The Casbah concept was developed by a group of younger European architects in the late 1950s. It flourished over a period of no more than ten years but its influence continues to this day.

Casbah: a brief history of a design concept

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In the late ’50s a group of younger Dutch architects collectively assumed the leadership of the Dutch architectural journal, Forum [1]. In a remarkable series of 23 issues between 1959 and 1963, they formulated a vision of collective form as the highest imperative of the architectural act. In defining a spatial medium for social content in architecture, the Forum group’s contribution was among the most seminal of its generation. Their critical ability transformed the intellectual content of urban design and social housing and helped to formulate and promote a new cultural agenda for the profession.

The Forum editorial board included Apon, van Eyck, Bakema, Boon, Hardy and Hertzberger. Among these, Aldo van Eyck was the intellectual catalyst with a vision of the magazine’s potential to influence the culture of practice. Beyond the limited membership of the editorial board the group was strongly associated with the intellectual leadership of Team 10 – whose work and writings frequently appeared in Forum. Together they initiated a process of critique which was to open the culture of Modernism to post-war thought and philosophy. In its uncompromising commitment to the primacy of social issues as the potential source of a new architecture and urbanism, the group was unparalleled as a cultural force.

 Besides its propagation of a humanist agenda for the practice of architecture, Forum promoted certain models and methods of design. These were based upon a preference for an architecture and urbanism of configurative patterns. The key term was, of course, structure, and the search for the motifs and structuring devices of an urban architecture was to become the seminal medium of their design approach. For van Eyck, at least, these ideas were influenced by his knowledge of the writings of Structural Anthropology. As interpreted by architects this literature had diverse paths of relevance. The most direct was perhaps the anthropological field research model as a method for gathering knowledge. There is evidence of such proto-architectural activities in both Forum and at Team 10 meetings such as that at Otterloo in 1959 (Newman 1961).

One of the general achievements of this generation was its contribution to an emerging epistemology for design, a new openness to the past as a source of knowledge, and the legitimization of precedent in design. For the Forum group the access to precedent was through the medium of configurative order. Underlying structure might be expressed as an abstracted two-dimensional pattern or three-dimensional spatial matrix. Preferred anthropological or historical sources were those which provided examples of geometrically complex structuring orders. This second influence of Structuralist thought provided the idea of underlying structural orders. By analogy, the
concept of structure might then be appropriated in design to spatial-organizational order. There were other influences that helped them to make these conceptual links to Structuralism. Foremost among these was the American architect, Louis Kahn. His preference for historical precedents with a complex underlying compositional order was known and admired. His deductive design process from this underlying pattern to physical realization, or from abstract ‘form’ to realized ‘design’ provided the key to a structure-based design method. Finally, his preference for simple geometry built into complex compositional orders by additive processes was a breakthrough towards a new modern spatial conception beyond the open plan.

The first theoretical statement
The basic ideas of steps toward a configurative discipline appeared in van Eyck’s pivotal paper of that title in Forum No 3 of 1962. It was a strong theoretical statement of the instrumental value of the structural and organizational knowledge that might be derived by research from the history of human settlements, be they the primitive villages of the American Southwest pueblo or the history and evolution of Hadrian’s Villa in Split. Knowledge of configurative patterns and complex three-dimensional orders was to become essential domain knowledge as well as the source material of the design process.

The cultural potential of configurative orders was the pithy message of much of this research. But beyond the exclusively formal and instrumental quality of this idealization of complex pattern there was a deeper social agenda. Changeability and an evolutionary potential were regarded as intrinsic
properties of a hierarchically ordered architecture. These attributes were not only to the advantage of the architect: they also empowered the user in the processes of housing and design.

Configurative discipline is about design knowledge and the significance of spatial-organizational structure in environmental design activity. In this sense, configurative knowledge is one of the foundations of architectural design and the key to the design of human settlements. Complex spatial orders simultaneously reflect and support the social institutions of urban life just as community may be seen to depend on density.

The Forum group’s vision of the city was one of continuous urbanism. The house-city duality: the house as city and the city as house, was a dominant theme and reflected the house-city relationship as an age-old characteristic of urbanism in the Netherlands. Indeed, one of the central objectives of the Forum group was to generate the structural means for this relationship. The aim was to use the formal order of architecture in a community of forms as a proposition for forms of community.

