**.



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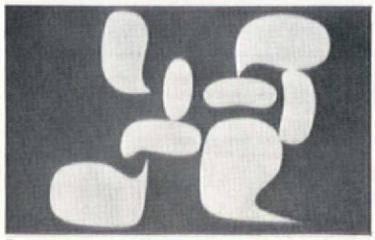

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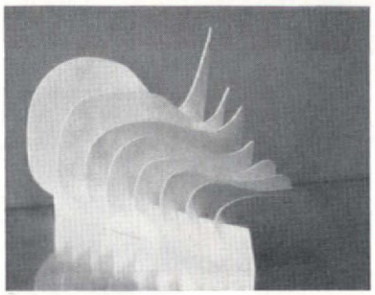


3

It is a brilliantly worked out course. If all our primary schools introduced it straight away into the curriculum, we could have a visually enlightened adult population in no time. What a change!

The books, lavishly illustrated in full colour, are priced separately: Books 1 and 2 are 7*s* each, workbooks are 2*s* 3*d* each, teachers' manuals are 5*s* each. Total to date £1 8*s* 6*d*.

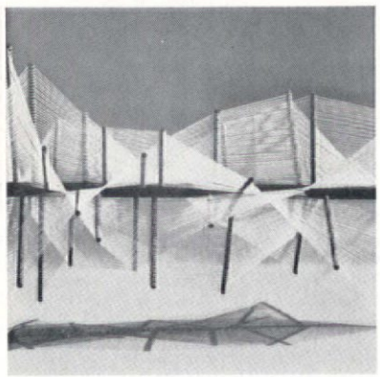
Ginn and Co. Ltd., 18 Bedford Row, London, WC1

Basic theory of architecture

Despite his adverse opinion of basic design courses in general, Kurt Rowland would surely approve of one in particular, the course developed from Bauhaus methods by Prof. Rolf Lederbogen at the Faculty of Architecture of the University of Karlsruhe. To judge by the Faculty's recent exhibition in London's Building Centre, he does succeed in integrating basic design principles with architectural actuality **4–8**.

The course extends as a main subject through the student's first four terms (out of 10), and includes experience in wood and metal workshops.

Starting with exercises in colour, they quickly move into three-dimensional studies of form, surface, coordination 2, connection 3, volume 4,5 space 6—by which time they are relating their studies to actual projects.



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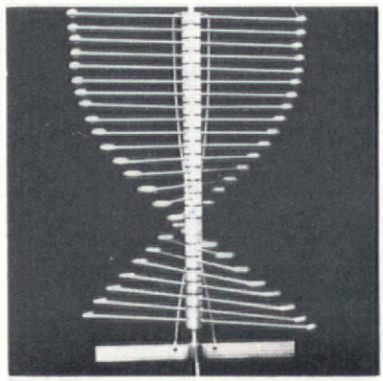
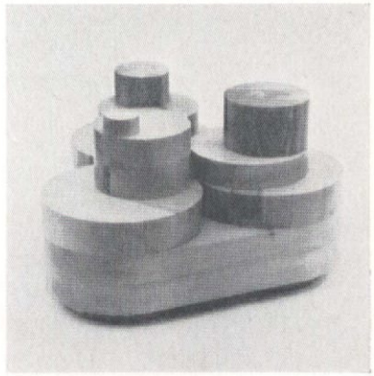


5

4 Coordination. M. Lorenz
5 Connection. H. Eckert
6 Volume. L. Epe
7 Volume. J. Wiedemann
8 Space. U. Gabelmann
9 Man and machine. The motor car: the anti-urban revolution
10 Variplay Triangle set includes five pieces, that combine in a variety of ways. £19 19s the set.



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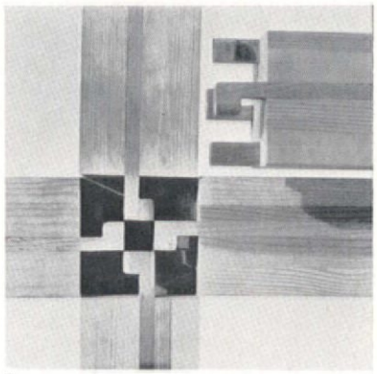

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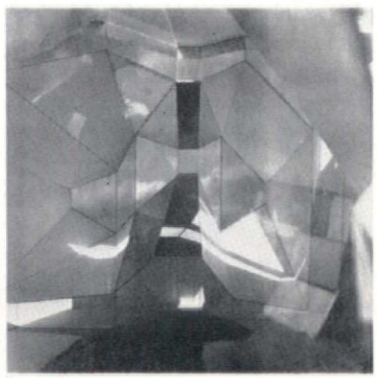


8

Man-made world

The RIBA commissioned John Donat to take photographs and write the lecture notes for a new series of colour film strips, also primarily for use in secondary schools. These are four in all, entitled: 'Environment', 'Man and Machine' 7, 'Who cares?', and 'Change is normal', and they are based on the assumption that our physical surroundings matter and that, if we know something about them, we will be able to do something about them.

