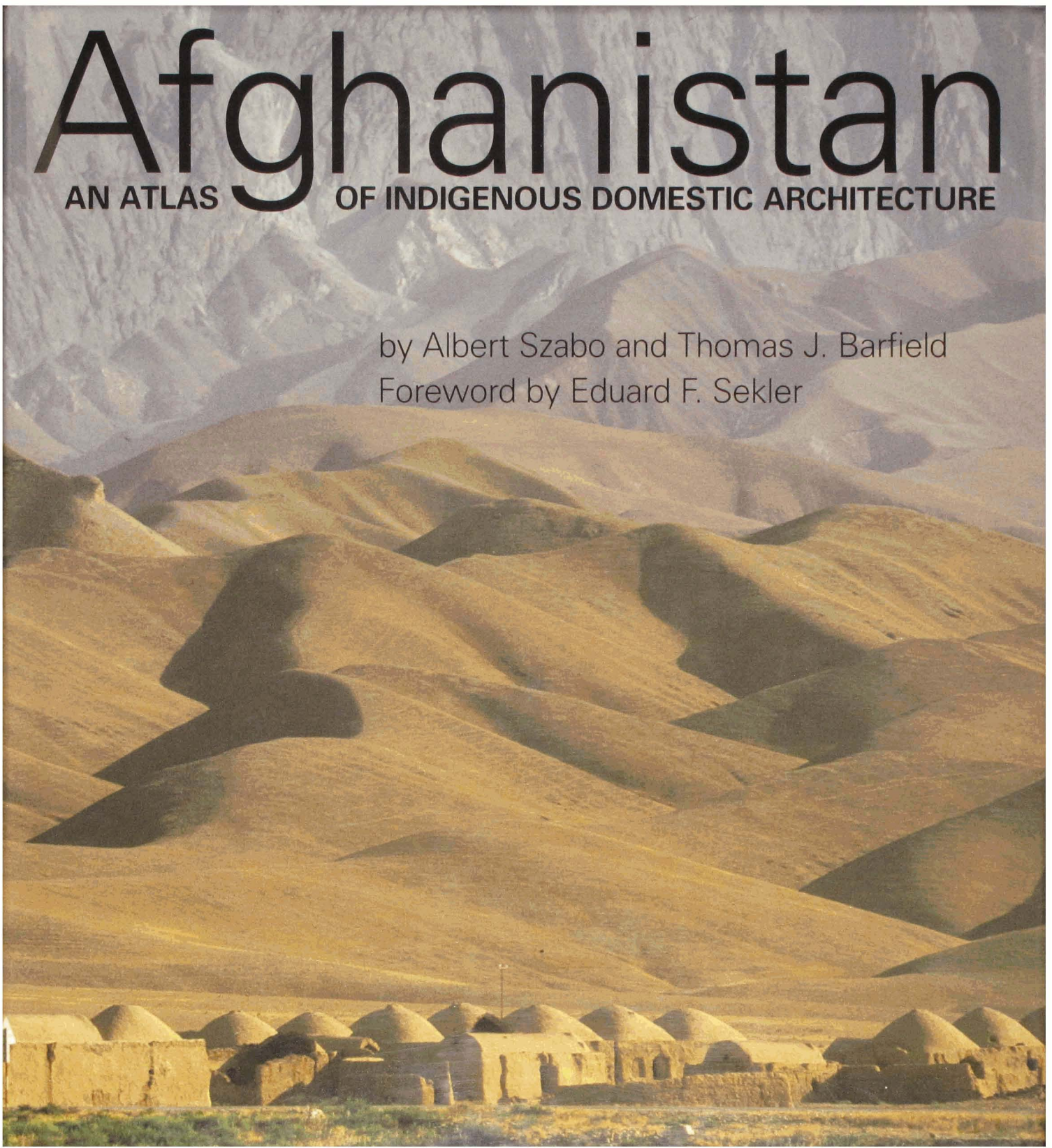
Afghanistan

AN ATLAS OF INDIGENOUS DOMESTIC ARCHITECTURE

by Albert Szabo and Thomas J. Barfield
Foreword by Eduard F. Sekler



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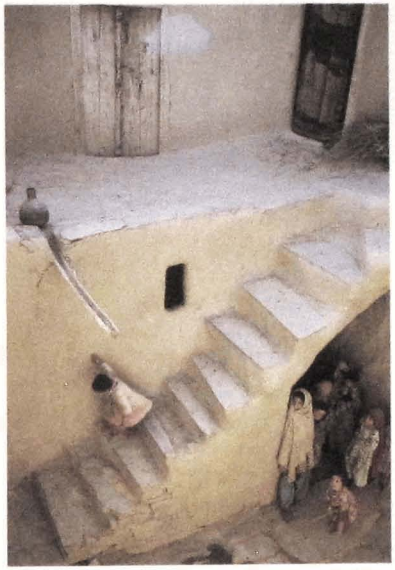
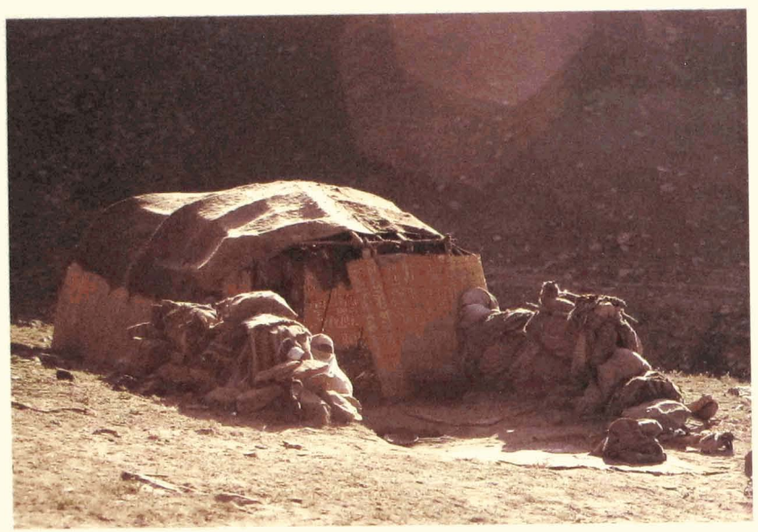
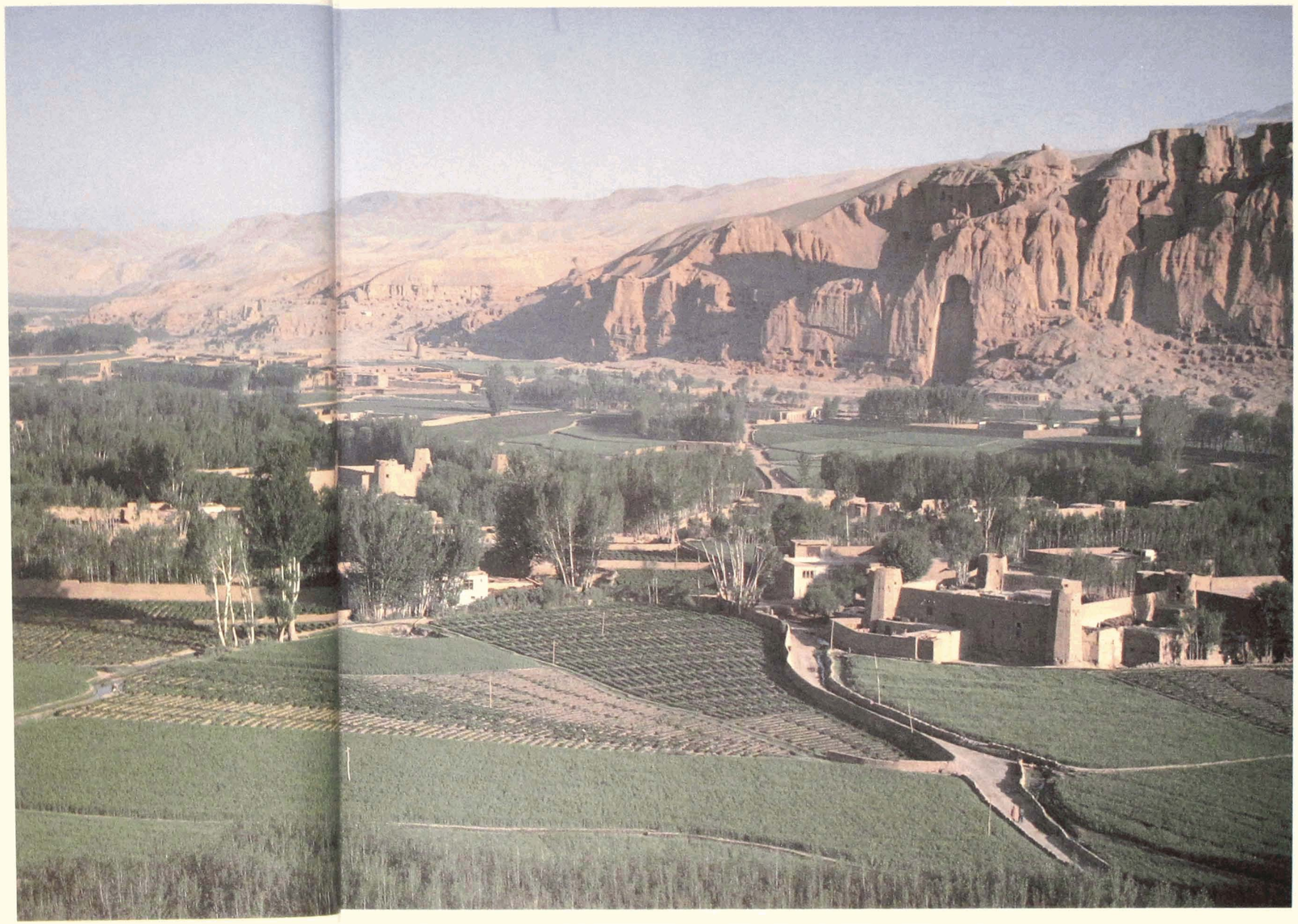