The Forum group conceived architecture as the invention of three-dimensional models of collective form. Their interpretations of such models through precedents and complex geometric structures anticipated the rich architectural potential that would later be realized by themselves and other members of Team 10. There is today a poignancy about their invention both of a new taxonomy of housing design and of a concept of social architecture. It represents the last great intellectual commitment to the centrality of social order in urban settlement design as the focus of architectural discourse.

Besides the buildings that they managed to create in the image of their ideas, their legacy is an amazing body of concepts and methods of collective form. These ideas were to become an iconic source for design as well as a new direction in design research.

The Casbah concept

Collective form and formal structuring

Configurative discipline was a means of achieving what van Eyck referred to as ‘labyrinthian clarity’. This latter concept essentially referred to the spatial complexity realized by employing additive, repetitive principles of composition. Through this it was deemed possible to transcend the very limitations of building typology, to go beyond the slab block and other conventional urban building forms. The spatial matrix replaced the concept of the building type.

These ideas were subsumed in the term Casbah. The first issue of the new Forum (No 7, 1959) contained an end-paper illustration with two photographs of the Taos Pueblo and the inscription, ‘Vers une casbah organisée ...’ [3a]. The image of the collective form of the pueblo was conflated with what was proposed as a generic term for formal structuring systems of habitat. Another image, that of the Middle-Eastern Casbah with its associations of dense and compact spatial organization tempered by the waft of spices from the shops that are spatially integrated with the houses became the cultural ideal of a younger generation [3b]. The distance from the pristine abstraction of Dutch modernism could not have been greater. A low, dense, contiguous, multi-functional building form was seen as the preferred medium for urban design. This concept drew on the...
principles of aggregation found in vernacular settlements where the resulting rich forms constituted identifiable social groups. In addition to the visual intricacy of the formal compositions, the tight integration of built and open space characterizing these settlements was considered a potential source of social enhancement.

This basis of design enabled the creation of urban fabric through serial replication \[^2\]. It was suggested that such morphological principles might also be valid at a range of scales, from the house to the city. The concept of a textural fabric also suggested the possibility of a new kind of Modernist space, that of modulated flowing space – a hybridization of the continuous flowing space of the open plan and the structured space of historical building. Finally, Casbah was also seen as the path to new forms of urban systems. These new formal systems might also support spatial and functional continuity, a realization of that elusive goal of continuous urban environment that had evaded the Modernists.

In 1962, van Eyck, outlining the design virtues of Casbah, wrote:

‘... it is now possible to invent dwelling types, which do not lose their specific identity when multiplied, but, on the contrary, actually acquire extended identity and varied

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4 By 1960 the idea of systems generating continuous fabric (megastructures) had become a dominant model and produced canon examples

- A masterpiece of the elemental, repetitive genre, Siedlung Halen, Berne by Atelier 5, 1966
- The hierarchical approach exemplified, Tokyo Bay scheme by Kenzo Tange, 1960

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meaning once they are configured into a significant group ... Each individual dwelling possesses the potential to develop, by means of configurative multiplication, into a group (sub-cluster) in which the identity of each dwelling is not only maintained but extended in a qualitative dimension ...'

Clustering

‘Cluster’ was the group structure principle underlying the repetitive process. Clustering generally took the form of the systematic repetition of a set of elements. Articulation of these elements and relationships was the ‘... means to govern multiplicity creatively and to humanize number ...’ (van Eyck 1962) [5a]. These geometric systems frequently took the form of a double module, the repetition of which provided the requisite spatial diversity as well as some degree of functional looseness, or ambiguity. This latter was achieved through generosity of scale which tended to make the modules functionally ambiguous.

The disillusionment with, and retreat from, the idea of the vertical city forced the younger group of international architects to reformulate the relevant problem of habitat for their generation. As the anti-typology of the vertical city, Casbah absorbed the latter’s ambitions to re-conceptualize the models of habitat. This ambition led to a dual approach for experimental architecture. On the one hand, it engendered a sociological and research-oriented disposition to design; and, on the other hand, innovative experimentation with the morphology of dense urban fabric.