The photographs **9** are all of high quality. The notes follow a standard pattern: first a reproduction of each frame and a headline; then a paragraph printed in heavy type, setting out the argument; followed by more detailed information and commentary. The notes come in separate booklets. Prices are:

Part 1 Environment (Ref. DW-F126)
Single frame (24mm × 18mm) 40s
Double frame (35mm × 24mm) 50s

9

Part 2 Man and machine (Ref. DW-F127)
Single frame (24mm × 18mm) 40s
Double frame (35mm × 24mm) 50s

Part 3 Who cares? (Ref. DW-F128)
Single frame (24mm × 18mm) 40s
Double frame (35mm × 24mm) 50s

Part 4 Change is normal (Ref. DW-F129)
Single frame (24mm × 18mm) 40s
Double frame (35mm × 24mm) 50s

The sets are distributed by Diana Wyllie Ltd. 3 Park Road, Baker Street, London NW1

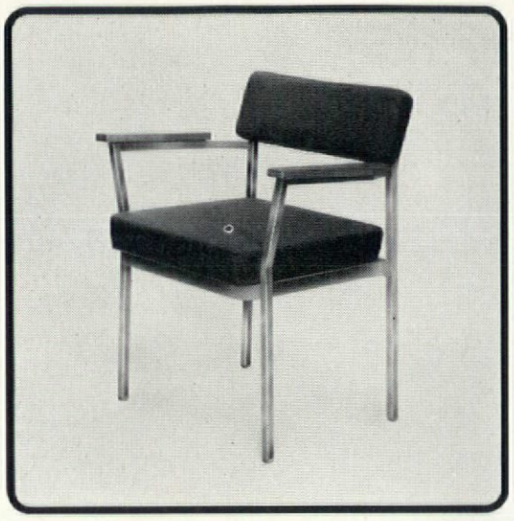
Play

So much for visual education of the young at primary, secondary and university levels. For the very young, a firm called Adventure Playthings Ltd. (successors to Community Playthings who emigrated to the USA in 1966) make some interesting sturdy 'toys' specifically designed to extend children's great output of physical and mental energy, and related to different age groups. For example, the Variplay Triangle set **10** for the 4 to 11 year olds, or the Swedish Variplay set for the 3 to 6 year olds, or the Adventure Roundabout for the 3 to 11 year-olds; or the Unit Building Blocks in dimensions related to Hollow Blocks, the Big Trucks, the Floor Trucks, the Jet Transport, and the Community Builder.

All the playthings are guaranteed for a year, and after that there is a repair service.

Queensway, Glenrothes, Fife, and Kemp House, 154/158 City Road, London, EC1

10



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Take square section steel. Fashion it into pleasing proportions. Treat with epoxy powder, and create a beautiful, tough, finish that is scratch and chip resistant.
Cushion generously with polyether or latex foam clad in tailored cloth or expanded PVC. Add polythene feet to each leg.
Available without arms if required.
And you have the Aviemore. One of the best looking, hardest wearing chairs on the market.
You can buy or lease from this exceptional new range. Either would be most realistic. There's a matching table, too.
The Aviemore group—chairs with and without armrests, matching round pedestal table.
Designed by Jack Stafford B.Sc.(Eng.) DIC.

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Tel: 041.248.4185

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Tel: 061.832.9482

A member of the Thomas Tilling Group of Companies

The Aviemore range interests me. I would like:
(a) To have leaflets.
(b) To see the Aviemore range face to face.
(c) To talk to your Export Manager, André Slatter, M.H.C.I.
Tick whichever is applicable.

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Position_____

Company_____

Address_____

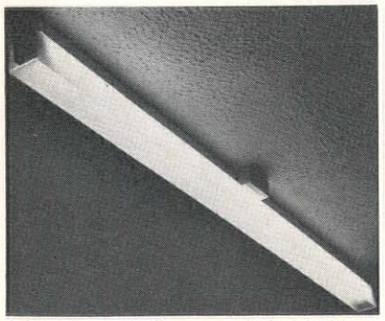
_____ AD2

Send this coupon to: H. C. Shepherd & Company Ltd.
The Courthouse, 9-11 Justice Walk, London S.W.3