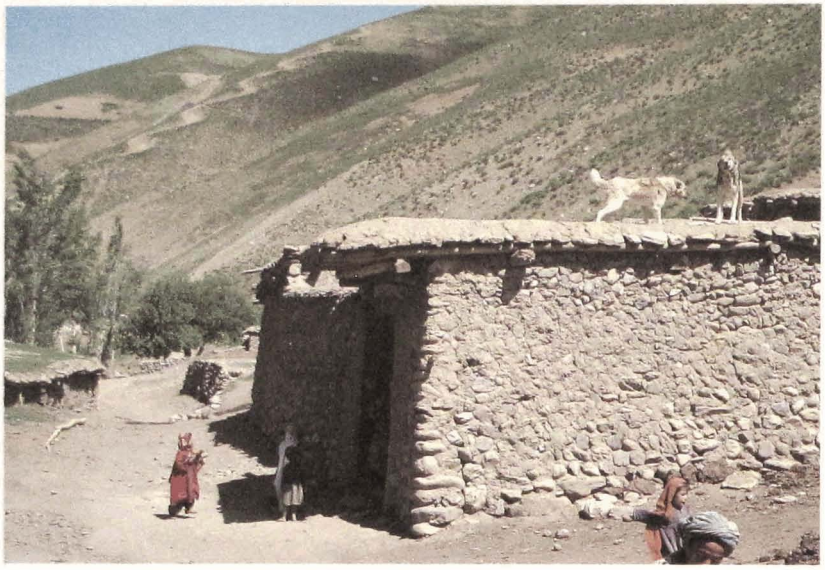
Typical *qala* courtyard stair.



Summer hut, or *kapa*, encampment of Arab pastoralists in Badakhshan, northeastern Afghanistan.

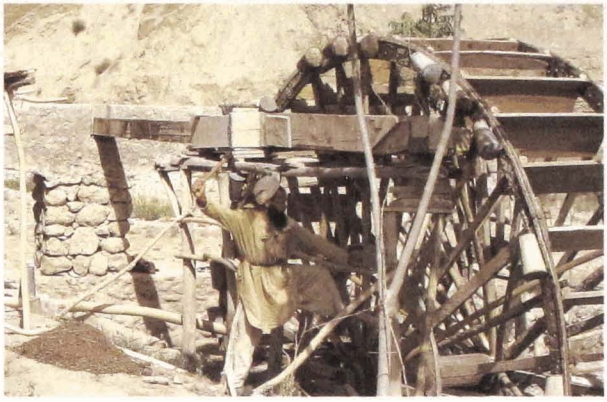


Overview of *qala*, fortified farm compound in the Bamiyan Valley. Niche in face of cliff holds one of the largest carved Buddhas in the world.



This example of fieldstone and mud construction from central Badakhshan is typical of building types in mountainous parts of northeastern Afghanistan.

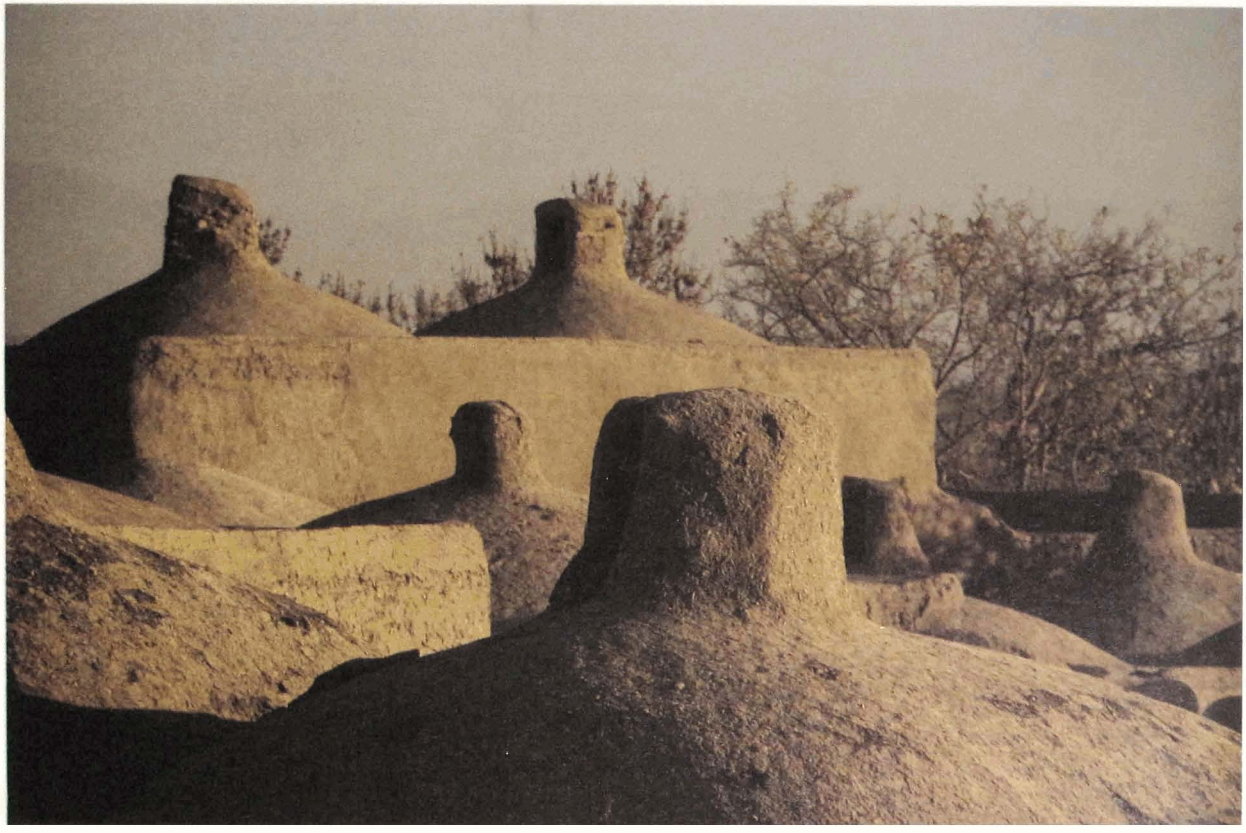
A Tajik house north of Faizabad in Badakhshan uses sun-dried brick construction to create a multilevel system of stables, storerooms, and residential space.



Details of water wheel showing paddles that propel wheel, lifting perimeter buckets of water from a river for distribution through *juí*s to fields.

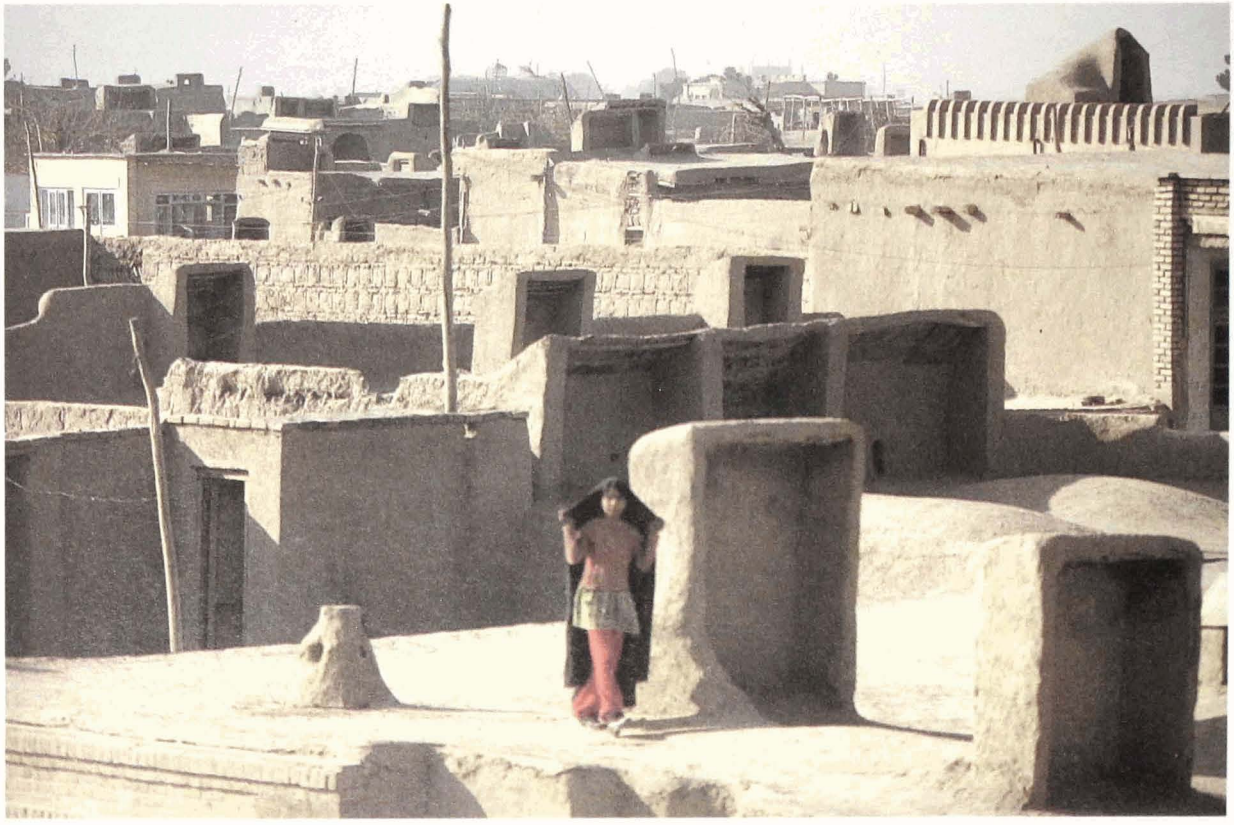
An aerial view of a group of irrigation channels, *juí*s, that divert water from a running source and direct and distribute it for purposes of irrigation.

