Human Purposes and the Spatial Formation of Open Spaces – Al-Alkhalaf, Saudi Arabia

Tawfiq M. Abu-Ghazzeh
King Saudi University
College of Architecture and Planning
P.O.Box 57448
Riyadh 11574
Saudi Arabia

Summary

The paper proposes a definition and description of open space in the Al-Alkhalaf traditional human settlement in Saudi Arabia. The system of spatial organization is strongly related to the cultural and environmental setting: it provides a source for identity and guides interaction among people. Land use and the system of pedestrian circulation routes are strong cues for people's behaviour and their ties to traditions.

Résumé

Cet article présente une définition et une description de l'espace ouvert trouvé à Al-Alkhalaf, un village traditionnel d'Arabie Saoudite. Le système d'organisation spatiale est en rapport étroit avec la culture et l'environnement: il fournit aux habitants une identité et guide leurs interactions. L'utilisation du territoire et le système de circulation des piétons fournissent des indications quant au comportement des usagers et leurs relations avec des éléments traditionnels.

Introduction

People's "sense of place" rests with the degree to which a place (in its physical form) and the activities it facilitates reflect the culture of those who use it (Violich 1985). The arrangement of the built environment serves to promote or hamper the sense of personal well-being of individuals and their sense of belonging (Euston, Jr., 1971). This is dependent at least in part on the enhancement of opportunities for people to interact in the constructed environment. Effective communication is supported by the presence of shared cultural schemata among people (Hall, 1972).

Vernacular architecture, as discussed by several authors (Lawrence, 1983; Knapp, 1986; Oliver; 1987), bears witness to efforts made by the users to satisfy their physical and psychological needs within a built environment. Yet, limited research is

available regarding behavior and spatial formation in settlements with a conservative cultural background.

Several researchers have argued that the built environment can reinforce or inhibit human behavioral responses and that these responses can be explicitly defined using architectural remains of the past (Cox, 1972; Morril, 1974; Sanders 1985). Kelvin (1970, 241) observes that:

"Much of the perceived predictability of the social environment derives in fact from awareness of history: the known or believed acceptability of an action in the past is very relevant in making it seem (the action) likely to be proper in the future."

Recent design of settlements in Saudi Arabia has focused on the arrangement of physical elements, with limited attention being paid to the human factor. In comparison, traditional settlements are characterized by a respect for norms deeply rooted in Islamic religious principles. The organization of traditional settlements is respectful of the equilibrium between homogeneity and heterogeneity in a social system requiring segregation in domestic life and participation in economic and religious life of the community. This has created a hierarchy of spaces within the constructed form of Islamic settlements (Petherbridge, 1978). There is a lack of research linking design variables to specific forms of social interaction in Saudi Arabia. Saudi architects, urban designers, landscape architects, anthropologists and policy makers, among others, today are invited to conduct research based on classifying and organizing knowledge about historical and contemporary examples of the Saudi built environment. The purpose of this effort is to define complex and recurrent schemata developed through social interaction (known implicitly by members of society in specific areas in Saudi Arabia). They might serve to regulate interaction in different situational contexts.

This paper investigates and analyses the settings within which people live, act and behave, as observed in Al-Alkhalaf, a traditional settlement, located one hundred and seven kilometers southeast of Abha. The latter is the administrative center of Asir, southwestern region of Saudi Arabia (Al-Farsy, 1980) (Fig. 1). Emphasis is placed on outdoor living environments, i.e. on open spaces; these are linked to life patterns.

Research Methodology

Relevant information for this research was collected partly from field work conducted in Al-Alkhalaf (four visits, one-two weeks each, during the period 1990-93) and partly through discussions with former and current residents of the village. The first step was to complete the plan of the spatial system, starting from a schematic map of the settlement which was modified based on our survey. A deeper sense of spatial relationships derived from experiencing the spatial structure. Observations of behavior and discussions with residents followed. There exists no documented history on the Al-Alkhalaf village. "Cultural knowledge" is passed on from generation to generation.

The following discussion of certain aspects of traditional open spaces in the Al Al-khalaf settlement is an analysis of the use of a number of physical features in the village. It is only when issues related to the kinship system, cultural values, religion and social life are taken into account that one can comprehend how open spaces operate as components of the settlement design.
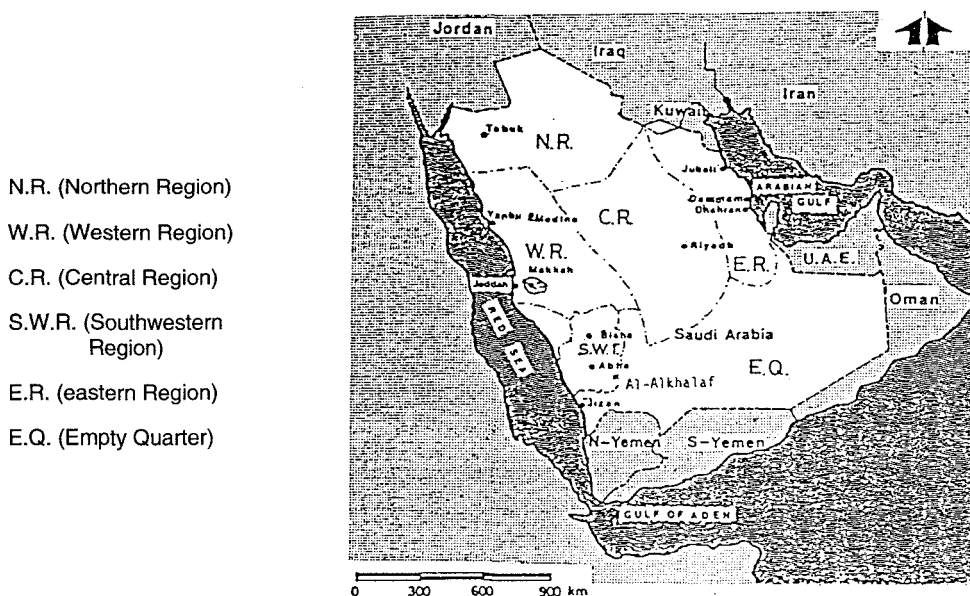
N.R. (Northern Region)

W.R. (Western Region)

C.R. (Central Region)

S.W.R. (Southwestern Region)

E.R. (eastern Region)

E.Q. (Empty Quarter)