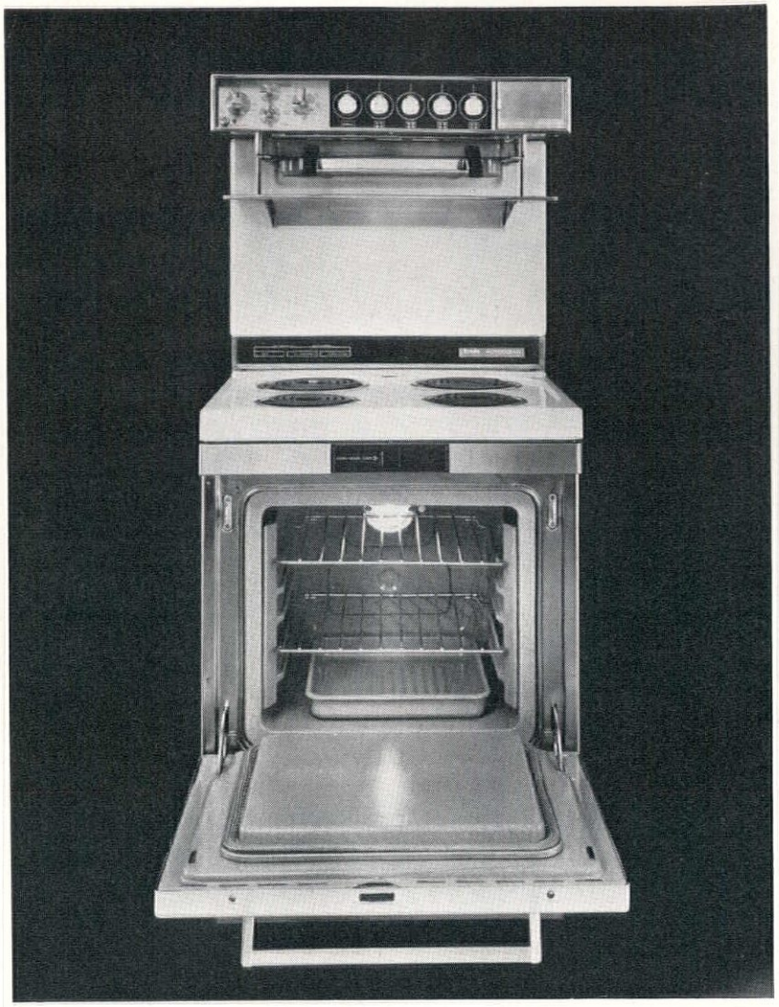
ALEXANDER PIKE DEVELOPMENTS

To obtain additional information about any of the items described below, circle their code numbers (K1, K2 . . . etc.) on the Readers' Service Card inserted in this magazine.

K2 Display lighting fittings
Falks Limited, 91 Farringdon Road, London, EC1
The Expo Display Range of fittings has been designed to cover requirements in shops, showrooms, restaurants, clubs, exhibitions and reception areas. There are four basic units using lamps from a 75-watt I.S. reflector to a 150-watt P.A.R. These are used in conjunction with five different types of fitting: a single light flex suspension unit; adjustable rod pendant; three-light cluster fitting; wall bracket and display stand. The units can be held in any desired position by means of a specially designed nylon clamp, which has an easy adjustment, is not subject to wear, and permits movement in both vertical and horizontal planes.



K3 Domestic fluorescent light fitting
Simplex Electric Company Limited, Blythe Bridge, Stoke-on-Trent
The Simplex Hi Style Fluorescent Fitting incorporates a specially developed choke unit which fits into a spine of 1in square cross section. A considerable improvement on the rather massive spines hitherto available, which have impeded the acceptance of fluorescent fittings in living areas. Two accessories are available: a simple diffuser clipping directly over the tube, and a solid teak panel with set-in anodized end-pieces, for indirect lighting. Price complete with lamp, £3 19s. 11*d*.



K1 Self-cleaning electric oven
Simplex Electric Company Limited, Creda Works, Blythe Bridge, Stoke-on-Trent

By heating a domestic oven to around 900°F all food soils can be converted into smoke, with the exception of a very small amount of ash which can easily be blown or dusted away. Ovens employing this principle have been available in the United States for some years and have been very successful. The cleaning results from an overall and gradual heating of the oven surfaces to the necessary temperature. Provided every interior part of the oven reaches the required temperature, the self-cleaning oven is really 100 per cent effective, completely removing dirt even from virtually inaccessible places, which with normal cleaning methods are untouched, returning the oven to an 'as new' condition. The Creda Autoclean is the first British cooker to employ this principle. Additional insulation and air spacing are provided all round the oven to keep the outer surfaces within the BS limits when the oven is being automatically cleaned. During ordinary cooking, the cooker is considerably cooler than the conventional type, and the saving of energy during cooking is roughly equal to the cost of cleaning once a fortnight so that oven cleaning is virtually free. Mechanical and electrical interlocks are provided so that cleaning cannot be started until the oven door is locked; neither can it be opened once the oven temperature is above 550°F. Three indicator lights show what is happening during the cleaning operation. Smoke and fumes produced during the cleaning process are passed through a heated catalyst oxidization unit which eliminates smoke and odours. Other features of the Autoclean are visual heat indicators, auto-time and pan temperature controls, warming drawer, full width high-level grill with hob light. All the controls are positioned at eye-level with the exception of the oven lock, which is fitted at the top of the oven. Size 57in high × 24in wide × 23½in deep. Hob height 34in. Price about £110.