In Herat, cowl-shaped wind scoops, *bad-gir,* are oriented north to catch prevailing breezes for ventilation and also to admit light into almost windowless domed buildings.

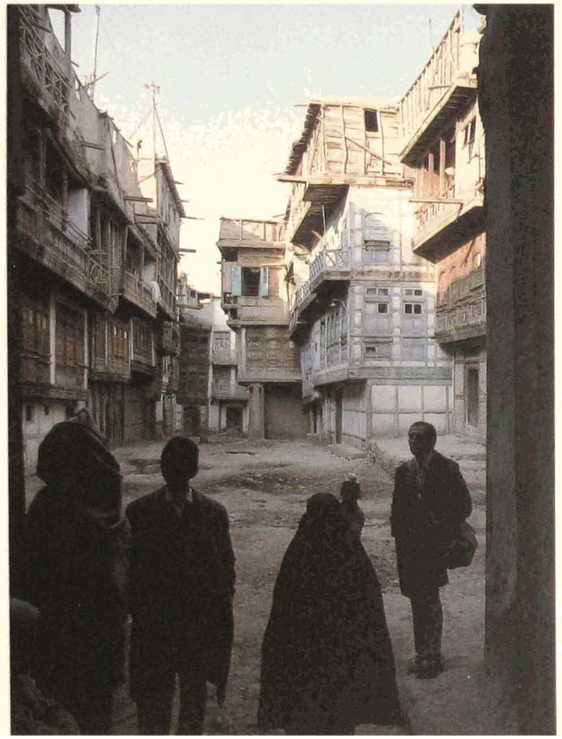


Omnidirectional *bad-gir* in the ruins of a large, stately house in Herat.

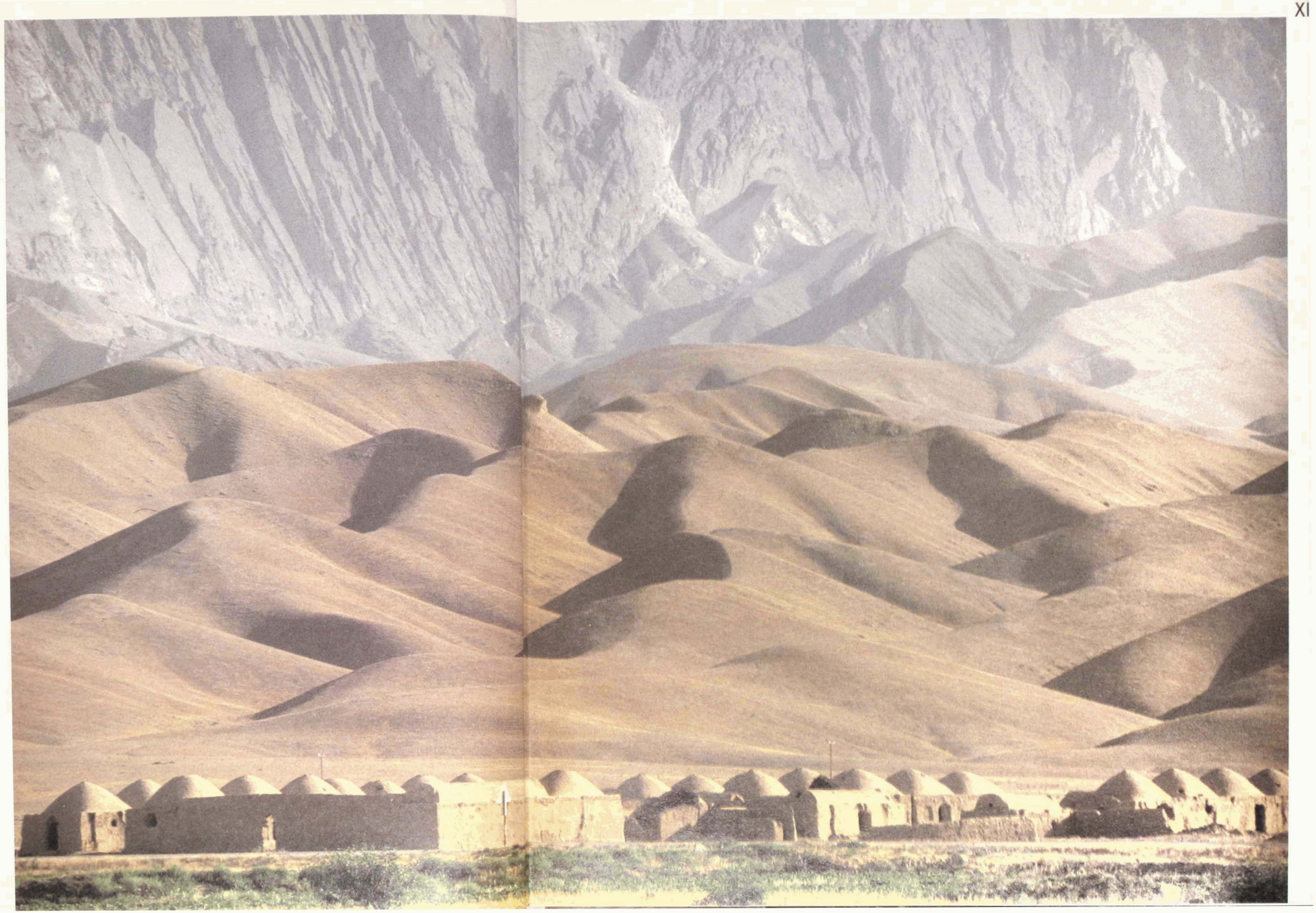
Rectangular *bad-gir* used in Herat on flat-roofed buildings.



Serai Lahori, a residential cul-de-sac located off the Shor Bazaar in one of the oldest parts of Kabul, has a unique architecture and is the home of many Sikh and Hindu families long resident in Kabul.



Urban housing, village of Deh Afghanan, "one of Kabul's most ancient landmarks" (N. H. Dupree 1971:71).



Village of domed houses at the foothills of the Hindu Kush near Samangan, northern Afghanistan.

Building for drying grapes, *kishmish khana*, south of Charikar. Grapes dried in such buildings are light in color, while those dried directly in the sun are dark.

Vertical-axis windmill, *asyab-i-badi*; west of Herat, driven by northern "wind of 120 days" at time of wheat harvest.

Interior of summer hut, *chapari*, in the Hazarajat, central Afghanistan.

Summer yurt encampment of Arab pastoralists in the foothills near Tasqurghan, northern Afghanistan.

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University of Texas Press Austin

Page xiv: **Village of stone houses in the Salang Mountains north of Kabul.**

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Contents

Foreword

"There is no such thing as primitive man, there are primitive resources . . ."
Le Corbusier

Trying to remember Afghanistan as I saw it in pre-war days brings back powerful images, some of pastoral peacefulness, others of daunting fierceness, but all of great visual beauty—a beauty enhanced time and again by modest works of humanity, by simple habitations that in their form and placement very much seemed to belong to the landscape. A systematic record of these buildings is presented on the following pages, and its result comes across as a message that Le Corbusier, with his gift for memorable, pregnant formulations, summed up in the statement quoted above from *Towards a New Architecture*.

Clearly, the long, painstaking research that led to this volume was not only motivated by the wish to make an accurate record of something that deserved to be recorded; there must also have been the conviction that it was worthwhile to study indigenous buildings because they might have some lessons to teach. As it turns out, some of the buildings are indeed highly sophisticated in more than one way, with the yurt perhaps being the most outstanding example.

Architects, in the recent history of their profession, on more than one occasion have shown considerable interest in the manner in which "primitive," anonymous buildings were constructed in response to such conditions as climate, orientation, and easy availability of certain building materials. But it soon became obvious that it was insufficient to deal with these conditions alone without giving equal consideration to the intangible but no less significant social and cultural factors involved. The study of "primitive" buildings not only aimed at an understanding of the process by which these structures came to assume their—often highly attractive—forms. There was another powerful motivation, one that is implied in one of the several meanings of the term "primitive." To be *primus* means to be the first, to be at the beginning, and the search for the beginnings of architecture has been a leitmotiv in architectural thought from Vitruvius to Laugier, from Semper and Viollet-le-Duc to Le Corbusier and Louis Kahn. In Kahn's words: "It is good for the mind to go back to the beginnings because the beginning of any established human activity is its most wonderful moment."

Some of the buildings Szabo and Barfield discuss take us back to very remote beginnings indeed. Reed huts, such as the *kapa-i-chamshi* (see page 79), or the kinds of *kodik* (see page 103) constructed with reed arches (like the similar shelters built by the Marsh Arabs of the Shatt-al-Arab) strikingly resemble hut forms pictorially recorded on some of the most ancient known artifacts from Mesopotamia and Egypt. This resemblance led the German archaeologist Walter Andrae to fascinating hypotheses about the reed origins of certain architectural and decorative forms later found in Greek architecture. Similarly, there seems to be a consensus among Egyptologists that some elements of Egyptian architecture and decoration are derived from prehistoric reed structures.