Collectively, the international architectural culture of the early to mid-’60s redefined its objectives within the framework of this discourse (Buchanan 1990). Casbah and its connotations were part of a new semantics in which the relationship between the morphology of the village, the understanding of vernacular form, serialism, combinations of repetitive forms, and formal abstraction played itself out as an artistic and architectural paradigm. From the remarkable ‘Primary Structures’ exhibition at the Jewish Museum in New York in 1962 (Crow 1996) to Safdie’s hybridization of the vertical city and village in ‘Habitat ’67’, configurative discipline became the epicentre of a new set of generative concepts for the practice of design.

Megastructures

The related idea of systems generating a continuous and frequently linear urban fabric became a dominant architectural model [3b] and such ‘megastructures’ became the subject of intense investigation. In Forum, we can see an easy slippage of scale between smaller group designs and larger urban-scale systems, all considered as part of an environmental continuum of configurative orders. But the reconciliation between the repetitive structure of Casbah and the urban scale of Megastructures introduced certain important design questions which preoccupied this generation of architects. One of these was the distinction between a purely additive architecture of repetitive elements versus hierarchically organized systems. The latter principle was to become of great significance in the efforts to overcome some of the limitations of a purely additive architecture.

By 1960 both approaches had produced canonic examples. At least one masterpiece of the elemental, repetitive genre had been completed in the Siedlung Halen by the Swiss firm, Atelier 5[4a]. In contrast, an early project exemplifying the hierarchical approach was Kenzo Tange’s Tokyo Bay Scheme of 1960 [4b], in
One may ask today whether the promise of such prototypes was ever adequately explored before the focus of architectural discourse moved on to other interests in the next decade. But for this earlier generation working within the ‘50s and ‘60s, the possibility of establishing formal systems on the basis of socio-cultural knowledge gained through research appeared to be a promising possibility. The Casbah concept was representative of the widespread acceptance of urban habitat as the core problem of the environmental design professions; and the development of high-density habitat systems as the major intellectual challenge of the time. After the early ’70s, this level of professional consensus locating habitat at the epicentre of professional culture ceased.

The legitimacy of precedents and the iconography of pattern

Vernacular architecture

One of the most remarkable aspects of architectural thinking in the late ‘50s and early ‘60s was the promotion of pre-literate cultures, vernacular architecture and informal urbanism as legitimate sources of design knowledge. This tendency was apparent in Forum with its frequent vernacular case studies and reportage of specific in-situ research. In the Forum group’s initial issue (Forum 7, 1959), images of social collectivity and community arrangements employing examples intermixed from Western and primitive cultures were juxtaposed. The pueblos issue (Forum 3, 1962) was the outstanding example of this phenomenon. However, numerous other examples exist of a broad trend towards the legitimization of learning from precedents and the emergence of a contextual sensibility. This was part of the wiping away of Modernist strictures about learning from the past.

An important influence on this development was the work of Le Corbusier and particularly the direction that it took in the ‘50s with the vernacular influences in Ronchamp. His early interest in these is apparent in the sketchbooks and such volumes as Journey To the East (1966) in which he treated the formal sources of the vernacular with the same degree of respect as that reserved for the great monuments of architecture.

Bernard Rudofsky’s exhibition and catalogue for Architecture Without Architects at the Museum of Modern Art in New York in 1964 was a milestone in the acceptance of an already broad change of sensibility. Rudofsky elegantly articulated both the wisdom and the utility of the vernacular and, showing examples of Mediterranean villages, Italian hill-towns and the cliff dwellings of the Dogon of Sudan (also previously published in Forum), he extolled the unique attributes of vernacular architecture. Numerous examples of the interior patio as a medium of urban organization were illustrated. Among the examples of North African settlements, Marrakesh was described as ‘... the archetype of an Islamic town with its quadrangular houses organized around interior courts’.