K4 Miniature television set
Matsushita Electric Industrial Company, Tokyo, Japan
Powered by four re-chargeable nickel-cadmium cells, this integrated circuit television receiver measures 1½in square, and weighs approximately 1½lb.

K5 Miniature tape recorder
Grundig (Great Britain) Ltd., London, SE26
The EN7 Electronic Notebook measures approximately 4in × 3in × 1in and weighs ten ounces. The twin track re-usable cassette plays for 20 minutes and playback is through a built-in microphone. There is a single sliding control for stop/start, record, rewind and playback. Price 24 guineas.

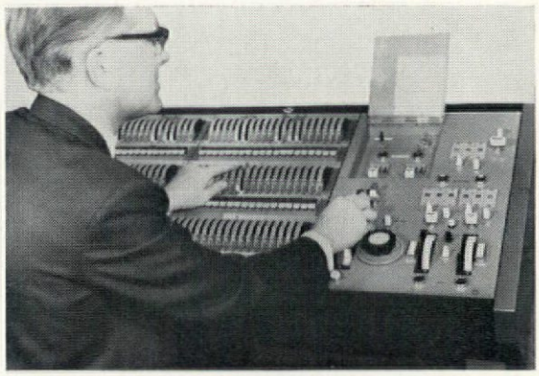
K6 Cellular glass insulation
Newalls Insulation & Chemical Co. Ltd., Washington, Co. Durham.
Foamglass Cellular Glass is a material produced by expanding molten glass approximately 15 times in volume and then cooling it under precisely controlled conditions, forming minute hermetically sealed cells. This results in a lightweight, rigid and dimensionally stable material which is water- and vapour-proof and has a high compressive strength. Foamglass is manufactured in Europe by Pittsburgh Corning de Belgique.

K7 Cavity wall insulation
Rentokil Laboratories Ltd., Felcourt, East Grinstead, Sussex
Subsequent to the research carried out in Denmark, supplemented by further work in this country, Rentokil have written the following phrase into their ten-year guarantee: 'Rentokil hereby warrants that the mineral wool installed in the cavities of the walls . . . *is totally resistant to the movement of water from the outer to the inner leaves of the walls by capillary action or otherwise . . .*'

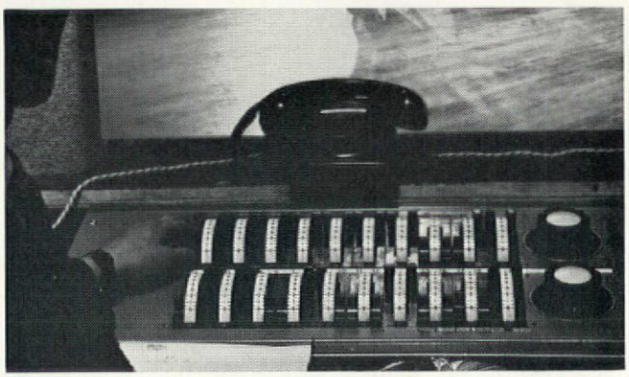
Rentokil claim that their system is now the only one in existence that carries an effective guarantee to this effect. It should be noted that the entire guarantee is in addition to the right conferred by the Sale of Goods Act 1893, or by Common Law.

K8 Aluminium windows
Mackamax Aluminium Ltd., Kawneer Architectural Division, 50 Aylesbury Road, Aston Clinton, Bucks.
The Kawneer/Sealair range of aluminium windows is available in four design types: projected, casement, top-hinged and pivoted. They can be supplied in commercial and monumental sections, with either single or double glazing. The patented method of weatherproofing is claimed to be new to this country. A pressure-equalizing slot is incorporated to prevent water or dust infiltrating through the window seals. This prevents a partial vacuum from developing and drawing moisture through the seals, and at the same time eliminates external losses from an air-conditioned room. Seven different mullion covers are available and both windows and mullions can be obtained in Permanodic Harcolours—Honey Bronze, Antique Bronze and Sable Black.

Only Strand make lighting controls in such variety and only Strand make them for every purpose

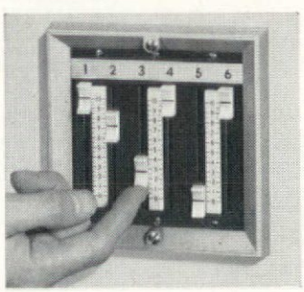


The latest Strand control is the IDM (Instant Dimmer Memory) System which is now going into the London Coliseum. This can provide 250 presets with recording and playback facilities on all channels.



An economic 2-preset system, as this one supplied to a Northern Variety Club, has 20 channel levers and is installed at the rear of the auditorium with a clear view of the stage.

The Strand SP Control system provides control facilities for up to 80 dimmer channels. Illustrated is one for 60 dimmer channels installed for theatre use and providing 3 presets and push button switching to each channel.