This is not the place to attempt an answer to the vexing question whether and to what degree it is permissible in an argument to link comparatively recent "primitive" buildings with prehistoric constructions nor to speculate about the likelihood that similar, even identical, forms might have originated in different places and at different times because the circumstances of their genesis were similar or identical. What is certain, however, is that in our self-conscious age comprehension of the processes at work in such cases is hampered by a lack of experiential understanding of the way in which a living tradition works. As long as in preindustrial architecture certain assumptions were taken for granted, no changes in the type and form of a structure became necessary unless it was a matter of gradual improvements and decorative enrichment, or unless some crucial factor such as the availability of certain materials changed. In some areas of Afghanistan the survival of building traditions may well reach far back into the depth of time. One of the many sad consequences of the recent war years is that public attention stayed riveted to the topical political events and largely failed to take cognizance of the tremendous cultural wealth that was destroyed in the fighting or is still threatened with destruction owing to the introduction of changing ways of life.

In the industrialized countries, the generation that will leave the scene at the end of this century has lived through changes that of necessity implied the vanishing of much that previously was habitual and taken as self-evident over long periods of time. The fact that this generation is either the last one, or close to being the last one which, in some parts of the world, can still observe ancient ways of life and their settings, implies a responsibility to save as much as possible before it has vanished forever. To save cannot mean in all cases to preserve physically. This would be impossible and even

undesirable when it would prevent people from attaining a better life. But it certainly means the preservation of a sufficient number of significant examples and the establishment of as full a record as can be made.

The present volume deserves our admiration for being such a record. It can serve scholars from many branches of learning as a valuable reference work. But it also must be praised for an entirely different reason: it has helped to sensitize a considerable number of young Afghan architects to the value of their own built nonmonumental cultural heritage. By helping to survey and record the indigenous habitations, they were made to realize how rich and varied this heritage is. It will be easier for them to avoid the error, so often committed elsewhere in developing countries, of rushing to obliterate, in the name of progress, the indigenous "primitive" buildings and their traditions, in order to spread the blessings of industrial prefabrication, corrugated sheetmetal roofs, and monotonous unification of plans.

Having studied the treasure house of indigenous domestic architecture, one feels compelled to add to one's wishes for peace and economic development in Afghanistan the equally strong wish that a representative selection of these buildings shall be preserved for future generations and that international assistance will help to make this possible. What here survived through the centuries and now is nearing its end is not only of scientific, local, or national interest; it is a vital part of the cultural heritage of mankind.

Eduard F. Sekler
Harvard University
September 1989

Acknowledgments

This project has a long history of research and would not have been possible without the cooperation of many people both inside and outside of Afghanistan. The field research was conducted between 1974 and 1976 when Albert Szabo was the Senior Fulbright Hayes Lecturer in Architecture at Kabul University. The initial study of four villages, designed to document the variety of Afghan domestic village architecture, began as a collaborative venture with the faculty and students of the Architecture Department of Kabul University. They contributed with patience and enthusiasm to a better understanding and appreciation of their remarkable land and culture, enriching our discussions, research, and field trips, and assisting in the preliminary documentation. In retrospect these were more "normal" and hopeful days for the Afghan people with whom we worked and whose lives we were privileged to share, if only in a small way, than has been the case since 1978.

Among the Kabul University Department of Architecture faculty we are especially grateful to Sarwar Azad, Bashir Kazimee, Homayon Raffiq, Abdul Same, Youssof Seraj, and Donald Watts, as well as Dean Zerjan Baha, Assistant Dean Amin, and Professors A. J. Saleem and Sharistani. We also want to express our appreciation to the student team captains: Homayoun Eqbal, Arsallah Shairzay, Parween Talebi, and Soroya Zaka; the team members were Ahmad Fakoor, Mira Grasseva, Mohammad Hussein, Mohammad Mehdi, Farid Taheri, Abdul Najimi, Aliahmad Rahimi, and Khalil Yousufi. After Thomas Barfield joined the project, work in Kunduz and Imam Saheb was facilitated by Engineer Awsif Nawsiri, who shared his considerable knowledge and wide range of connections to help us locate a variety of structures. To all we extend our thanks and gratitude.

We would also like to thank Bruce Albright, Chairman, and Larry Beck, Director, of the Afghan American Educational Commission (AFAMEC) which administered the Fulbright Program, and the American Women's Association of Kabul and the American Society of Kabul for the financial support they provided. For the special efforts and encouragement of Ambassador Theodore L. Eliot and Deputy Chief of Mission R. T. Curran we want to express special appreciation.

The second part of the project was carried out in the United States at Harvard University. A preliminary study of the four villages with a more detailed study of the *qala* was prepared in collaboration with Brenda Dyer Szabo and published in 1978 by the Harvard Graduate School of Design under the title *Preliminary Notes on the Indigenous Architecture of Afghanistan*. For this publication we would like to express our appreciation for the help provided by Dean Gerald M. McCue.

Creating the larger work required us to collect new information, execute drawings to a standardized format, and integrate ethnographic material into the architectural descriptions. In this process we were aided by many people.

Professional assistance in verifying information and details was generously provided by the late Dr. Louis Dupree of Duke University and Nancy Hatch Dupree, Dr. Klaus Ferdinand of Aarhus University in Denmark, Dr. Alfred Janata of the Museum für Völkerkunde in Vienna, Dr. William Trousdale of the Smithsonian Institution, Drs. Pierre Centlivres and Micheline Centlivres-Demont of the University of Neuchâtel, Switzerland, Dr. John Shroder of the University of Nebraska, Dr. Richard Frye of Harvard University, Dr. Harvey Bryan of Harvard University, Dr. Margaret Mills of the University of Pennsylvania, Dr. Nazif Shahrani of Indiana University, and Richard Strand.

Assistance in the execution of the drawings was provided by Najim Azadzoi, Bashir Kazimee, Michael Newby, and Farid Taheri; additional general assistance was provided by Harvard University students Kurt Bodden, Jeffrey Day, Anna Forrester, Marc Klein, Carl Lee, Kristin Triff, and Hisham Youssef.

The reference maps were created by comparing a wide range of maps produced for various geographical and anthropological studies. No map, alas, agreed with any other in detail and we were therefore required to draw on a variety of sources to make our own simplified versions which are illustrative rather than definitive. Nevertheless we wish to acknowledge the help we received from a number of publishers and authors, and particularly their kind permission to reproduce or modify previous published maps. These works included the *Atlas for Secondary Schools in Afghanistan* (Munich: Wenshow-Franzis, 1955); *Afghanistan*, edited by Willy Kraus, 3d ed. (Tübingen and Basel: Horst Erdmann Verlag, 1975); Ludolph Fischer's *Afghanistan: A Medical Monograph* (Heidelberg: Springer Verlag, 1968); *Area Handbook of Afghanistan* (Washington, D.C.: American University, 1978); *A Geography of Afghanistan* (Omaha, Neb.: Center for Afghanistan Studies, 1976); and the many maps produced by Dr. Louis Dupree in his book *Afghanistan* (Princeton, N.J.: Princeton University Press, 1980).

The extended research, documentation, and formulation of the expanded project would not have been possible without the financial support of the National Endowment for the Arts, the Aga Khan Program for Islamic Architecture at Harvard and the Massachusetts Institute of Technology, and Harvard University's Milton Fund for faculty research. Their continued support made it possible to put all the pieces into final form. The research was also facilitated by the generous and unfailing assistance of Harvard's great system of university libraries, research collections, and staff whose work is too

often taken for granted. For their help we wish to thank the Graduate School of Design's Loeb Library, Widener Library, the Fine Arts Library of the Fogg Museum, the Aga Khan Collection, the Tozzer Anthropological Library, and the Pusey Library's Map Room. We also wish to express appreciation to colleagues and staff at the Carpenter Center for the Visual Arts where much of the book's material was developed.

Finally we owe a great debt of gratitude to Brenda Dyer Szabo for constructive criticism, professional insights, and continuous encouragement.

Albert Szabo
Thomas J. Barfield

Introduction

This atlas examines the morphology of Afghan indigenous domestic architecture, exploring the hierarchy of physical and cultural influences responsible for its form and aggregation. These variables and their interactions are numerous. The geography of a site's location, its climatic regime, and the availability of material resources set the physical parameters in which a building design must perform. Cultural needs and preferences produce their own set of parameters, for domestic architecture is influenced by the structure of everyday life and the beliefs and skills peculiar to the people building it. Here the hierarchy of influencing factors on a design is assessed by criteria that include mobility requirements, economic functions, appropriate symbolic organization of household space, and modes of interaction with neighboring households, other community members, and outsiders.

Afghanistan provides an unusual context for understanding indigenous architecture because, within a country the size of France, there exist an extraordinary number of distinct architectural traditions, nomadic and sedentary, associated with at least twenty different ethnic groups, most with their own languages and distinct cultural heritages. The wide variety of tents, huts, yurts, flat and curved roofs, stone or mud walls, single buildings and village complexes have evolved to meet a range of geographic conditions, climatic variations, and inherited traditions. Each building type is specialized and refined in a way that maintains an equilibrium between the physical context and cultural needs.

The variety of building types and their richly varied use of materials display a creation of form, articulation of space, modulation of light and shade, control of thermal environment, and richness of surfaces that is at once simple yet eloquent. Here, as with many other examples of indigenous architecture, we see the results of centuries, perhaps millennia, of evolution and refinement that produce an ingenious balance between people and their environment. In industrialized countries where designers are relatively unlimited in the creation of form for habitat, the development of reinforced concrete, glass, and climate-control systems permits, even encourages, building indifferently on any site in any climate, independent of the resources available and other factors that the architecture of industrialized societies often seems designed to resist or defy. Indigenous domestic architecture, by contrast, tends more to employ natural forces than to defy them, and becomes a visible reflection of the governing influences where one can interpret from the design of the structure the mode of life, resources, and context obtaining.