Fig. 1   Geographical location of the Al-Alkhalaf human settlement in Saudi Arabia
Situation géographique du village d'Al-Alkhalf, en Arabie Saoudite

A Historical Overview

The scarcity of economic means, the nomadic life pattern and the custom of revenge, resulted in a lack of security among people of Arabia in the historical past (Buckhardt, 1968). The development of Al-Alkhalaf around the mid-17th century was certainly influenced by prevailing contradictory economic and political conditions. Security against tribal raids and Bedouin attacks was influential in the creation of early dwelling and village arrangements. Contrary to the reliance of nomads on pastoralism across the deserts of Arabia, the life pattern of settled people in Asir has encouraged agricultural practice as the main source of subsistence (Philby, 1976). The early residents of Al-Alkhalaf, a kinship group, utilized the available potentials of the village sites and preserved arable land in order to establish an economic basis. Houses were built on rocky sites, and arable land was left for agriculture. Buildings in the village were grouped together around *Qasabah* (watch tower) structures (Fig. 2, 3). The top level of the latter was used for surveillance of the surrounding landscape. Thirteen *Qasabah* buildings left in Al Alkhalaf today show how hostile conditions were in the past (Eben Saleh, 1993). This, plus the fact that residential

buildings look like fortified towers, is evidence that Al-Alkhalaf was developed with defense as a major preoccupation in planning and design of both indoor and outdoor spaces.

KEY:

▒ Settlement Domain
■ Residential Buildings
1- Qasaba (Watch Tower)
2- Yard (Fina); Residential Building Open Space (Private)
3- Friday Market (Suq), Al-Basta Al-U'lia
4- Communal Congressional Space; Al-Mashraf

5- Communal Underground Grain Storage Area; Al-Hoza
6- Public Open Space; Saha
7- Cemetery Place, Surrounded With Sahat Al-Qat'a
8- Public Open Space (Saha); Al-Basta Al-Sufla
9- Female Congressional Place; Al-Madra
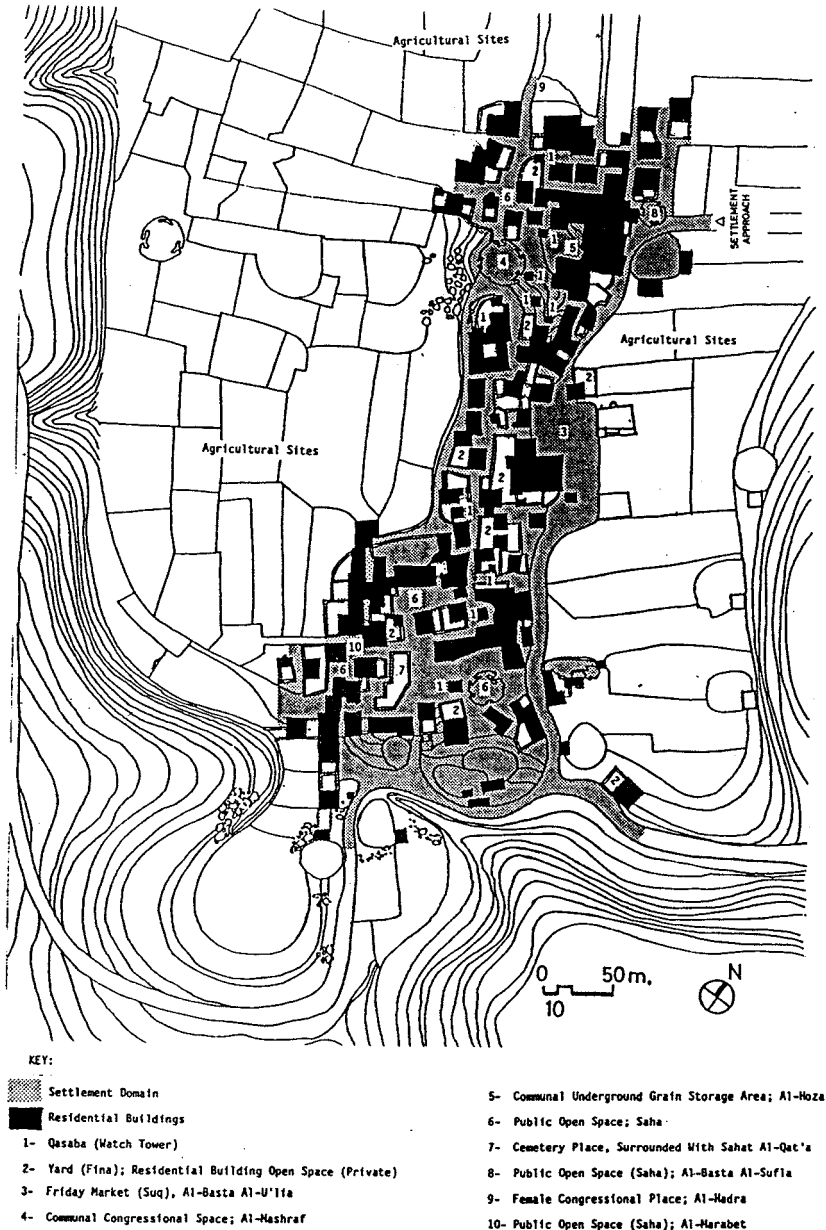10- Public Open Space (Saha); Al-Marabet

Fig. 2   The Al-Alkhalaf human settlement site plan (source: Eben Saleh, M., 1993)
        Plan du site d'Al-Alkhalaf (tiré de: Eben Saleh, M., 1993)

The village stands on a slight rise, the highest point in the landscape. From a distance it appears to be a miniature replica of a fortified town surrounded with defensive structures (Fig. 3). A gateway entrance at the north-east side of the village leads to a maze of covered and uncovered passageways, with public spaces flowing into one another in an astonishing spatial sequence. The yards and public spaces break out into narrow tortuous alleyways.

Physical Context

Basic spatial elements of Al-Alkhalaf include "closed" elements such as dwellings; *Qasabah* structures and mosques, which define an "open" system of more or less public space; alleys and the like, which knit the whole settlement together into a continuous system. It is the relationship of these "closed" and "open" elements that form an overall spatial arrangement, which both gives Al-Alkhalaf its spatial individuality and permits its identification as a member of a generic class of similar traditional settlements.