Structuralism and anthropological research

Here was a different motivation from the instrumental quest for configurative pattern. However, Rudofsky was equally didactic in his introduction, emphasizing ‘... the idea that the philosophy and know-how of the anonymous builders presents the largest untapped source of architectural inspiration for industrial man’. Part of this new awareness of the value of the past came through, and was filtered by, a Structuralist sensibility. Otto Haan’s report on North African vernacular dwellings at the Team 10 meeting in Otterlo (Newman 1961) was one example of the attendant anthropological approach derived from a commitment to Structuralism. The growth of an anthropological approach to environmental study became a broad international phenomenon. Such works as those of Amos Rapoport (1969) on house form and culture and Gunther Nitschke (1966) on the cultural sources of Japanese architecture represented the emergence of new research approaches during this period.

The interest in anthropological research as relevant to architectural knowledge emphasized the relationship between culture and spatial organization. The methodological filter which enabled the utilization of such knowledge was the motivation to transform observed spatial patterns into abstract syntactical relationships. It was never considered a source for the acquisition of explicit precedents, that is, actual forms that might be exploited in current designs. The two aspects, the legitimization of vernacular precedent, as well as the search for a design method to abstract structuring principles, appeared equally important as ways of drawing on the past. However, despite the reluctance to view anthropological case studies as direct precedents, the geometric patterns found in van Eyck’s studies of spatial organization of the villages of the Dogon and the pueblos of the American Southwest bear a family resemblance to his own designs /5a/. This exploitation of geometrical grids and modular, repetitive structures was later to become common enough in Dutch architecture to be described as ‘Dutch Structuralism’ (Lüchinger 1981).

Learning from the vernacular, particularly from studies of configuration patterns in vernacular settlements, generated a new interest in the history and morphology of the village /5b/. In both research and design, the village was to become an icon for the architectural profession throughout the ’60s. Projects such as Paul Rudolph’s Married Student
Housing (1960) [6a] and Eero Saarinen’s Morse and Stiles dormitory (1962) [6b] both at Yale University, and Moore, Lyndon, Turnbull’s Sea Ranch (1964-66) [6c] exemplify the iconic power which the village possessed for that generation.

Village form and structure became considered as the epitome of habitat design. In the best cases, design was not the eclectic re-use of vernacular images. The objective was to enable the revival of the art of community living through the recreation, without formal imitation, of certain spatial attributes of the village. Safdie’s Habitat (1967) [7] may be seen as the culmination of this period in which the two dominant typologies of habitat – the vertical city and the village – were conflated. This coalescence of slab and cluster forms was an attempt to inculcate many of the attributes of ground-based community structures within the high-rise building. It was a brilliant design statement of the merger of three of the paradigmatic design concepts of its period: the vertical city, Casbah, and the concept of the factory-made house. It is not a coincidence that studies for this project in the form of Safdie’s student thesis were originally published in Forum (5, 1962).

**Low-dense housing and the open form**

The manipulation of movement systems

During the ’50s, the design of circulation and spatial systems in high-rise buildings was the subject of intense investigation. A major medium for this work was the manipulation of movement systems acting as ‘streets in the air’ connecting slab blocks. Womersley, Lynn and Smith’s a formal urban structure at Park Hill and Hyde Park, Sheffield (1955-1965) [8a] was an outstanding example of this tendency to apply social and urban ideology in the design of the organizational fabric of high-rise buildings.

Even in the ’50s, low-dense housing systems were seen as an alternative medium for experimentation in both dense organization and collective systems. Some of this early work was inspired by the designs of Western architects in Near Eastern and African countries. The climatic design of many of these projects was influenced by regional prototypes (Squire 1957). British architects such as Chamberlin, Powell and Bon (Architectural Design, 1956) and the firm of Fry, Drew, Drake and Lasdun (Drew 1957, and Architectural Design 1958) developed a body of work in which they experimented with compact organization in low-dense housing forms. Frequently, these schemes incorporated the street/path as a part of a continuous system, often in the form of a covered street.

That circulation can be a generating design medium within an architectural system was a lesson well-learned. It was a principle frequently applied in North Africa where cutting-edge work was done by, among others, Candilis, Josic, Woods. Designs of the early ’50s in Morocco and Iran explored the potential of covered street systems spatially integrated within continuous clusters of low-rise housing. The well-known Semiramis Block by ATBAT in Algeria 1955.
and later in Morocco [8b] early studies for which began in 1953, introduced the checker-board stacking motif which made possible the vertical combination of traditional spatial forms such as shaded outdoor patio spaces. An intricate interlocked system of continuous low-rise clusters with an integrated path system of walkways covered by parts of the building also appeared in their Fort Lamy project of the mid-’50s. Similar motifs also appeared in the work of the Swiss architect Studer for Casablanca in 1954 [8c].