This observation is not intended to idealize indigenous architectural traditions. Domestic architectural designs are products of a process in which less successful buildings have been replaced by more successful ones over time. Whatever trial and error may be involved in that process, we have few records of the failures. And cultures whose domestic structures we praise for their integration of materials, site, and appropriate scale, also paradoxically bequeathed us the concept of the domination of the site by the structure in monumental public architecture with the building of various pyramids, ziggurats, monumental palaces, temples, and fortresses. Even our own often sadly misplaced attempts to ignore the local physical and cultural contexts in creating transferable "universal" designs may yet evolve because materials and energy have become increasingly scarce or disproportionately expensive. As in the past, the most appropriate designs will survive to become "traditional" while less successful structures become the stuff of archaeological rather than architectural study.

In analyzing the primary factors that influence the generation and evolution of indigenous architecture, there is a division between "physical determinists," who stress the primacy of physical context, and "cultural determinists," who stress the primacy of belief systems. However, since every structure exists as a cultural creation within a physical environment, and culture itself is influenced by the environment, the two cannot really be disengaged from one another. On a global scale physical determinants may easily be identified: hot humid tropical designs that allow maximum air circulation through all surfaces of the structure, including the underside, are absent in arctic and subarctic regions, while massive heat-conserving walls are not found in hot humid tropical domestic constructions. Conversely, across the globe in arid regions with patterns of daytime heat and nighttime cold, similarly designed mud or mud brick buildings are quite common.

We have concluded that physical constraints set the parameters in which cultural traditions evolve or maintain themselves. This is evident in the wide variety of types and their variants people choose to build. In Afghanistan there are often competing design traditions in houses, tents, and huts, and the choice of which model to adopt has social as well as contextual significance. For example the style of a black tent is often a good ethnic marker that declares the identity of the inhabitants at a distance. In choosing what the plan configuration should be, how many people a unit should house,

how it should be decorated, we find cultural traditions predominating. The blank perimeter curtain walls facing the outside world and the privacy walls within compounds are not always structurally necessary, but an Afghan house would be deemed incomplete without them.

Culture, even so-called "traditional material culture," is not a static phenomenon. Our survey shows that there is considerable variation within each building type as well as borrowing from neighboring traditions by one another. A good example comes from Qandahar, where multistoried buildings with flat roofs are built in an unusual manner. The normal method of creating a flat roof by means of poplar pole joists is not feasible here because insects destroy the wood. One solution would be to abandon the flat roof for a curved one, as is done in western and northern Afghanistan where wood is scarce, but this would mean losing usable roof space and restricting buildings to a single story. Instead the builders in Qandahar adapted the technique of brick vaulting, common in adjacent regions where curved roof constructions are the norm, to create the foundation for a flat roof. The Taimani tent in central Afghanistan presumably evolved in a similar manner by borrowing structural characteristics common to both freestanding huts found north of the Hindu Kush and the black tents of nomads to the south. However, while traditional builders may adopt design elements from different traditions to create new forms, they do not borrow randomly or idiosyncratically. In regions where techniques of building both flat and curved roofs are well known, and are even found in adjacent villages, we rarely find them mixed within a single village.

Even when basic designs remain stable, growing wealth and changing standards of taste or prestige may lead to the substitution of materials so that older, traditional techniques disappear in urban areas but are retained in the countryside. In Afghan cities and towns, more expensive baked brick has begun to replace sun-dried brick in wall construction, while in prosperous rural areas sun-dried brick is considered an innovation when substituted for pressed mud in similar wall constructions. In some cases whole varieties of structures may disappear. This is particularly true of tents and yurts. An examination of a sample of sixteenth-century Persian miniature paintings illustrating nomadic life shows that there were many more types of mobile dwellings than exist today. An example of the process was the disappearance, south of the Hindu Kush, of the true yurt common among Turkish nomads

in northern Afghanistan. Even though waves of yurt-dwelling nomads moved south from Central Asia into the Iranian plateau and India over the course of the last thousand years, their traditional yurt dwellings did not survive transplantation. In the warmer regions of southern Afghanistan, the yurt's undoubted design sophistication and insulation that permitted its mobile users to survive severe winters could not overcome the liabilities of its heavy weight, expense, and need of skilled artisans to produce the frames. Where a simpler black goat hair tent or less sophisticated hut met the same needs more easily, yurts disappeared over time.

Indigenous builders are above all pragmatic. They design for economy in the use of materials and labor with appropriate space for work and domestic life, preservation of warmth in winter, protection from the heat in summer, and household privacy. These considerations manifest themselves in the plans for courtyards, private and semiprivate rooms, locations of stables, apertures facing southerly exposures, flat roofs for drying produce or domed roofs with *bad-gir* (wind catchers) for ventilation, *tawa-khana* and *sandali* for heating, and guest rooms for entertaining outsiders. What looks like a simple design is actually a complex calculus that combines felt needs with the available site, materials, and skills to create a building. This may be a massive undertaking such as the building of a *qala* which will house many families over the course of generations, the erection of a summer hut designed to house a single family for a few months before being dismantled, or a portable tent which moves with the seasons. In all events it is the result of pragmatism handed down from one generation to the next, modified by observation and experimentation. The earthquake-resistant properties of *senj* construction were undoubtedly learned in part by observing which buildings, or parts of buildings, remained standing after severe tremors. Over the course of centuries it is not surprising that mountain villages in earthquake zones developed resilient building techniques: those that didn't collapsed after minor seismic tremors.

The Afghan built environment may be seen in terms of cultural, physical, and formal relationships which are ordered according to implicit or explicit principles. While such relationships exist in all buildings, the evolution of indigenous architecture demonstrates its generative principles with clarity, sureness, and almost always with eloquence—if not beauty. In few other situations can building form be perceived so clearly as a response to physical and cultural context—and in many cases with such a uniqueness and richness of form, texture, light, and embellishment. Frequently the more one

examines, the more one discovers and the more one is enriched by the experience. Frank Lloyd Wright observed, ". . . the true basis for any serious study of the art of Architecture still lies in those indigenous structures; more humble buildings everywhere [are] to architecture what folk-lore is to literature or folk-song to music and with which Academic architects were seldom concerned . . . It is the traits of these many folk-structures that are of the soil. Natural. Though often slight, their virtue is intimately related to environment and to the heart-life of the people. Functions are usually truthfully conceived and rendered invariably with natural feeling. Results are often beautiful and always instructive" (1951 : 1).

The interrelationships between these many influences and responses to them, between the cultural and the physical, must be understood in order to maintain that state of equilibrium that permits life to continue where, almost everywhere in Afghanistan, life is difficult and survival depends upon prudent and inventive use of the resources at hand. Too often in the past the skillful use of these traditional human and material resources has been uncritically labeled backward, to be supplanted rather than built upon, as if the techniques, materials, and skills appropriate in one circumstance and place could be indifferently applied to any other circumstance and place. In the coming years the physical reconstruction of Afghanistan after years of war and destruction will be an enormous task involving international aid and cooperation. Yet lack of understanding of the significance of culture and context in Afghanistan has in the past resulted in foreign aid bringing with it foreign architecture ill adapted to local circumstances. It is our hope that the publication of this atlas and its description of the indigenous traditions of Afghan architecture will lend understanding and credibility to the integrity of the variety of seemingly simple forms developed by the various peoples of Afghanistan and may deter well-intended but uninformed planners from dismissing their form and significance. It is a mistake to assume that the Afghans will be grateful for, or benefit from, reconstruction aid that is not consistent with their environmental experience or cultural heritage. The variety of structures illustrated should also serve to caution those who, realizing that foreign models may be inappropriate, nevertheless assume there is a single indigenous "Afghan" tradition, when there are in fact many indigenous traditions. It is our hope that an awareness of the factors influencing indigenous design will effectively contribute to a better understanding of the relationship between house form and aggregation and physical and cultural context.

METHODOLOGY

Although Afghanistan has a rich and varied tradition of domestic architecture, it has never been fully described. General architectural surveys of Afghanistan have been published in various languages (Hallet and Samizay 1980; Karzev 1986; Habib 1987), but they have typically focused on selective examples of Afghan architecture with limited information on their distribution, variation, or cultural context. Ironically, the best-documented architectural tradition in Afghanistan is also the least typical: the spectacular Nuristani mountain dwellings and their people are subjects of many informative and well-illustrated books (Edelberg and Jones 1979; Edelberg 1984; Wutt 1981). Anthropologists have also produced some excellent specialized studies, particularly on black tents (Ferdinand 1959a; 1960; 1969) and yurts (Herberg and Janata 1982; Centlivres and Centlivres-Demont 1988; Centlivres-Demont 1978; Andrews 1973).

Our research was designed to provide a more comprehensive understanding and document (to the extent possible) all the known types of Afghan domestic structures in a form that reveals both their architectural and their ethnographic contexts.

The field research was conducted by the authors in Afghanistan from 1974 through 1976. Initially it began as a comparative architectural study of four different types of villages by Albert Szabo, assisted by students and faculty from Kabul University. The study sites included the Salang Pass district of the Hindu Kush Mountains, the forested Nuristan district of the eastern mountains, the plains of the Maidan Valley, and the artisan village of Istalif. Each village was photographed, measured, and ethnographic information acquired from the inhabitants (see Szabo and Szabo 1978). When the four-village study was completed, the scope of the project was expanded in order to document as many other examples of domestic structures, nomadic, transhumant, and sedentary, as possible. Most of these examples were collected by Albert Szabo during field trips throughout the country while, as an adjunct to his own research on pastoral nomads in Kunduz and Badakhshan provinces, Thomas Barfield took photographs and measurements of structures in some of the more remote regions of northeastern Afghanistan.