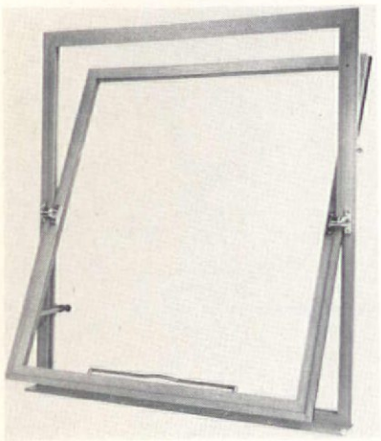
Strand also produce miniaturised electronic controls which can give infinite regulation of light intensities required for room lighting in restaurants, clubs and similar architectural lighting situations.

The items shown here are just a few examples to indicate the wide range of control equipment available from Strand. Our catalogue describes all the standard systems, their application and operational facilities. But as few lighting control problems are exactly similar please make early use of our Advisory Services now available in London and Manchester.

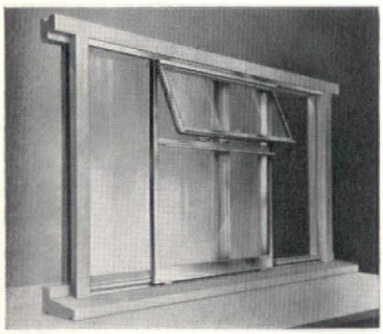
STRAND ELECTRIC & ENGINEERING COMPANY LIMITED

LONDON—29 KING STREET, COVENT GARDEN, LONDON, W.C.2. 01-836 4444
MANCHESTER—CONSTABLE STREET, GORTON, MANCHESTER 18. EAST 4141

DEVELOPMENTS



K9 Plastics windows
Bovis Building Products Ltd., Bovis House, Northolt Road, Harrow, Middlesex
The Eton Window System comprises 20 basic sections extruded from a high impact, light-fast, rigid PVC material specially developed for building components. The system is designed so that the sections snap together to facilitate assembly. The range of sections can be used to form fixed lights, vertical and horizontal sliding sashes, vertical and horizontal pivot windows, casements and fanlights. The PVC sections can, when required, be reinforced with either a GRP section or with an aluminium extrusion inserted within the PVC profile for very large windows. The first window of the range to be tested, a vertical sliding sash, has been awarded an Agrément Certificate.



K10 Low cost timber/aluminium window
Archital Ltd., Western Road, Wymering, Portsmouth, Hants.
The Archital TWO-STAGE Range is claimed to be the first re-design and reassessment of the house window for many years, combining the merits of wood with the guaranteed performance of weatherstripped aluminium. The dual-system ventilation provided enables anything between maximum and minimum ventilation to be secured simply and effectively. The opening portion of the window comprises a continuously weather-stripped aluminium panel, incorporating a top hung vent, which slides across the outside of the fixed pane. This allows all weathering details to be confined to the exterior of the window. The range covers a wide number of units varying from fixed lights to full height screens, and costs 7*s* 9*d* per sq. ft glazed.

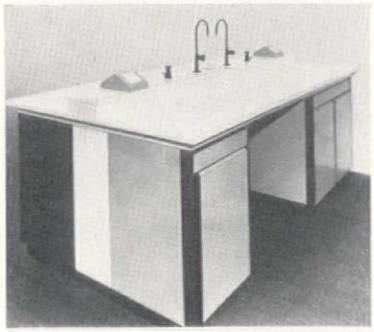
K11 Polyurethane foam window sills
Gebrueder Risse, Wickede/Ruhr, West Germany
A new process for the manufacture of window sills employs the type of polyurethane foam which sets in five to seven minutes, and is then covered with copper, zinc or aluminium sheeting. The moulded forms can be used either for external sills only, or for integral internal and external sills.

K12 Louvred double glazing
Meiners Optical Devices Ltd., 25–35 City Road, London, EC1
An hermetically sealed double glazed window produced by Schöninger Werkstätten oHG of Munich contains in the airspace a series of louvres which can be turned through 90° by a concealed electric motor. The panes are 5mm to 8mm thick, with a 4cm airspace enclosing the 36mm wide louvres, which has a prismatic pattern on the outer facing surface to reflect back the direct rays of the sun, thus minimizing heat absorption by the louvres. Another hermetically sealed pane produced by the same company has a 12mm airspace filled with a square honeycomb of white plastic. This is claimed to prevent visibility into the room during daylight, whilst still allowing a view from inside.

K13 Building panel
AB Denax, Lindesberg, Sweden
The Norfoam wall panel comprises a core of foam polyurethane with an exterior cladding of nailed brickboard and an interior cladding of gypsum slabs. It is claimed to be about 20 per cent cheaper than walls of comparable technical and insulating properties. The entire component is factory-moulded using a patented foaming process, which is completed in four minutes. The panels weigh approximately 10lb per sq ft and are therefore easy to transport and assemble. The entire structure is claimed to be highly fire- and impact-resistant and of great mechanical strength.