The emergence of low-dense housing

It is notable that in this work cultural responsiveness was based upon spatial and configurative potential rather than the desire for an iconic vernacular. Thus work in the Third World might evolve principles with relevance elsewhere. By the mid ’50s, experimentation with low-dense continuous systems was widespread. Within the next few years the configurative richness of designs employing additive, repetitive elements resulted in the low-dense system emerging as a significant design paradigm. The rationale of this housing was that reasonable urban densities might be achieved with an organization of unique clusters and particular house forms. As the British architects, Howell, Killick and Partridge, said:

‘It seems to us that the house – i.e. the dwelling in direct contact with the ground – is a concept that CIAM has never taken sufficiently seriously as a possible element of the city. The lack of basic thinking by researching architects in this field has meant that, while the multi-level block is now established as an urban concept, the Twentieth Century has not yet produced a city, or part of a city, made of houses; it has produced suburbs, dormitory villages and Broadacre, all latter-day children of the Romantic Movement, but not a Polis.’ (Quoted in Lehrman, 1966)

The possibility of replicating the identity, privacy and territorial attributes of the ground-attached house within dense clusters of low-rise dwellings became one of the central concerns of the profession in the late ’50s and early ’60s. In terms of land-use, the savings achieved by the elimination of such elements as side-yards made the dense housing approach attractive. Furthermore, appropriate urban densities were seen by urban sociologists such as Jane Jacobs in 1961 as among the requirements for urban safety and stability. Community form commensurate with privacy was the rationale behind Chermayeff and Alexander’s Community and Privacy of 1963 (itself based on several years of Harvard Graduate School of Design research on low-rise urban housing).

It was, however, the flexibility and variability of architectural form that made low-dense clusters an appealing alternative. The promotion of the village as a prototype for low-dense housing was also advanced by the ingenious possibilities which clustering offered for achieving the appearance of diversity and informalness. The morphology of the village became a medium for the realization of another of the period’s most poignant and generative concepts, the open form. The term had various interpretations. One of these was the variety and diversity of form possible within a system. Open form in the case of low-dense housing can contribute the appearance of an ‘accidental’ quality of massing, or grouping, as it did at Sea Ranch. This potential of expression of the accidental within essentially rule-based systems was one of the most powerful aesthetic concepts of this period. In an urban sense, open form was a connoted aformal organization, open endedness, and the break with formally constraining orders.

The patio, or court-house, form was almost a sine qua non of low-dense housing. The introspective house was seen as the key to a high-density urban habitat supporting the social attributes of the Casbah concept. Such housing structures could be designed as open systems and provide variations in groupings and house form. The patio house was a key element of this new urbanism and the subject of considerable research. Numerous projects of the period investigated its potential. Chermayeff and Alexander’s research was undertaken within the framework of concepts that attributed particular values to this housing type [9a]. Among numerous examples of the ‘rediscovery’ of this historic form and its exploration in new urban housing was Jose Luis Sert’s own house in Cambridge (1958) [9b] which was originally conceived as a prototype for such
High-rise circulation and spatial system design was the subject of intense investigation in the 1950s.
a. Social and urban ideology applied to organizational fabric, Park Hill, Sheffield by Womersley, Lynn and Smith, 1955-65
b. Checker-board stacking enabling shaded outdoor spaces, Semiramis block, Algeria by ATBAT, 1955
c. Continuous low-rise clusters and integrated path systems, Housing, Casablanca by Studer, 1954
housing. There were also various projects for the stacking of patio-houses, through which higher densities could be achieved.

**Mat-building: the morphology of Casbah beyond housing**

*Attributes rather than forms*

In their ‘Mat-Building’ paper of 1974, the Smithsons’ theoretical statement on the issues, attributes, morphology and practice of high-density, low-rise continuous systems for urban structures beyond housing, Alison Smithson wrote:

‘Mat-building can be said to epitomize the anonymous collective; where the functions come to enrich the fabric, and the individual gains new freedoms of action through a new and shuffled order, based on interconnection, close-knit patterns of association, and possibilities for growth, diminution and change.’