Open spaces in this village result from a number of factors that include the compact, organic grouping of the buildings, kinship relations, response to defense requirements against tribal raids, climatic conditions, attitudes toward the protection of nature and the natural landscape, and the nature of human activities. The development of areas observed in this settlement happened progressively, in response to the needs of people. It shows people's understanding of nature in a way that responds to the conditions of the site.

Open spaces in this settlement constitute settings that are designed and built to support particular activity systems in different and highly cultural-specific ways, and might be referred to as a "cultural landscape" (Rapoport, 1990a, 272). Different expressions of space-arrangement appear to be governed by consistent rules. Boundary-display and the arrangement of spaces within the village fabric embody the hierarchical aspect of the social system.

In short, this village arrangement presents a clear picture of the socio-physical, socio-economic, defense, environmental and religious systems prevalent in this community. It therefore gives insight into the relationship between the built form of the village and the cultural values embodied in a traditional way of life. An explanation of the typology and morphology of open spaces in Al-Alkhalaf can contribute to the understanding of village design based on tangible and intangible human needs.

Territorial Analysis

Territorial behavior conception derives from learned cultural convention (Lavin, 1981). In Al-Alkhalaf there are various types of territories, each with culturally established behavioral regulations. The distinctions among the various categories are based on the degree of control, on traditional space use, and on the characteristics of

territorial boundaries. The arrangement of open spaces in the village affects most types of everyday behavior.

Most movement passes through it; most public activity takes place in it; and most of the people's sense of being in an open space derives from it. Rapoport (1990b) observes that, when studying the relationship between activities and architecture (as mediated by culture), one must consider activity systems, as organized in space and time, and in order of sequence.

The problem of open space analysis is made more difficult by the fact that, to the geometrically-educated eye, the organization of Al-Alkhalaf seems to reflect a type of disorder. But geometrical order and spatial order are not necessarily the same thing. While the former may look like an intelligible order when seen from an aerial view where it can be grasped as a whole, it may not be an intelligible order when one moves within the same space (Hillier & Hanson, 1984). On the other hand, the type of irregular, disordered arrangement that is so characteristic of the Al-Alkhalaf settlement does not look like order when seen from an aerial view, but it seems to respect a hierarchical order when seen from inside the village; local differences constantly give clues as to the overall design of the settlement.

Sanders (1990) observes that the final arrangement of the constructed environment is never random, since it is created through a sequence of design decisions made by people (builders and users). Through the organic growth of this village over the past 350 years, a spatial system has been created that has made local places identifiably different from each other, and at the same time, has created the overall design of the settlement.

Typology

Historically, open spaces in the Al-Alkhalaf settlement have developed in a tripartite system of public, semi-public and private spaces (Fig. 4). The first type, public open spaces, includes thoroughfare pathways and alleyways along with communal and congressional places (*Sahat*, singular: *saha*). The second type includes cul-de-sacs, covered walkways (*Sabat*) and residential quarter courtyards (*Housh*) that are used by neighbours who live in the buildings surrounding this space. The third type consists of the private yards (*Fina*) of dwelling units (Fig. 4).

Cul-de-sac space is an area surrounded by a number of residential buildings. This area is a system of multiple layers of privacy that provides a shared access to surrounding structures. It is owned and shared by its users, along with special rights and responsibilities to the kinship group living in a cluster of buildings that surrounds this area. Women and children may use this enclosure for both social and

Fig. 3   View of Al-Alkhalaf from a south-western orientation;
notice the *Quasabat* (watch tower).
Vue d'Al-Alkhalaf prise du sud-ouest; on remarquera
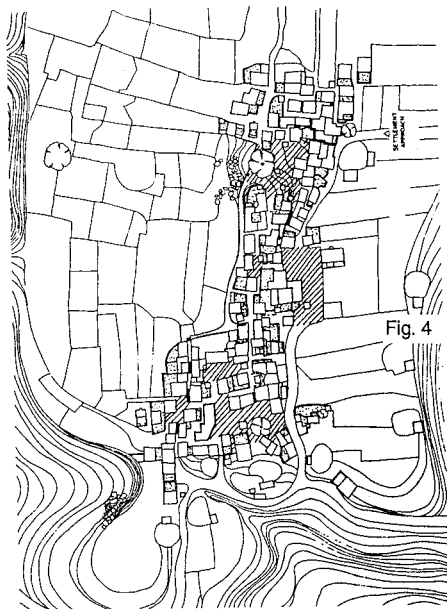la *quasabat* (tour de garde).

Fig. 5   Classification of the pathways.
Classification des voies de passage.

Public spaces
Semi-public spaces
Private spaces
Sabat (covered walkways)

Fig. 4   Open spaces in the Al-Alkhalaf have
developed a tripartite system of public,
semi-public and private spaces.
A Al-Alkhalaf, les espaces extérieurs se
répartissent en trois types: espaces
publics, semi-publics et privés.

Throughfare routes system

Access routes to major residential quarters

Minor routes, alleyways.

recreational activities. Access to this area is connected with one of the route systems observed in Al-Alkhalaf; these include: thoroughfares, major quarter streets and minor quarter streets.

Spatial organization is based on distinct territories, with circulation and public spaces confined to residual and interstitial areas. Open spaces in Al-Alkhalaf are characterized by intimate horizontal proportions that are appropriate to human use. They are of varying sizes and shapes, in a succession of covered and uncovered spaces surrounded by the homogenous architecture of buildings. They are intricately woven together in a spatial system that distinguishes between private, semi-private, semi-public and public places. None of these spaces is ambiguous; each has been attributed clear primary uses and functions.

The intimate scale is created by a series of walls which not only enclose spaces, but also tie houses together and link them to the landscape. The visual continuity of the grouping of residential buildings is in contrast with the verticality of watch towers that punctuate the settlement skyline and accentuate enclosures.

In Al-Alkhalaf, the uniformity of building codes and material (with buildings varying from two to five storeys), simplicity of the configuration of the plan shape (most buildings are designed with a rectangular plan form) and proximity, have resulted in similar enclosures. The anonymous builders, who often were both the master builder, his assistants, and the building owner(s), demonstrated concern with family privacy as well as with public activities and shared open spaces, thereby contributing to the social cohesion of the settlement. Plan, form and area of a specific open space in the Al-Alkhalaf settlement depends on: the number and inter-relations of surrounding buildings, location of Qasabah (watch tower), accessibility, topography, presence of a communal public facility, mosque, cemetery, communal underground grain storage, weekly market, and defense (Fig. 2).