K14 Precast concrete cladding panels
Blatcon Ltd., Midsomer Norton, Somerset
Blatchford standard prestressed concrete panels are available up to 40ft in height in slab widths of 4ft. Each slab is in the form of a double tee with ribs 6in or 12in deep at 2ft centres. The panels are available with optional backing and insulation. Vertical joints are normally sealed with polysulphide or mastic, but may be designed to be of the drained type.

K15 New sealant
Expandite Ltd., Chase Road, London, NW10
Plastiseal is a rubber/bitumen compound suitable for sealing joints against concrete, brickwork, masonry, glass, metal and bitumen products. It is claimed to be particularly applicable for use where excellent flexibility, adhesion, slump resistance and resistance to weathering are required. It can be used for vertical and inclined joints from $\frac{3}{8}$ to $2\frac{1}{2}$in wide, accommodating cyclic movement up to 15 per cent of the joint width. One gallon will fill 92ft of $\frac{1}{2}$in × $\frac{1}{2}$in joint at an approximate cost of $2\frac{1}{2}d$ per foot run.



K16 Laboratory furniture
Matthews & Yates Ltd., (Incorporating Turner & Brown) Turbro-Cyclone Works, Gibraltar Street, Bolton, Lancashire
The Plan 70 Units are a simplified and economical range of laboratory furniture for hospitals, universities and schools. They are supplied in various timber or Wareite finishes. The removable drawers have shelf slides in nylon and are reversible to form flat trays, effecting savings in drawer and shelf costs.

K17 Moulded acrylic bathroom
Hans Gunter Möller, 2870 Delmenhorst, Oldenburger Landstrasse 50, Postfach 48, West Germany
The Moeller-Sanitär bathroom unit comprises a floor and wall section, and integrally shaped bath and washbasin, in one moulding. The unit has a floor 189cm × 166cm from which diagonally formed side walls rise to a rear wall 175cm high, into which the bath and washbasin are moulded. The inside dimensions of the bath are 145cm × 65cm reducing to 25cm. Space is provided for a w.c., and the complete unit weighs 80kg.

K18 Steel folding doors
Norwood Steel Equipment Ltd., Howard Way, Harlow, Essex
Twinfolda folding steel doors are manufactured from 22g steel sheet, stove-enamelled in a choice of 18 BS colours, or as an alternative for quantity orders, with a plastic coating. Steel channels at the top and bottom of the door incorporate steel pins held in nylon bushes, which run in aluminium head and floor track channels. The doors are available in three types: flush, louvred at the top, or louvred at the bottom. Two- and four-leaf units are available, 2ft and 4ft wide respectively, height 6ft 6in.

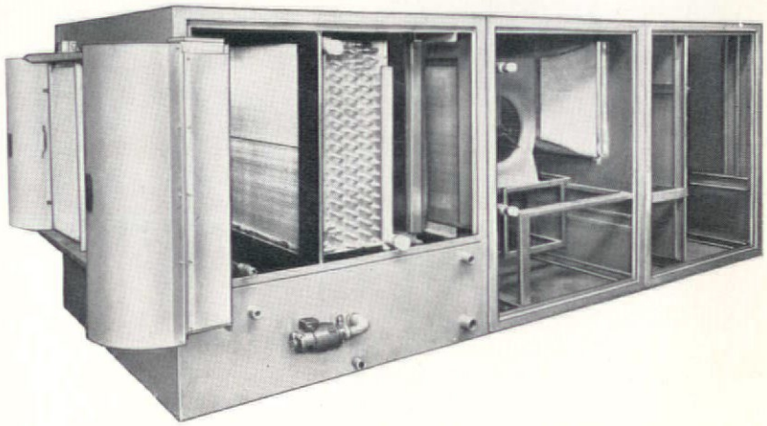
K19 Semi-sprung flooring system
The Mipolam-Contiwood flooring system comprises 5ft × 2ft tongued and grooved 15mm plywood flooring panels overlaid on plastic battens. These consist of a high modulus semi-rigid polyurethane foam moulded in $\frac{3}{8}$in thick lozenge profile to a $\frac{1}{8}$in hardboard strip 2in wide by 4ft long. The flooring costs approximately 70*s*. to 75*s*. per sq. yd., laid.

K20 Modular air conditioning system
Kleenflo Ltd., Conway Street, Nottingham
The Kleenflo air-conditioning system comprises 15 standard components which can be built up to form the simplest or most complex air-conditioning units. The modular construction enables special purpose systems to be built up from standard mass produced parts, and permits the system to be extended or altered to suit changes in requirements. The system includes a mixing box, three filter arrangements, face and by-pass dampers, heating and cooling coils, spinning disc, spray coil, steam and electric humidifiers, air washer, fan section and silencer.