Architectural drawings were rendered from these observations and became the core of the book. Approximately two-thirds of the structures documented in the book were observed and recorded in the field by the authors. Many of these structures have not been previously described in detail, or reported in the published literature. The remaining architectural types were documented by searching the ethnographic and architectural literature on

Afghanistan. This was highly scattered and varied from a few highly detailed studies to a large number of sketchy descriptions not fully illustrated. In particular we found that most anthropological studies provided insufficient architectural data (such as measurements or internal structure), while most of the architectural descriptions provided little or no ethnographic context (such as who lived in the structures and how they were used). Nevertheless, this search provided reasonable assurance that we had covered all published types of domestic structures, and allowed us to include a sampling of buildings in remote parts of Afghanistan we were unable to visit ourselves. Where the published material was inadequate, we contacted the original authors to gain more specific information. Happily we received their enthusiastic cooperation and were able to answer many questions about a particular building's design with the aid of their previously unpublished notes and photographs. Altogether, between our own research data and that of others, we documented and described twenty-nine types and fifteen variants for a total of forty-four distinct nomadic, transhumant, and sedentary structures. The specific distribution maps of each building type are only approximations derived from previously published maps or descriptions, modified by our own observations and those of researchers we contacted. They are designed to aid the reader in estimating the geographical extent of each type, but they are neither exhaustive nor authoritative. Similarly the more general maps of climate, topography, vegetation, minerals, earthquake zones, and ethnic groups illustrate the national patterns of distribution, but hide the true complexity so apparent at the local level.

It is our intent that the atlas serve as a document that records what we were most fortunate to personally observe in the 1970s and as a guide for aiding the reconstruction of Afghanistan in the years ahead. Tragically, this work has become more critical because of the massive destruction caused by the war in Afghanistan during the last twelve years, particularly to the villages and nomadic camps of those same people whose dwellings we have documented.

HISTORICAL BACKGROUND

Throughout its history Afghanistan has been profoundly influenced by the cultural traditions of its neighbors: India to the east, Iran to the west, and Central Asia to the north. As a primary overland Asian crossroad, it has also played an important role in the transmission of cultural traditions from each of these areas to the others. And within Afghanistan's modern political boundaries are peoples with ethnic and cultural ties to each of its neighbors. This

diversity of historical experience is reflected in the wide variety of monumental architectural remains that have been uncovered in the country. They reflect changing dominant architectural traditions which greatly influenced the designs of palaces and tombs, town plans, and the fine arts. This impact was most apparent in the construction of religious structures such as Buddhist stupas or Islamic mosques. Their form had to meet standard criteria within a cultural tradition, although local variations in the use of specific construction materials, techniques, and designs distinguished them from similar structures in other parts of the world. The number of cultural traditions which established themselves in Afghanistan at various times is sizable, and often comes as a surprise to those familiar only with its modern history, in which Islam has had a preeminent position. In fact Afghanistan has undergone a number of major cultural shifts in its history. Some have left only archaeological traces; others have remained embedded in an Islamic matrix.

While public architecture has been subject to major changes through time, the same cannot be said for the domestic buildings found among villagers and nomads. These appear to have changed little, in large part because house forms, tent types, or village plans were adapted to local building materials and specific environmental conditions that remained constant. However, domestic architecture cannot be considered timeless: the introduction of new building techniques, materials, and ideas or the influx of immigrants from other regions has changed traditional designs in many parts of Afghanistan. For example, even though such changes cannot be documented, an examination of specific building and tent types reveals a tendency of people to borrow elements from neighboring traditions, modify them to meet local needs, and then produce hybrid forms which become "traditional." The use of fired-brick vaults to support a flat-roof building in Qandahar is an example of a structural design borrowed from a neighboring area where domed architecture predominated to meet the demands of people whose tradition called for flat roofs. Similarly, the great variety of huts used seasonally by sedentary villagers in northern and central Afghanistan undoubtedly reflects the long interaction between indigenous villagers and the series of yurt-dwelling nomads who came into the region from Central Asia. The geographic distribution of yurts coincides quite closely in these regions with the distribution of huts. Yet at the village level traditions of domestic architecture have remained stable for long periods of time both because traditional structures are well designed to suit the multiple demands and constraints of their builders and because innovations are invariably well integrated into the older forms they

modify. Even when architectural designs lose their original functions they are often maintained as important design elements: the massive walls of the Afghan fortified farm compound (*qala*), originally built to serve as a defensive bulwark in unsettled times, are retained in later constructions for purposes of displaying prestige and preserving privacy.

Afghanistan in Pre-modern Times

Afghanistan is believed to have been one of the early centers of plant and animal domestication which led to the rise of neolithic farming villages nine thousand years ago, although little archaeological work has been done on this period. As the source of lapis lazuli, Afghanistan was involved in international trade from the earliest times. By the time of the Bronze Age (3000–2000 BC) there is evidence that Afghanistan supported urban centers, some outposts of the Harapan civilization of the Indus Valley, others indigenous to the country with cultural links to Turkestan and the Iranian plateau. These Bronze Age cultures were displaced by an invasion of nomadic cattle keepers who spoke Indo-European languages. They overran Iran and India, and their language is the root source for the dominant languages spoken in Afghanistan today, Persian and Pashto. Some scholars think they can discern references to Afghanistan in the *Rig Veda,* the Sanskrit religious hymns that describe the Aryan invasions of the second millennium BC. However it was not until the sixth century BC that Afghanistan clearly entered the historical record as part of the Persian empire. It is believed to have been the source of Zoroastrianism, a new religion expounded by Zarathustra, which posited a dualism in which gods of good and evil struggled for control of the universe. Zarathustra died in Balkh, and his teachings were later written down to form the *Avesta.* Zoroastrianism soon spread throughout the Achaemenid empire and became the state religion.

As part of the Persian empire, Afghanistan was divided into a number of satrapies. All shared certain elements of Achaemenid civilizations, but each area maintained strong local autonomy. The frieze at Persepolis showing tribute bearers recorded the differences in costume and gifts from each region of the empire. In the fourth century BC Alexander the Great conquered the Persian empire and opened a period of Hellenistic influence in Afghanistan. After his death northern Afghanistan fell under the control of a series of Greco-Bactrian kings who founded small city-states there. The site of Ai Khanum on the Amu Darya (Amu River) is a spectacular example of a purely Greek city that flourished in Afghanistan at this time. Southern Afghanistan

was incorporated into the Indian Mauryan empire (324–184 BC). Under the rule of its most famous king, Ashoka, Buddhism was introduced to Afghanistan, as evidenced by Ashokan inscriptions uncovered in Qandahar. All of these influences, Persian, Greek, and Indian, marked Afghanistan as a crossroads of Asia. Each had a distinctive style of architecture which became part of Afghanistan's own artistic heritage.

Nomadic invasions from Central Asia in the second century BC brought an end to the Greco-Bactrian city-states in the north and Indian rule in the south. These nomadic tribes settled in Afghanistan, established the Gandharan empire, and adopted Buddhism. They opened up new artistic horizons by commissioning artists trained in the Greco-Roman tradition to produce Buddhist statuary, resulting in work representing a unique combination of eastern and western iconography. The large stupas still standing in Afghanistan are among their legacies. The great monastic complex at Bamiyan flourished during this period, and Afghanistan became a major center for the dissemination of Buddhism, attracting monks from as far away as China. Although the area fell under Sassanian rule in AD 221–651, it continued to serve as a primary cultural center.

The eighth century AD marked the beginning of a significant cultural change in Afghanistan following the Islamic conquest of the area. Islam replaced the older Buddhist, Zoroastrian, and Hindu traditions. The early Islamic period was also marked by the invasion of nomadic Turks who established powerful kingdoms in Afghanistan, such as the Ghaznavids (977–1186), who used Afghanistan as a base for staging raids on India. These groups were replaced by other Turkish dynasties based in the north. The stream of invasions reached its height in the thirteenth century when the Mongols attacked the region. Their campaigns were extremely destructive and led to a massive decline in population. Afghanistan revived under the rule of the Timurid empire (1370–1506), founded by the great conqueror Tamerlane, which brought about a cultural renewal in the region, especially when the Timurids moved their capital from Samarkand to Herat. It was during this period that Turkish language and customs took root in northern Afghanistan.

The widespread use of yurts in northern Afghanistan probably dates from this period, although little is known about the tents of earlier nomadic invaders. Persian miniature paintings from Iran and Afghanistan during this and subsequent periods show yurts as a ubiquitous part of the landscape. The very use of the term "Turkestan" for the northern regions dates from this time.

From about 1500 to 1750 the territory of Afghanistan was split between Saffavid Iran, Uzbek Central Asia, and Moghul India. Babur, a successor to the Timurids and founder of the Moghul dynasty in India, made Kabul his summer capital. Thus as Afghanistan entered the modern period it was oriented toward India in the east, Iran in the west, and Turkestan in the north.

The Emergence of Modern Afghanistan

The declining power of neighboring states in Iran and India enabled the Afghan tribes south of the Hindu Kush Mountains to establish the Durrani empire in 1747, laying the foundation for the modern Afghan state and the dynastic line that ruled the country until 1978. Although the Afghans soon lost their eastern territories, first to the Sikhs and then to the British in India, they later maintained their independence in the face of two British invasions which led to the temporary occupation of the country twice in the nineteenth century (1839–1842, 1878–1880). On both occasions it proved impossible to pacify the country and the British were forced to withdraw. They then supported the creation of an autonomous Afghan state which would act as a buffer between British India and the growing Czarist Russian empire in Central Asia. Afghanistan's modern borders date from this period. While some disputed territory around Herat in the west and Afghan Turkestan in the north was granted to the Kabul government, these gains were offset by the loss of about half the old Pashtun tribal lands to India under the terms of the Durand Agreement of 1893. The Wakhan Corridor was ceded to Afghanistan in 1895 as part of a treaty arrangement designed to complete the buffer zone separating the colonial frontiers of Czarist Central Asia and British India.