Smithson virtually summarized the thoughts of her generation at this important transition: she presented the ideology of Casbah and its more generic form, ‘mat-building’, on the basis of its attributes rather than its forms. Hers was a generation for which architecture was a spatial art, and the language of spatial fabric was the medium of the architect-urbanist. Disciplinary knowledge concerned the precedents that supported the derivation of spatial structures.

Smithson’s ‘functions come to enrich the fabric’ is reminiscent of Herman Hertzberger’s approach to functional design through ambiguous form (Reinink 1989). The ‘new and shuffled orders’ of low-dense, continuous, urban structures, or mat-buildings, were seen as providing the foundations for new social possibilities such as ‘close-knit patterns of association’. Finally, mat-building was seen as the vehicle of preference for realizing one of the great visions of this generation, a time-related dynamic architecture which would provide ‘possibilities for growth, diminution and change’.

Mat-building took the form of continuous, extensible low-dense urban structure. At this basic level of definition Smithson swept in broad strokes across historical, vernacular and contemporary works. These included the pyramid complex at Saquarra, as well as Chinese and North African vernacular architecture, Katsura and Fatehpur Sikri – all of which were among the rediscovered historic icons of ’50s and ’60s published literature. Besides these she displayed the important urban systems designs of Candilis, Josic, Woods. First and foremost among these was the partially realized masterpiece of the genre – the Free University Berlin (master plan, 1963 [10a]). Also included were some of their other important schemes, such as the Frankfurt Town Centre Competition scheme of 1965 [10b], so paradigmatic for mat-building, and works of the Smithsons themselves and of van Eyck. Le Corbusier and Juliani’s Venice Hospital of 1965 [10c] was also retrospectively classified as a ‘mat-building’ and thus representative of what had by then become a leading conceptual tendency in European architecture. Other works such as Mies’ projects for court-house complexes and Kahn’s Philadelphia Roads Study were illustrated as ‘new readings’ made possible by an awareness of the idea of mat-buildings.

**Infrastructure architecture**

Mat-building, or carpet-type structures of organization, followed several morphological principles. Among these were complexes of repetitive, serial elements and complex grids, or lattice, organization. Beyond this first morphological level of additive, or grid-based architecture, other mat-building works also utilized an open hierarchical order as the means to achieve more complex systems. In the centre of the Smithson article, a sculpture by Louise Nevelson was illustrated with the explanation ‘... Apparent sameness made the carrying order’. Here the assemblage of boxes created a carrying order for the eclectic clusters of
Patio or court-houses reflected the Casbah concept and were the subject of considerable research – as in these two examples by Yale and Harvard architecture professors:

a. Architect’s house, New Haven by Serge Chermayeff, 1963
b. Architect’s house, Cambridge, Mass by Jose Luis Sert, 1958

c. Free University Berlin by Candilis, Josic, Woods, 1963
b. Frankfurt Town Centre Competition also by Candilis, Josic, Woods, 1963
c. Venice Hospital Project, second scheme, by Le Corbusier, 1965

Mat-building took the form of a continuous, low-dense urban structure:

a. Free University Berlin by Candilis, Josic, Woods, 1963
b. Frankfurt Town Centre Competition also by Candilis, Josic, Woods, 1963
c. Venice Hospital Project, second scheme, by Le Corbusier, 1965

Low-dense open configurative design was more widely adopted in the Netherlands than elsewhere. The Centraal Beheer office, Apeldoorn by Herman Hertzberger (a Forum Group member), 1968-72, was a masterpiece of this genre.
Among the designs influenced by the Casbah concept was the desert town at Be’er Sheva, Negev by Yaski, Alexandroni, Havkin, Zolotov and Carmi, 1958-66. The aim was to provide an appropriate local form for a neighbourhood in a desert climate.

a Original site plan showing the juxtaposition of two typologies of the collective: slab and Casbah
b As-built site plan
c Model of the as-built scheme
d Computer model of the as-built scheme
e Detail of Casbah
f Detail of slab
g Experimental neighbourhood by D. and A. Havkin showing view into continuous paths of mat-housing
h Typical plans of low-rise cluster housing by D. and H. Havkin
sculptural elements placed within them. The analogy to architecture and urbanism is well taken. It is an attribute of such hierarchically ordered systems that the separation into independent physical systems enables each level to be organized differently in spatial terms.