K21 Calculating machine
Litton Business Systems Ltd., Airport House, Purley Way, Croydon, Surrey
The Monroe 570 has a listing capacity of 10 digits and a totalling capacity of 15 digits with speeds of 800 rpm for multiplication and 200 rpm for addition, subtraction or division. The sum is set as it would be written and all steps of the calculation are printed in black on the tape, whilst all answers are printed in red. Automatic spacing after each answer clearly separates each calculation for easy identification. Price £340.

K22 Plastic fencing
Netlon Sales Ltd., N.E. Wing, Bush House, Aldwych, London WC2
Netlon claim to have produced the world's first plastic fencing, made of 100 per cent high density polythene. It is rust- and rot-resistant and is said to retain its full shape under tension. Available in white or green, manufactured in rolls of 2ft, 3ft and 4ft wide by 75ft long.

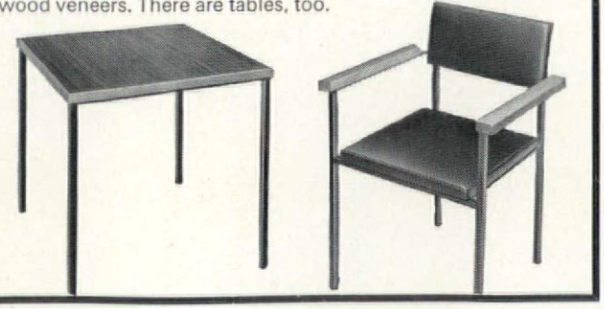
K23 Booklet on plastics insulation products
The British Plastics Federation, 47 Piccadilly, London, W1
Despite their increasing use as insulation materials, the properties of the different forms of plastics available are still not widely known, and architects frequently have difficulty in distinguishing which types to use for specific applications. *Insulation Products* is the first of a series of books which the British Plastics Federation is issuing as a result of the growing importance of plastics in present day building construction.



Consider Remploy-Stafford linking furniture

You should. Wherever and whenever seating, space and good taste play an important role, you're likely to find Remploy-Stafford linking furniture. Designed on a modular system, each handsome piece can be used on its own or quickly linked together in any variety of combinations. It's easy. No hooks, clips, loops or mechanisms – nothing to go wrong or damage clothing. Any piece links with any other. Locks rigid. Available in elegant fabrics designed to keep their good looks for years.

Also to be considered – Remploy make a very wide range of stacking furniture. Comfortable chairs that stack as high as you want. They come in either durable fabric covering or smart wood veneers. There are tables, too.



Contact us for further details. You'll be pleasantly surprised about our unique and competitively priced furniture.

Remploy **REMPLOY LIMITED**

(METAL FURNITURE DIVISION), REMPLOY HOUSE, 415 EDGWARE ROAD LONDON, N.W.2. GLADSTONE 8020 (30 LINES)
London Showroom 22 Bruton Street. Berkeley Square, W.1. Tel: MAYfair 4881.
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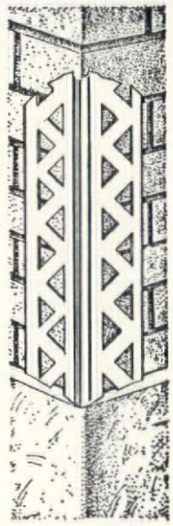
Code 18

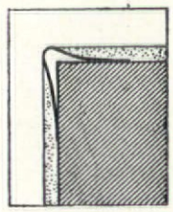
FOR *FASTER PLASTER



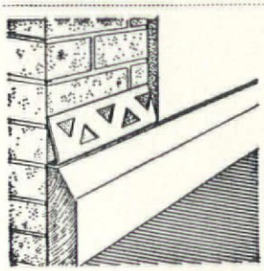
*** (in both senses of the word)**

around every corner . . . the new Blakey Galvanised Metal Angle Bead.

Designed to the suggestions of leading architects, Blakey Angle Bead fits snugly and easily over breeze blocks or bricks; gives phenomenal keying power; and substantially reduces plastering costs. (One well-known firm of plasterers reports saving of 5d per foot run—£5 per house—compared with concrete angles).



Simple and speedy to fix, ruggedly strong but light, Blakey Angle Bead cannot rust or corrode, chip or break. MANY THOUSANDS OF MILES OF BLAKEY ANGLE BEAD ARE NOW IN USE THROUGHOUT THE WORLD—CONSTANTLY, INFALLIBLY RELIABLE.