The analysis takes into consideration the following spaces: the pathways, *Sahat* (sing. *Saha:* public open space), the *Sabat* (an air right concept), the souk area (Friday market), the Talka tree place (public congressional site), and the cemetery (see Fig. 2, 4, 5).

Pathways

Pathways and pedestrian circulation spaces in the village are publicly owned, and placed under the jurisdiction of the Sheikh (settlement ruler). The physical dimensions of these spaces and their particular character are important elements in the vernacular architecture of Al-Alkhalaf. Pedestrian routes are often designed to provide access to residential buildings, and since the layout of these is irregular, the resulting route system is tortuous. Pathways are classified according to the following (see Fig. 5): First, a thoroughfare route system (Tarik Nafith, Fig. 6) serves to connect residential quarters and public facilities with the surrounding landscape. Minimum width and height of this thoroughfare is chosen according to functional requirements

and defense considerations. Second, the streets of major quarters (Tariq Ghair Nafith); these connect with the primary routes and are the main access routes within and between residential quarters. These tend to form shortcuts across the first order streets. The third order alleyways are identified as minor routes to residential buildings. These provide access to areas and houses not served by the former route systems.

Three main thoroughfare routes are present in this village; these all run longitudinally in relation to the settlement direction, at roughly right angles to the sun path (Fig. 5). The first one is located at the northeast side of the village; the second route is located at the southwest side; and the third thoroughfare route runs within the settlement fabric. The first one, bordering the south-west side of the settlement, connects with one main congressional place (Sahat Al Mashraf) (Fig. 2); the second route (north-east) reaches the market place (souk) and runs north and south of this place. The third pathway, which passes through the village fabric, merges into a number of public congressional spaces (*Sahat*). The width of these pathways range from two to eight meters (see also Fig. 6).
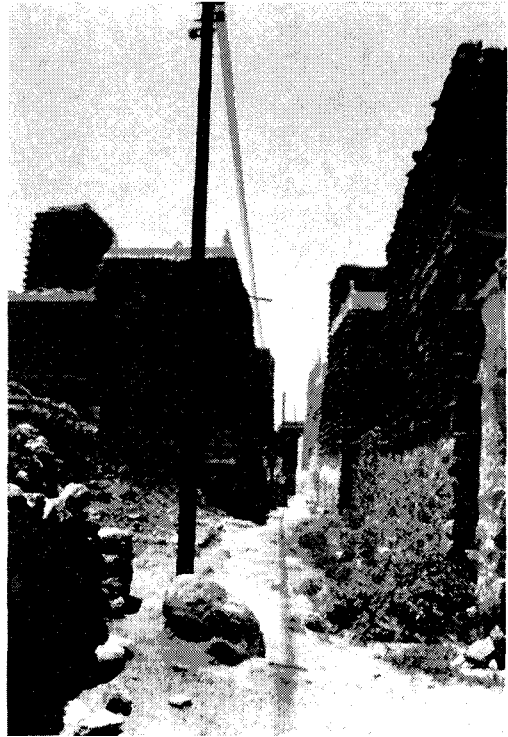

Fig. 6   Thoroughfare route *(Tarik Nafith)*
Voie de passage *(Tarik Nafith)*

Primary pathways in Al-Alkhalaf run east and west with some angle towards a north-south orientation, so that they frequently receive maximum shade and cool air during the daytime, a merit that is often observed in traditional settlements (Akbar, 1982). These spaces vary in width, ranging from two to four meters. As key arteries they provide access to every residential quarter in the village, and eventually vanish into agricultural sites that surround the settlement structure.

The height to width ratio of many circulation routes and open spaces is such that it provides a high degree of climatic comfort; it traps the cool air during summer time and protects from dusty winds (Fig. 7).

Sahat : Open Spaces

According to Fleming *et al.* (1985), social interaction is enhanced by the presence of three variables: first, the op-portunity for contact; second, proximity to others; and third, appropriate space to interact. Passageways in Al-Alkhalaf village often lead to communal spaces that form an integral part of the settlement fabric (see Figs. 4, 8). Community courtyards serve a number of socio-cultural activities, including: children playing, gatherings during late afternoons, and celebration of social activi-ties (e.g. marriage festivals and religious occasions every year). These places reinforce social relationships, a sense of belonging and psycho-
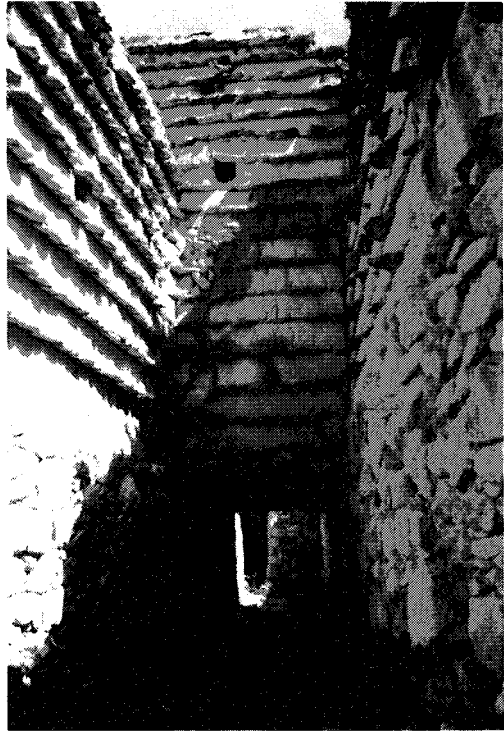

Fig. 7 View showing the character and design of circulation spaces
Cette vue montre le caractère et l'aménagement des espaces servant à la circulation

Fig. 8 *Saha* (public open space)
Saha (espace extérieur public)

logical comfort. A web of interwoven footpaths disperse from the souk space and lead eventually to neighborhood courtyards, cul-de-sacs and residential quarters. *Sabat* (covered walkway) structures sometimes form the lengths of this circulation system (Fig. 4).