Internally the country was united in the reign of Amir Abdur Rahman (1880–1901). He put down all opposition to his rule in order to create the modern Afghan state. Various tribal groups were transported to new territories for resettlement. For example, after the conquest of Nuristan many of its inhabitants were brought to Kabul, as were a large number of Hazaras after their region's incorporation into the Afghan state. Also during this period many nomadic Pashtun tribes moved to the relatively open pasturelands of the north, some voluntarily and some by deportation. Under the reigns of Abdur Rahman's successors this pattern continued. In the 1930s an influx of Uzbek and Turkmen refugees fleeing the Soviet Union increased the number of Turkish settlers in many parts of the north. What had been architecturally homogeneous zones now became more mixed.

Afghanistan maintained its independence and neutrality through both World Wars, in spite of a civil war in 1929. Postwar developments included significant road building projects and economic development, financed in large part by foreign aid and clever exploitation of the rivalry between the Soviet Union and the United States. The pace of change quickened as development projects opened new lands. Sedentary Pashtuns settled in the north on land reclaimed from reed marshes, while a few northern groups moved south as part of the scheme to irrigate the deserts of the Helmand River Basin. In the cities the architectural changes were the most dramatic. While in the 1920s and 1930s the Afghan government had been content to erect a few western-style government buildings in the undeveloped suburbs of existing towns and cities, in the 1960s and 1970s it proceeded to destroy most of the traditional urban domestic architecture in the name of progress.

Following a Marxist coup in 1978 a civil war erupted, and late in 1979 the Soviet army invaded Afghanistan. As much as half the population fled to the relative safety of refugee camps in Pakistan or Iran. While, with Soviet aid, government troops retained control of the major cities and towns, resistance groups dominated most of the countryside. For the next decade Afghanistan was subjected to massive air bombardments and ground attacks that laid waste to many villages and disrupted agricultural production. Unable to force a conclusion to the war, the Soviets withdrew in 1989, "making a desert and calling it peace." The reconstruction of the country has yet to begin.

PHYSICAL CHARACTERISTICS

Afghanistan is a semiarid country with a continental climate of hot summers and cold winters. It is dominated by the Hindu Kush mountain range which runs through the center of the country in a northeasterly direction until it meets the Pamir Mountains. All of these mountains are of geologically recent origin and still growing, accounting for the large number of severe earthquakes in Afghanistan which have periodically caused great destruction. The impact of seismic activity on building types varies, but recent surveys have shown that structures employing a pole-frame construction stand up best to earthquakes, dome-shaped constructions the next best, while adobe and fired brick buildings have the least resistance (Samad Salim, personal communication, 1975; see also Reference Map 10).

Although Afghanistan's mountain regions are only sparsely populated, they are key geographic features because their height and location determine wind and precipitation patterns, temperature, vegetation, and the flow of

snow-fed rivers. The central mountains bisect Afghanistan. These mountains catch precipitation from the Indian subcontinent to the southeast as the monsoon winds exhaust themselves. This makes eastern Afghanistan the wettest part of the country and the only place where natural forests are found. The drier winds from inland Eurasia are blocked by the north wall of the Hindu Kush and Pamir chains. Here precipitation falls mostly as snow at the higher elevations. The deserts of the southwest receive little precipitation and constitute a major dry belt swept by seasonal winds. The warm and cold areas of Afghanistan are determined largely by altitude (see Reference Maps 2–8).

Pastoral nomads take advantage of these distinct regions by migrating from their winter camps in the warm areas to the summer pasture regions in the cooler mountain districts. The nomadic routes map (Reference Map 12) shows this pattern on the national scale. Exploiting different ecological zones within a local area is also common. The mountain villagers of the Hindu Kush, Nuristan, and Badakhshan all have seasonal villages or camps that are close to their winter villages but situated at much higher altitudes where livestock graze in the summer months.

Afghanistan's internal geography generates a number of distinct regions. Each has a different ecology and, until the road building projects of the 1960s linked them, each was economically isolated from the others. The high mountains made it difficult to move goods from the relatively more fertile north to the arid or mountainous south. This isolation and dependence on local materials for construction accounts for the evolution and persistence of local building traditions. Many house designs, for example, reflect the relative absence of wood in some parts of the country and its abundance in others. Thus there is not one national architectural style with local variations, but a wide range of very different building types that tend to be regionally specific.

The Hindu Kush range, with an elevation of 3,500–5,500 meters, is the backbone of Afghanistan. The central region, known as the Hazarajat, is quite rugged, but contains the major mountain passes linking north and south. The Bamiyan Valley provided the traditional transit route via the Shibar Pass until the construction of the Salang Tunnel in 1964. Alpine farming using rainfall agriculture and small-scale irrigation is the major human land use. Snowbound in the winter, the mountain slopes offer extensive grazing land in summer.

Houses in the Hindu Kush region are usually constructed of mud/clay

mixed with rocks. In some areas natural rock-shelters have been expanded to create houses, while caves carved into sandstone are found elsewhere. Seasonal housing employed by local residents in the summer includes a variety of dome-shaped huts, the rectilinear Taimani black tent, and the Firozkohi yurt. Migrating Pashtun nomads camping in the region for the summer only employ both main varieties of the black tent: the vaulted Durrani and peaked Ghilzai styles. Indeed, this area is the traditional boundary zone between the yurts and round huts of the north and the black tents of the south.

Although many mineral deposits have been located in the area, none has been developed (see Reference Map 9). The most important resource of the area is its snowpack. Many of Afghanistan's major rivers, including the Helmand, Farahrud, Harirud, Murghab, and Kunduz, have their headwaters here. Thus the irrigation water for most of the country is dependent on the amount of snow available in the Hindu Kush.

The eastern mountain region is the area drained by the Kabul River system (see Reference Maps 1, 2). These river valleys have become major population centers. The capital of Afghanistan, Kabul, is the largest city in the country. Surrounding districts, particularly Parwan and Logar, are dotted with villages. These upland districts are over 1,500 meters in elevation and have cold winters. Wheat, grapes, and fruit trees are the main agricultural products. The lower valleys of this region, such as Laghman and Jalalabad, are warm throughout the year and produce wet rice and citrus crops. The variation in climate is most apparent during the winter, when oranges grown in Jalalabad flood the snowy streets of Kabul. In the Kabul region sun-dried brick and heavy tiered clay construction are most common, with flat roofs supported by poplar poles. Toward the south of the Kabul district and extending into the Qandahar region, walled *qala* constructions dot the landscape.

The most distinctive area in the eastern mountain region (or in Afghanistan for that matter) is the mountain valleys of Nuristan. Here large natural forests cover the mountainsides. These woodlands also extend south through Paktya toward Gardez, but the southern forests have been heavily logged for sale to urban markets and are rapidly disappearing. The forests in Nuristan are more stable because the terrain is too difficult to allow as much commercial logging. Nuristan is the only part of Afghanistan in which wood provides the main resource for house construction. Because of the steep terrain, houses are multistoried and built into the sides of the mountains. One house is built upon and stepped back from the next, in order to maximize the num-

ber of buildings in a small space. Large wooden posts, often elaborately carved, and wooden beams support each house.

The central and southern mountain/foothill regions and the Seistan Basin of Afghanistan are drained by the Helmand River system (see Reference Maps 1, 2). Upland areas, around Ghazni, support villages dependent on unirrigated agriculture and stock raising with villages similar to those seen around Kabul. Further south, dense settlement is possible only with irrigated agriculture, particularly around Qandahar, where it is quite arid. Here settlement clusters occur around the rivers where water can be diverted for agriculture. Qandahar itself is most notable for its multistoried vaulted brick buildings with deep basements designed to escape the heat.

Southwest Afghanistan comprises a large area but is one of the least densely populated parts of the country, although in the past it supported a much larger population. Seistan, for example, was a major wheat producer during the Middle Ages, but today it supports only the archaeological remains of large towns and villages. The irrigation system was either destroyed by invaders or disrupted by geological changes, forcing the abandonment of most of the region. Since the Second World War the Afghan government has attempted to restore the area's prosperity by building a complex set of dams and new irrigation works. High water tables and subsequent salinization of the land have limited the success of this venture. The Helmand flows to the Iranian border, where it forms marshland, for it has no outlet to the sea. The region is very hot in the summer and suffers from intense winds. Stone and sand deserts run to either side of the Helmand in Seistan.

In spite of the aridity of the surrounding deserts, the Helmand River and the Seistan Basin support large reed beds. This resource has given that region some unique architectural features. Reeds are tied into bundles and used as arches to support barrel-vaulted buildings. The use of reeds makes up for the lack of trees. From this reed tradition of vaulting, neighboring nomadic groups who inhabit the desert appear to have adopted the concept of barrel vaulting for their tents, which they manage by lashing short pieces of wood together to form hoops. This is a prime example of how concepts developed to exploit the resources of one area may be adapted for use in another under very different circumstances.

The Herat-Farah Lowlands lie in the western part of Afghanistan along the Iranian border (see Reference Map 2). Culturally and geographically, this region is an extension of the Iranian Plateau. Settlement patterns depend on

the availability of water for irrigation. The Herat Valley is served by the Harirud River, which flows out of the central mountains and supports a large agricultural population. Villages are also irrigated by the use of the *karez* (also known as *qanats*), a system of underground water conduits that tap the water table of the foothills and bring water down to the lowlands. A *karez* system requires continual maintenance but makes it possible to farm beyond the range of the river valleys and reduce the amount of water lost to evaporation. Like Qandahar, Herat suffers from periods of hot winds in the summer. However in Herat these winds are put to work by employing vertical-axis windmills which provide the power to grind grain, a tradition that has died out elsewhere (see photo, page xii).