Another important principle of design appears where the supporting structure was designed as a separate and independent physical system rather than a movement space. This was the basic concept underlying ‘infrastructure architecture’ and ‘support structures’. The Free University Berlin has a spatial matrix into which the functional spaces were plugged and free to change, or be exchanged, as time and function demand. The idea of spatial matrices as ‘supporting hierarchical levels’ was adopted as a morphological principle in mat-building just as it was in high-rise building.

In the Netherlands, more than in any other country, low-dense open configurative design gained ground and one of masterpieces of the genre was created there by one of the original members of the Forum Group. Herman Hertzberger's Centraal Beheer Office Building in Apeldoorn (1968-72) [11] manipulated the idea as a counter-form to another important concept of the period, office landscape, in an attempt to imbue the flexible spatial environment of open office planning with scale and identity.

**A Cartesian Casbah**

Settlements in a young State

Casbah and its related body of concepts became central to architectural discourse throughout the world during the early ‘60s. Among the designs produced as a result of these ideas was an experimental neighbourhood (1958-66) in Be’er Sheva, a desert city in the Negev region of Israel. Since the population of the young state was composed of Jewish immigrants from every part of the world, social integration was one of the objectives of state planning for residential neighbourhoods. Just as there was one right model for the ‘new Israeli’, so there was to be one model for the state’s new towns and neighbourhoods. The
objective was to culturally homogenize and ignore the diversity of ethnic origins, rather than to celebrate it.

Initially the most commonly applied precedent was that of the British Garden City. The reality, however, did not match the dream. The gardens, a product of English planning, did not bloom in the Middle-Eastern climate, and the large distances between the houses impeded the formation of neighbourly relations. In the desert towns in the southern part of the state, the utopian dreams vanished with the first sandstorms that entered a neighbourhood and its houses. It took the first decade of the state and its planning institutions (1948-1958) to realize that this approach did not work.

The Be’er Sheva experiment

Inspired by the 1957 Interbau construction exhibition in West Berlin, the Ministry of Housing set out to explore new models of housing better fitted to local conditions and populations. Among these projects was an experimental neighbourhood initiated in the desert town of Be’er Sheva. A group of young Israeli architects (A. Yaski, A. Alexandroni, N. Zolotov, D. Havkin and R. Carmi) were asked to plan a neighbourhood of 3000 dwelling units. The planning aim was to construct a local building form. Avraham Yaski (1968) specified the following objectives:

- finding an appropriate solution for a neighbourhood in a desert climate;
- developing structural solutions that would facilitate maintenance by the immigrant population;
- materializing the concept of cluster as a clear-cut physical and social element in the urban pattern. The desire to close the neighbourhood off from the cruel winds of the desert sandstorms and to shade outdoor areas from the burning sun led the planners to view low-density housing as a possibility. This was also reminiscent of the vernacular housing of Morocco, from where many of the immigrants came.

The experimental neighbourhood was planned on the basis of a system of low-density housing, proposed by Havkin and Zolotov. One- and two-storey patterns of mat-type housing covered most of the ground space in the neighbourhood. Every apartment had two yards of 57 to 85 square metres in area. In order to protect the residents from sandstorms and dust, the yards were surrounded on all sides by walls to become courtyards. The front yards of one row of houses were placed 3 metres away from the front yards of the opposite row, so that a narrow and protected path was created between the rows of houses. The backyards were placed adjacent to the backyards of the next row. The pathways were partially shaded by second-storey rooms, thus creating a network of covered streets.

In order to delimit and identify the new neighbourhood as well as to protect it from the desert, the plan proposed a boundary formed by long slab-like buildings inspired by Le Corbusier’s Unité. Two diagonal axes for vehicular traffic crossed the neighbourhood and a straight central axis for pedestrians connected the central mat-housing with one of the long blocks and community facilities. Neighbourhood gardening areas were planned along these axes.