Sahat (communal gathering open spaces) in Al-Alkhalaf are customarily defined by the solid walls of surrounding buildings, entrances of residential buildings open to alleyways, passageways, cul-de-sacs and other "convex, non linear, tortuous" (Hillier and Peponis, 1987) spaces that may be seen in the settlement layout (Figs. 9, 4). This means that whenever one is in any of the settlement open areas, one is close to somebody's door. Such a systematic property is not accidental. It is obvious that spatial principles were being followed as the settlement grew. Hillier, *et al.* (1987) call this property "continuous constitution" of space by building. The result of the articulation of transitional spaces across the entire surface of the settlement is a continuous control of spaces from building entrances.

During the early construction of the village, fourteen watch towers (*Qasabat*) were built (thirteen are still standing), in response to the need for defense against tribal raids. An open space was customarily designed in front of or around the *Qasabah* structure to facilitate the access of defenders and refugees during Bedouin attacks on the settlement. Following the establishment of the village, and as inhabitants increased in number, new houses were built and additional defense towers were constructed. This provided the opportunity to design more open spaces adjacent to defense towers. Eventually an organic design of solids and voids emerged (see Fig. 2).
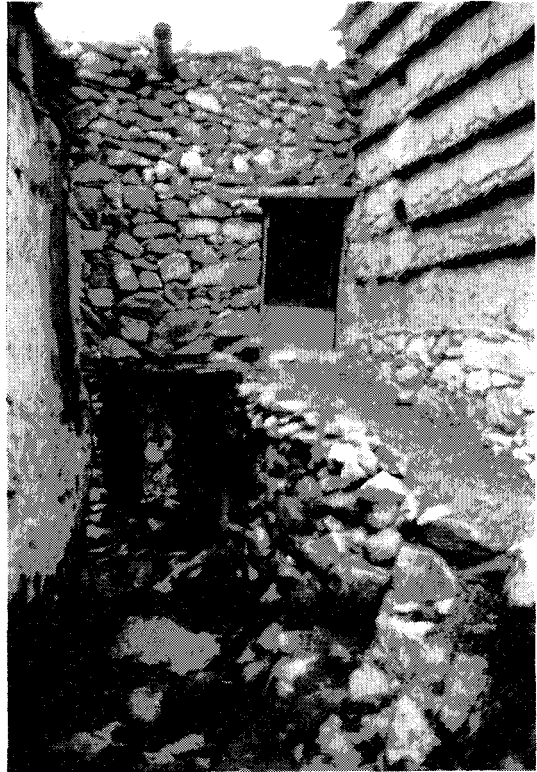

Fig. 9   Residential building approach from outdoor open spac
         Approche d'un bâtiment, à partir d'un espace extérieur ouvert

Sabat: Air Right Element

The need to expand residential buildings horizontally introduced the *Sabat* (an air right concept) in this village. This design can be observed in many Islamic cities: it may consist of one room or it may include a succession of rooms creating continuous coverage, a tunnel effect, over a street (Hakim, 1986). Both of these designs are present today in the fabricated form of Al-Alkhalaf (Figs. 4, 10). Spaces covered by the *sabat* structure have created shaded areas adequate for the social gathering of women, and spaces for children to play. Here, one may notice built-in stone and adobe seats that are used by adults as congressional places.

Sabat, passageways, and other related developments are traditionally guided by the Figh (the science of Islamic law based on religion; this is the controlling mechanism of building in Islamic societies), which is concerned with all aspects of public and private life and business guidelines (Hakim, 1989, 90). No specific space configuration is required as long as the inhabitants' needs are satisfied.

Sahat Al-Mashraf: Public Congressional Place

"The tree figures as a cosmological symbol among many cultures and belief systems, including that of Islam" (Prussin, 1986, 55).
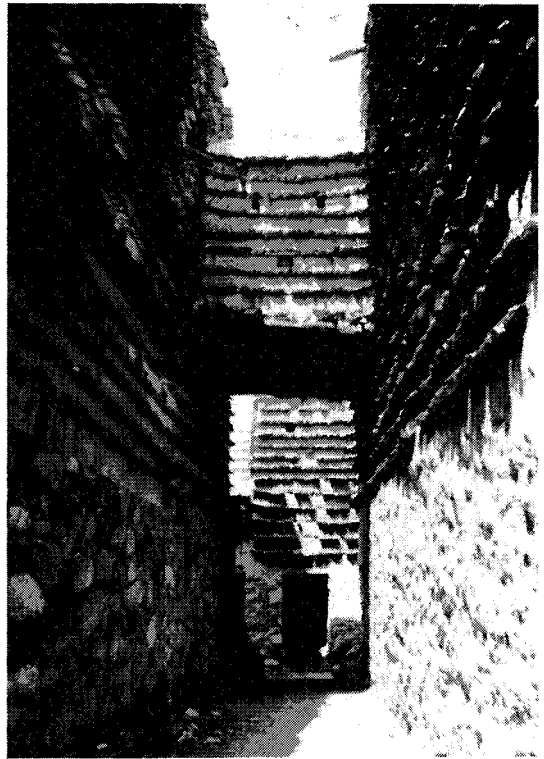

Fig. 10 *Sabat* (an air right concept) consists of rooms built over a street to expand a residential building horizontally

Selon le droit de *sabat*, des pièces peuvent être construites au-dessus d'une rue pour augmenter la surface d'un bâtiment

Sahat Al-Mashraf is a space that is sheltered by a three hundred year old Talka tree (one of the oldest of its kind in Asir). The central position of the Talka tree is accentuated by the way it sends down its roots, sends up its trunk, and spreads out its branches in all directions (Fig. 11; see also Fig. 2). The place is the main gathering arena of Al-Alkhalaf village elders and young men discussing issues of concern. It is here that communal decisions are made, tribe members' disputes are solved and stories are told.

Communal underground grain storage rooms (*Madafen*) are located east of the Talka place and bordering (*Al-Mathbah*) a site that is used for the slaughter of animals.