A specialised form of angle bead–Blakey Stop-End-Casing has been designed to strengthen plastering at openings and abutments. It is essential for expansion joints and skirtings, architraves, rooflight openings, and junctions and access panels and tiling. BLAKEY STOP-END-CASING BEAD OFTEN ENABLES WET TRADES TO COMPLETE WORK BEFORE THE FINISHED JOINERY IS FIXED

BLAKEY BEADINGS CONFORM FULLY WITH THE APPROPRIATE BRITISH STANDARD SPECIFICATIONS

Lower costs - speed the job - with

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Blakey Cabinet & Metal Works Ltd.,
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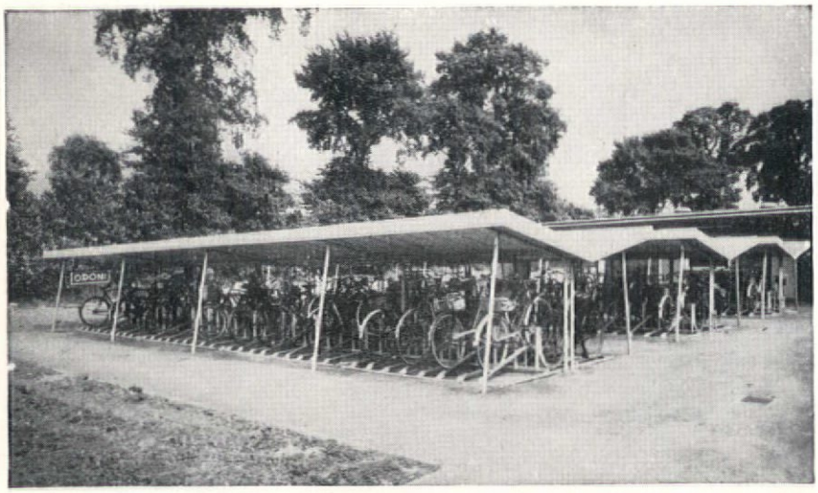
Code 19



Type TD2A-R-LR ODONI Tubular SHELTER (R.D.899573) with Type 5A Pedal Cycle Stands at Gable Hall School, Corringham, Essex.
Photo by courtesy of Messrs. Brown & Moulin, A/A.R.I.B.A., in Association with H. Conolly, C.B.E., F.R.I.B.A., County Architect, Essex County Council

Odoni

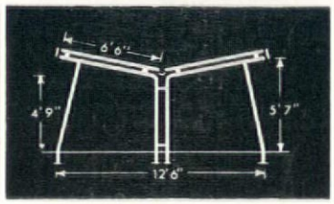
Regd. Trade Mark

TUBULAR STEEL SHELTERS

An entirely NEW range of Tubular Framed Steel Shelters

for

BICYCLES, MOTOR CYCLES AND MOTOR VEHICLES



ODONI presents an entirely new range of Tubular Framed Steel Shelters in both traditional and contemporary outlines, designed either for use with the well-known ODONI all-steel bicycle stands which may be integrally or loosely fitted, or as an open shelter with uninterrupted floor space.

Shelters may be single sided (6' 1" wide) or double sided (9' 10" or 12' 6" wide) with gable or butterfly roofs, and are manufactured in a wide variety of profiles.

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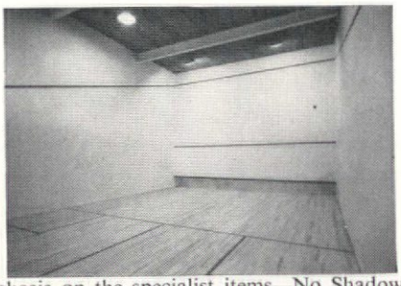

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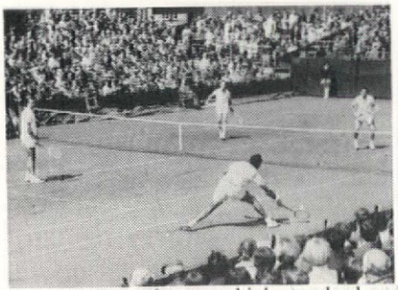

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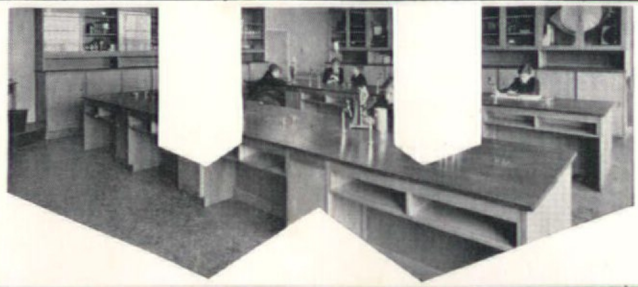

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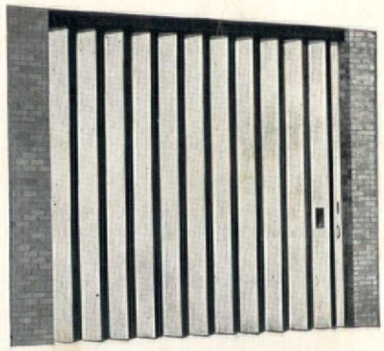

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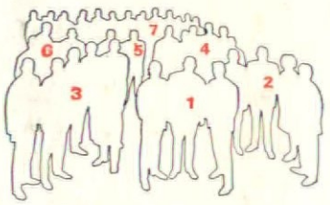

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