As constructed, the neighbourhood did not follow the original plan. There were many changes in the overall plan and, in the end, only one of the long buildings, designed by Yaski and Alexandroni, was built. Raised on pilotis it was planned with duplex apartments and long corridors that constituted, it was hoped, a ‘street in the air’. The mat-buildings, however, were built as designed, and to this day constitute one of Israel’s most interesting experiments with the ideas of Casbah [12a-h]. The project was influential in promoting the concept in Israel and was followed by other works [13].

The experiment evaluated

Mat-housing was an innovation in Israeli public housing. Accordingly, following the completion and occupation of the first 1000 units in 1965, its effectiveness was subjected to a post-occupancy evaluation. This confirmed the success of the vernacular-climatic components of the mat pattern. These, as previously mentioned, were based on Moroccan, Algerian and Iranian precedents that had developed historically to match desert conditions: the narrow paths provided shade for the pedestrians, the construction density prevented the adverse effects of dust storms and the internal yards proved an appropriate solution for the desert climate. The clearly defined ownership of the yards ensured their cultivation – unlike the ownerless public gardens that had remained deserts in the earlier Garden City model.

The designers’ primary intention had been to achieve a form suitable to its inhabitants, which responded to their cultural needs, which provided personal identity, and which fostered meeting and a sense of community. The 1965 evaluation did not reveal as positive a response from its inhabitants as might have been expected. However, in 2000, an informal survey found this neighbourhood to be one of the most popular public housing areas in Be’er Sheva. It still possesses all of the positive indicators of...
an active community. Despite the small size of the dwellings, they are, in fact, terraced private houses to which there is some status attached as compared to apartments in multi-family buildings. Despite their small size, the owners have found ingenious ways over the years to expand their homes.

The disappointment with crowded modern cities and the loss of personal and local identity raised many questions in the ’50s and ’60s. Seeking a source for new ideas in the patterns of planned settlements, the architects and researchers of that generation seemed on the verge of discovering a way to an architecture of social institutions. Not only did these forms appear to have an affinity with the cultural origins of their users, but they promised some degree of independence and freedom even within the context of public housing. If, in hindsight, any criticism is to be levelled at Be’er Sheva, it is that the small scale and Cartesian clarity of the grid turned out to be a constraint on the evolution of the settlement. This rigid grid was perceived as arbitrary by the inhabitants and later caused difficulties. As the years passed, little space was left for structural modifications and when they occurred, many were not planned in advance but were executed in an improvisory manner, usually at the expense of the small courtyards. Eventually, the lack of ability to adjust the houses to changing standards caused neighbourhood aging and the departure of well-off residents.

Incomplete questions, untested ideas and unrealized projects...

Over less than a decade in the ’60s, the Casbah concept had evolved to include other ideas such as low-dense housing, continuous systems, mat-building, open form and hierarchical open systems. Its permutations and the richness of interpretation within the architectural discourse of the period demonstrated the viability of these ideas and their ability to transcend the limits of the ideological sources of which they were a part. Beyond the particular problem of human habitat, the implications of these ideas were great and produced several masterpieces such as Habitat and the Free University Berlin.

Casbah symbolized the discourse of configurative knowledge. Its roots lay in spatial structure and organization. It was a manifesto for the primacy of spatial structure as domain knowledge. By the mid to late ’60s structure was declining as the leading conceptual paradigm of the period, and other theories were evolving and ascending in importance. However, the paradigm of structure had fostered a rich body of ideas and enabled the development of architectural research and methods that continue to this day.

This was the last period in which the social fabric of housing was a central theoretical focus for the design professions. It was also the end of a unique phase of experimentation and invention of new building typologies. Today, this can be seen as part of the ‘unfinished project of Modernism’ and architectural culture awaits the opportunity to return to the many questions left incomplete, ideas untested, and projects unrealized. In the meantime, the many examples of experiment that these ideas fostered throughout the world stand as a tribute to their generative power.

References


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This paper is dedicated to the memory of Architect Daniel Havkin, one of the architects of the experimental neighbourhood in Be’er Sheva, who devoted much of his life to the education of young architects.

Biography

Robert Oxman is the former Dean of the Faculty of Architecture and Town Planning, Technion Israel where he holds the Karplus Chair of Architecture and Design. He publishes frequently on the history of modern Israeli architecture.

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