Friday Market

Historically, the area that extended between Taif in southern Hijaz and Sada in north Yemen is an agricultural area inhabited by a majority of sedentary groups. The only urban center is Najran (Abdulfattah, 1981). The need for people to practice economic transactions has resulted in the development of weekly markets. According to Kent (1990: 150), "as groups become more (settled) there seems to be a concomitant increase in the use of functional (defined) activity areas."
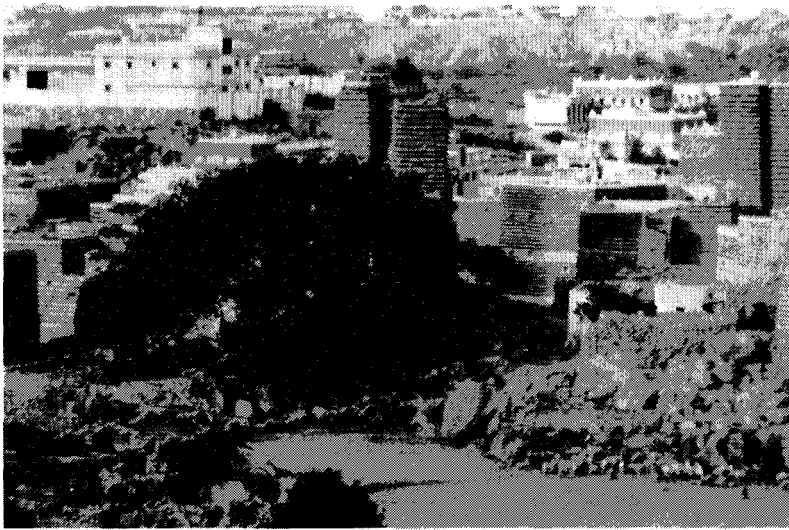

Fig. 11   *Sahat Al-Mashraf* is an open space that is sheltered by a three hundred years old Talka Tree. This site functions as the main congressional meeting place of Al-Alkhalaf inhabitants. After return from the agricultural fields, male village elders customarily gather here to socialize and exchange stories.

Le *Sahat Al-Mashraf* est un espace ouvert abrité par un arbre vieux de trois cents ans. C'est ici que se retrouvent les habitants d'Al-Alkhalaf. Les anciens du village s'y recontrent au retour des champs, pour passer le temps et se raconter des histoires.

Weekly markets are the most notable functional activities that have developed in Asir. Four to seven markets are held on different days of the week at locations that are not far from each other. Thus, villagers, Bedouins, dealers, peddlers and others are able to attend (Masonry, 1977). The site of the market is normally in the central location of the host settlement and depends on the inhabitants' willingness and capacity to protect and administer market activities.

A notable feature of the Al-Alkhalaf settlement is the Friday market (souk), that is used as a meeting place for local inhabitants and residents from nearby localities.

The market place consists of an open area located at the middle of the north-eastern side of the village (Fig. 12, see also Fig. 2). Contrary to many Islamic settlements, where the main congressional mosque (Masjed Al-Jami) stands at the center of the settlement, the souk (market place) area marks the focal point of Al-Alkhalaf. Surrounded on three sides by residential buildings, a small traditional mosque (*Masjed*) was once the building that separated the market place from the animal market at the north-east side of the souk area.

The location of the market place along the edge of Al-Alkhalaf makes it possible for foreign visitors to reach the market area without penetrating the settlement. Inhabitants reach the market place through narrow winding pathways that branch out from this place and are connected with residential areas.
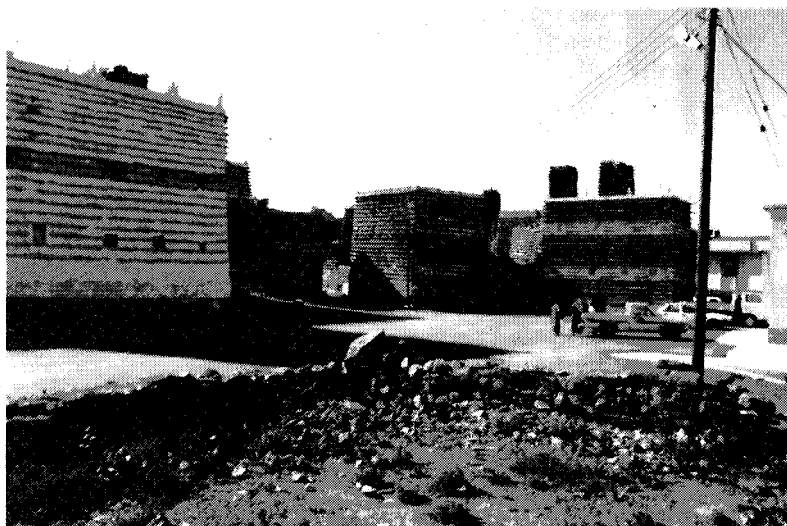

Fig. 12   Friday market place surrounded on three sides by residential buildings. In the past, a small traditional mosque was located along the fourth (east) side (a modern mosque has now been built in its place), along with an open area for animals.

La place du marché du vendredi, entourée sur trois côtés par des bâtiments résidentiels. Autrefois une petite mosquée traditionnelle se trouvait sur le quatrième côté (à l'est; elle a maintenant été remplacée par une mosquée moderne), avec un espace ouvert pour les animaux.

While most transaction activities that traditionally take place at the Friday market occur in the open, a number of physical protective elements have been built out of temporary materials. These include covered zones and stone cells of low walls, about one meter high with U shaped plans. Such structures are arranged with no doors, and perhaps temporary covers of plant or fabric material. Different types of products (domestic and otherwise), such as animals and their byproducts, agricultural products, tools, and household consumer goods, are sold in this market place. Participants begin market preparations after sunset the day before the actual market

day. The market begins usually very early in the morning, reaching its peak by noon, and by mid-afternoon it is almost finished.

In the Asir area, it is a common feature of centrally-located settlements that people build *dukkan* (store) structures for material transaction purposes. This testifies about the important size and volume of trade activities in the settlement. The market place of Al-Alkhalaf has six store rooms integrated in the ground floor of two residential buildings that surround the market area. They are an indication of the village size and principal retail role among surrounding communities (Fig. 11). Although the market as a whole is held only once a week, these stores may also function during weekdays to serve the village population. Goods are customarily displayed both in indoor and outdoor trade areas.

An important part of both the context and the situation, that influences communication at the market place, are the people involved in interactions (who with whom) and the conditions of these interactions. The physical environment both reflects communication and modulates it, channels it, controls it, facilitates and inhibits it. The nature, intensity, rate and direction of interaction is organized through the rules and traditions of the souk. Weekly market activities are administered and controlled based on customs familiar to participants. Inhabitants of the host settlement, represented by their *Sheikh* (village ruler), are responsible for providing protection and administration. The market place is considered a sanctuary (Hurmat Al Souq), with violators being punished (Al-Oshban, 1987, 287).

Lewis (1974) observes that for centuries the Islamic market has been organized according to principles derived from religious tradition. While adjudication of disputes is a local matter, the ruling principles are similar from one locality to another. Guided by Islamic teachings, participants in the weekly market in Al-Alkhalaf submit to a list of socially acknowledged principles that explain the nature of public and private concerns within the market organization. The souk design and management has a strong local identity; it is thus a culturally specific place. The weekly market tradition obviously reflects the power and political authority of the host group. The market place is perceived as a demonstration of the socio-political and economic status of the village.

The preceding description of the physical and non-physical elements of the market place, both "semi-fixed" and "non-fixed" (Rapoport, 1990c, 87-122), stresses the importance of cultural habits and behavioral patterns in relation to the physical context of such a traditional open space. From a planning perspective, the weekly market generates a symbolically and architecturally dominant open space, that embodies important social and economic values. Thus, this open space has become a symbol of pride and given a sense of commitment to the inhabitants of Al-Alkhalaf.

The Physical Context of Al-Alkhalaf and its Relationship to Human Behavior

Maintaining a close physical distance between individuals is culturally receptable in Saudi Society. The compact, organic design of the Al-Alkhalaf settlement reduces distances between members of the social group. This is related to the fact that people in this kinship group village have similar backgrounds and socio-cultural values.

Social relationships among inhabitants in Al-Alkhalaf are strongly related to the long history of the settlement. This has provided opportunities for building up expectations about the probable behavior of those nearby. It has enabled the individual to make reasonably reliable predictions about this behavior and to adjust accordingly (Kelvin, 1970). Bock (1969, 210) observes that "the most important way in which social integration is achieved is through an exchange of (equivalent) values among various parts of the system."

He continues to explain that "the exchange of values is able to create integration because of what appears to be universal rule of behavior: the principle of reciprocity" (Bock, 1969, 210).

Reciprocal behavior among the estimated 2000 inhabitants living in Al-Alkhalaf is the key element in the ethics of interpersonal relations among people. Moreover, loyalty to one's family takes precedence over all other loyalties. The widest ethical generalization enunciated among Al-Alkhalaf residents is probably "behave to everybody as your relatives." It is not surprising that people in the village give food and money to unrelated persons even when there is no realistic hope of repayment. Hospitality and other forms of generosity are widely praised. Al-Alkhalaf may be described as a collaborative community; members of the community provide, as well as accept support.

According to Islamic religious teachings, individuals are encouraged to participate in community affairs. Proper behavior in public is the responsibility of each and every member of society. *Sharia* (the structure of Islamic law) is applied by people in Al-Alkhalaf to evaluate types of behavior. Common social good, and its corresponding needs are the objective. The question then becomes one of how the environment helps people behave in a manner acceptable to the members of a community with regard to the roles that the particular group accepts as appropriate for that context.

Socio-cultural norms in this village are strongly influenced by Islamic religious teachings. Social interaction, social ethics and relationships are all guided by Islamic principles.

The Meaning of Physical Domains in Al-Alkhalaf

The categories and dimensions of space are culturally derived. During the process of enculturation, man learns the place names in his society, spatial orientation (knowing where you are), the plans associated with different parts of his environment, and what kind of behavior is appropriate to socially-recognized places (Bock, 1969). The

system of place names and expected behavior imbue Al-Alkhalaf landscape with social meaning. The social interaction process gives meaning to things, actions and physical domains: *al-Basta alu'lia* (the upper open yard), for instance, is the name of the market place; congressional space located at the Talka tree site is called *al-Mashraf* (overlooking site); communal underground grain storage area is called *al-Hoza* (container; storage place), etc. (see Fig. 2). These meanings are handled in, and modified through an interpretative process used by people in dealing with activities that are practiced in open spaces.

Built environments make ideas visible, signify power or status, encode value systems, separate domains, differentiate between men and women, private/public, sacred/profane, front/back and so on (Rapoport, 1980, 1990c). The physical distinction of spaces in the Al-Alkhalaf settlement (Fig. 4), not only expresses the various purposes they serve, it also tells which behavior is appropriate with regard to the culture and activities of its inhabitants. The social situation is the determinant that influences people's behavior. People judge or interpret the social context or situation and act accordingly, but it is the physical environment that provides the cues.

Open space arrangements in this settlement has helped to locate people in their social space, and in this way, clearly influences the extent and form of communication among inhabitants. It has also been argued that this is the primary function of culture generally: through space organization, culture both prevents (or limits) and encourages social interaction (Mumford, 1961; Canter, 1977, Abramoritz, 1979; Prussin, 1986; Rapoport, 1990b).

Concluding Remarks

This study describes the vital — yet unconscious — language of the arrangement of physical spaces within the constructed form of the Al-Alkhalaf settlement. Traditions established during more than three hundred and fifty years of village building, and an associated design language, which has been structured and modified by inhabitants, lineage members, combine and conform to the values, social norms and defense needs of this Islamic community.

Together with the design of open spaces, the village layout offers safety and comfort for the circulation of pedestrians. The arrangement of open spaces has supported human activities and encouraged social relations. Walking is undoubtedly the main means of moving about, particularly within the village.

The hierarchy of open spaces in this settlement establishes various domains for a number of traditional activity patterns. Although each activity site is unique in its spatial quality and placement in relation to the village, they are all joined in a sequential order that facilitates and supports community life. The design of open spaces in Al-Alkhalaf is an advance statement of social intentions. Such areas are the realm of village inhabitants. Residents have undisputed control over all types of behavior that may occur in open areas. The physical design of the settlement discou-

rages undesired behavior, by both residents and non-residents, through environmental design clues. Any intrusion by non-residents, particularly during tribal raids, is challenged by residents through the village arrangement, so much so that an intruder is expected to be deterred from ever contemplating entry. In short, people in Al-Alkhalaf have developed a traditional system of defense, and an environmental design approach, which are adequate to generate and regulate safety. The latter is an important consideration in the planning and design of human settlements.

Our investigation of the traditional system of settlement helps reveal how the spatial and environmental context plays a major role in generating a sense of place. By developing a greater sensitivity to the meaning of the various Saudi environments through awareness of Saudi vernacular settlement designs, designers may overcome some of the conflicts between the contemporary environmental processes and the human and participatory processes of settlement growth in the past. Working with communities, we might discover ways to create areas with authentic qualities, and, thus provide people with a greater feeling of identity with the places where they spend most of their daily lives.

All photographs and drawings are by the author.

BIBLIOGRAPHY

ABDULFATTAH, K. (1981), "Mountain Farmers and Fellah in Asir, Southwest Saudi Arabia" (Selbstverlag der Frankischen Geographischen Gesellschaft in Kommission bei Palm und Enke, Erlangen, Germany).

ABRAMORITZ, A. (1979), "People and Spaces: A View of History Through Architecture" (The Viking Press, New York).

AL-FARSY, F. (1980), "Saudi Arabia: A Case Study in Development", 2nd ed.(Stacey International, London).

AKBAR, J. (1982), Courtyard Houses: A Case Study from Riyadh, Saudi Arabia, *The Arab City: Its Character and Islamic Cultural Heritage* (Ismail Serageldin and Samir El-Sadek, Eds.), (Arab Urban Development Institute, Riyadh), 167-176.).

AL-OSHABAN, A. (1987), *Al-Qabila Inter-Group Relations and The Environmental Context of Bani-Shiher in Southwestern Saudi Arabia,* Unpublished Ph.D. dissertation, (Evanston, Illinois).

BOCK, P. (1969), "Modern Cultural Anthropology" (Alfred A. Knopf, New York).

BUCKHARDT, J. L. (1968, 1st ed. 1829), "Travel in Arabia" (Longman, London).

CANTER, D. (1977), "The Psychology of Place" (The Architectural Press, London).

COX, K. R. (1972), "Man, Location, and Behavior. An Introduction to Human Geography" (John Wiley, New York).

EBEN SALEH, M. (1993), *Defense Towers of Arabia,* Unpublished paper (King Saud University, College of Architecture and Planning, Riyadh).

EUSTON, Jr., A. (1971), Social Issues of Built Environment, *Population Environment and People* (Noel Hinrichs, Ed.), (McGraw-Hill Book Company, New York) 161-168.

FLEMING, R. & BAUM, A. & SINGER, J.E (1985), Social Support and The Physical Environment, *Social Support and Health*, (S. Cohn and S.L Syme, Eds.) (Academic Press, Orlando, FL).

HAKIM, B. (1986), "Arabic Islamic Cities: Building and Planning Principles" (Routledge and Kegan Paul, London).

HAKIM, B. (1989), Islamic Architecture and Urbanism, *Encyclopedia of Architecture: Design, Engineering and Construction* (Joseph Wilkes, Ed.) (John Wiley and Sons, New York) 2-102.

HALL, E. (1972), Silent Assumptions in Social Communication, *People and Buildings* (Robert Gutman ed.) (Basic Books, New York)135-151.

HILLIER, B. & HANSON, J. & PEPONIS, J. (1987), Syntactic Analysis of Settlements, *Architecture & Behaviour*, 3. (1987) 3, 217-231.

KELVIN, P. (1970), "The Bases of Social Behaviour" (Holt, Reinehart and Winston Ltd., London).

KENT, S. (1990), Segmentation, Architecture and Space, *Domestic Architecture and The Use of Space* (Susan Kent, Ed.) (Cambridge University Press, Cambridge) 127-152.

KNAPP, R. G. (1986), "China's Traditional Rural Architecture. A Cultural Geography of The Common House" (University of Hawaii Press, Honolulu).

LAVIN, M. W. (1981), Boundaries in The Built Environment, Concepts and Examples, *Man-Environment Systems*, 11 (1981) 5-6, 195-206.

LAWRENCE, D. (1983), The Interpretation of Vernacular Architecture, *Vernacular Architecture,* (1983) 14,19-29.

LEWIS, B. (trans. and ed.) (1974), "Religion and Society, Islam", Vol.II, (Harper and Row, New York) 157-165.

MASONRY, M. (1977), *Periodic Markets in Southwest Region of Saudi Arabia: A Study in Human Geography*, M.A. thesis, (Michigan Stage University, Michigan), 43-55.

MORRIL, R. L. (1974), "The Spatial Organization of Society", II ed., (Wadsworth, Balmont, CA).

MUMFORD, L. (1961), "The City in History", (Harcourt, Brace and World, New York).

OLIVER, P. (1987), "Dwellings. The House Across The World" (University of Texas Press, Austin).

PETHERBRIDGE, G. T. (1978), Vernacular Architecture: The House and Society, *Architecture of The Islamic World,* (George Michell, Ed.) (William Morrow and Co. Inc., New York) 176-208.

PHILBY, H. St. (1976, 1st ed. 1952), "Arabian Highlands" (De Capo Press, New York).

PRUSSIN, L. (1986), "Hatumere: Islamic Design In West Africa" (University of California Press, Berkeley).

RAPOPORT, A. (1980), Cross Cultural Aspects of Environmental Design, Human Behavior and Environment, *Environment and Culture*, Vol. 4 (Altman, I. & Rapoport, A. & Wohlwill, J., Eds.) (Plenum Press, New York).

RAPOPORT, A. (1982), "The Meaning of The Built Environment" (Sage Publications, Beverly Hills).

RAPOPORT, A. (1990a), On Regions and Regionalism, *Pueblo Style and Regional Architecture,* (Nicholas Markovich et. al., Eds.) (Van Nostrand Reinhold, New York) 272-288.

RAPOPORT, A. (1990b), Systems of Activities and Systems of Settings, *Domestic Architecture And The Use of Space,* (Kent, S., Ed.) (Cambridge University Press, Cambridge) 9-20.

RAPOPORT, A. (1990c, 1st ed. 1982), The Meaning of The Built Environment, (The University of Arizona Press, Tucson, AZ).

SANDERS, D. H. (1985), Ancient Behavior and The Built Environment: Applying Environment Psychology Methods and Theories to Archaeological Context, *Environmental Change/Social Change (EDRA 16),* (Klein & Lehman, Eds.) (EDRA, Washington, D.C.) 296-305.

SANDERS, D. (1990), Behavioral Conventions and Archaelogy: Methods for The Analysis of Ancient Architecture, Domestic Architecture And The User of Space, (Susan Kent ed.) (Cambridge, Cambridge University Press) 43-72.

VIOLICH, F. (1985), Towards Revealing the Sense of Place: An Intutive "Reading" of Four Dalmatin Town, *Dwelling, Place and Settlement,* (Seamon, D. & Mugerauer, R., Eds.) (Columbi University Press, Morningside Edition, New York) 113-136.