The Turkestan Plains are located in northern Afghanistan between the foothills of the Hindu Kush Mountains and the Amu Darya (see Reference Maps 1, 2). Unlike other rivers in Afghanistan there is little settlement along the banks of the Amu itself below its junction with the Kunduz River. West of this point it passes through a sandy desert and lacks an alluvial plain suitable for irrigation. Most of the settlements in Afghan Turkestan are clustered around the rivers that originate in the Hindu Kush and flow north toward the Amu. These include the Murghab, Balkhab, and Samangan rivers, all of which disappear in the desert before they reach the Amu. Waters from these rivers allow the loess plain to be irrigated and produce rich crops. Depopulated in the late nineteenth century by a series of wars, famines, and epidemics, this region has been gaining population steadily during the twentieth century. Wood is scarce in Turkestan. The architecture reflects this in its use of domed roofs that require neither wooden beams nor formwork. It is also an area of yurts and other round huts.

The plains are better watered in the east by the Kunduz and Kokcha rivers. They run through low-lying valleys and do act as tributaries to the Amu. Until the 1930's this area was largely a malarial swamp, but since that time it has been drained and has become an important rice and cotton producing area. The steppe in this area is also quite extensive and supports large numbers of livestock. The foothills above the plains receive more rainfall and support small villages engaged in unirrigated agriculture and stock raising. Gas discoveries on the plains near Shibarghan have done little to change the rural character of Turkestan because almost all the gas is exported to the Soviet Union.

The highlands of Badakhshan in northeastern Afghanistan is a mountainous region east of the Turkestan Plains. It is drained by the Kokcha and Amu

Darya. Most villages here depend on unirrigated wheat, or barley at higher altitudes. Mountain villages in small valleys often divert natural streams into a series of channels (*juis*) to irrigate garden plots or fruit trees (photo, page v). Villages have flat roofs supported by poplar poles; the walls are clay mixed with straw. Unlike Nuristan to the south, Badakhshan has no great stands of forests. From ancient times it has been famous for its lapis lazuli, mined near Faizabad. It also produces gold. Other mineral resources have been found but not developed (see Reference Map 9). The mountain pastures, particularly around Darwaz and Lake Shiwa, attract large numbers of migratory pastoralists. Further to the east lies the Wakhan Corridor, the route to the "roof of the world" in the Pamirs. Largely uninhabited except for a few nomads and alpine farmers in the lower valleys, its traditional importance was as part of the caravan route to Chinese Turkestan. High winds, extreme cold, and high altitudes make this region extremely difficult to inhabit. Only the use of a felt-covered yurt allows any nomadic group to live in such cold conditions year-round.

THE PEOPLE

Afghanistan is a land of small villages that traditionally accounted for about 90 percent of the population. The practice of subsistence farming and pastoralism has always given these villages considerable autonomy. Although agricultural practices and crops vary from region to region, the national economy is based on rural production with almost no modern urban industry. Socially the two outstanding features of life in Afghanistan are the pervasive influence of Islam and local tribal or ethnic divisions. Islam serves as both a set of religious beliefs and a framework for social behavior, and has always been a more potent force than secular nationalism. Identity as part of a larger Muslim community has the potential of uniting people in defense of the faith regardless of their economic, language, or tribal divisions. On the other hand this overarching ideal of unity is normally undercut by people's primary loyalty to their own kin, village, tribe, or ethnic group, generally glossed as *qawmi*.

One reason for Afghanistan's great ethnic complexity is that it has been continuously invaded throughout its history by new groups of people who then made their homes there, often introducing new languages and cultural practices. At the same time Afghanistan's rugged terrain has enabled many indigenous groups to maintain their distinct way of life outside of the major river valleys and urban centers. The upper course of the Amu Darya is the home for people speaking old Iranian languages that have died out else-

where. In Nuristan a unique culture has survived in the mountains since before the time of Alexander the Great. This diversity is also expressed in religious terms. While the vast majority of Afghanistan's populations is Sunni, large Shia populations exist in the Hindu Kush and Pamir region. This preservation of traditions is not without consequences for architectural forms and construction methods. Many of the unusual huts, tents, and houses illustrated in the text are used by relatively little known groups who have preserved earlier forms that disappeared elsewhere.

Afghanistan's people are divided among agricultural villages, pastoral nomads, and urban residents. However these divisions are not always clearly evident. Most villagers raise some livestock, and many nomads do some agricultural work or own land. Urban dwellers rarely lose all ties with the villages from which they came, and many urban residents shuttle between town and village. The use of varied human and natural resources is reflected in forms found in local architecture. Many villagers have portable tents or huts that are used during the summer. Pastoral nomads themselves have tents or yurts designed for different seasons and may even employ a house for winter use.

The descriptions that follow make distinctions among these broad categories:

Sedentary: villagers or town dwellers with a permanent residence that they use year-round.

Transhumant: villagers who move seasonally from a winter village (*qishloq*) to a summer village (*ailoq*). Both building types consist of permanent structures, although the *ailoq* is often much simpler in design. The transhumant pattern is found most often among mountain villagers who wish to take advantage of extensive highland pastures.

Semisedentary: villages engaged largely in agricultural production who temporarily abandon their permanent dwellings for tents or huts in the summer. These may be pitched in proximity to the village to prevent grazing livestock from disturbing the growing crops. Such seasonal structures may also be built purely for comfort to catch breezes and escape the heat or to avoid the insect infestations that often plague village houses during the summer season. In such cases the hut or tent may simply be erected in the courtyard of the main house.

Seminomadic: villagers or nomads for whom livestock raising is an economic mainstay. These people abandon their winter houses in the spring and

summer for the pastures of the steppes and mountains. At this time they use portable dwellings and move a considerable distance from their winter quarters. They usually follow a regular schedule.

Nomadic: people engaged in stock raising who use huts, yurts, or tents year-round. They follow a regular migration schedule in order to take advantage of seasonal pastures. They often have considerable numbers of baggage animals such as camels to move their households. However in the northern part of Afghanistan, where pastures are dependable and privately owned, nomads have purchased land and built houses for winter use while continuing to follow their old migration pattern. This has been particularly marked among former yurt dwellers, but the pattern also occurs among the Pashtun nomads who use black tents.

Peripatetic: small groups of itinerant nonpastoral people engaged in trade, craft production, personal services, etc., who use tents seasonally.

Settlement Patterns

Regions of settlement are often described in terms of highland/lowland or cold/warm. In general, lowland regions are also warm regions, but in a mountainous country like Afghanistan "lowland" is a relative term and is defined by local context. Jalalabad can grow citrus while Turkestan cannot, but both are considered low and warm in comparison to the mountainlands above them. Similarly the grape-growing area of Parwan north of Kabul and the grain belt in the Logar River Valley are relatively high in comparison to Qandahar or Jalalabad, but both are low in relation to the Hazarajat.

VILLAGES

Villages follow a number of settlement patterns depending on the availability of water and the need for defense. The key distinction in agriculture is whether the land is irrigated (*abi*) or unirrigated (*lalmi*). Except for the mountain and foothill regions that depend on unirrigated agriculture, most villages are sited in relation to an irrigation network of *juis* (see photo, page v) or channels. In large valleys these may depend on a barrage or dam system that diverts river water into main canals, from which it is moved by gravity to smaller channels and finally to the fields. In mountainous areas small streams may be diverted at high elevations for use by the villages below. In the western part of Afghanistan a system of underground conduits, or *karez*, are employed, but these require a large capital investment and need more

maintenance than other systems. In all of these cases villages are located on the least fertile areas so that little agricultural land is lost. The cluster of village houses is usually surrounded by walls. This is particularly true of the *qala* villages, which are designed to serve as fortresses as well as houses. Another house type found in the area from Herat to Tashqurghan employs domed roofs, while in most other parts of Afghanistan village houses use flat roofs. Typically square or rectangular in plan, they employ sun-dried clay brick as their main building material. Some exceptions are those houses found in the high mountains that employ mostly stone, such as those in the region of the Salang Pass, or those in forested Nuristan which make extensive use of wooden beams, frames, and columns.

Village life is based on households working small plots of land usually owned by an individual family. Tenant farming has always been far less prevalent in Afghanistan than in Iran. Wheat is the basic crop throughout Afghanistan. In irrigated lowland regions rice, cotton, melons, and citrus fruit are also grown. Most highland agriculture is unirrigated, with wheat the preferred crop at lower altitudes, barley at higher elevations. Here large tracts of land are plowed and sown in anticipation that a good snowfall or spring rains will produce a good crop. Highland villages tend to be smaller in population than those in lowland areas. Mountain villages also irrigate groves of trees to produce crops such as mulberries, stone fruits, and nuts. Livestock, mostly cows and goats, is an important component of the economy but mountain villagers must limit their numbers to those that can be stall fed through the winter. The livestock is moved to available pasture in the summer. To facilitate this, people establish special summer villages or, particularly in central Afghanistan, make use of portable dwellings that owe their designs directly to nomadic types, like the Firozkohi yurt, or to design principles adopted from nomadic groups, like the *chapari* and *lacheq*.

PASTORAL NOMADS

Stock raising is the primary occupation of nomadic pastoralists in Afghanistan who, by some estimates, make up as much as 20 percent of the population. Nomadic pastoralists take advantage of seasonally changing pastures, spending the winter in the lowlands and the summer in the mountains. The map of nomadic migrations (Reference Map 12) shows that most nomads move toward the highlands of the Hindu Kush in the center of the country or in the northeast toward the highland pastures of Badakhshan. Most of

the nomads involved in these long-range migrations are Pashtuns who use black tents. Nomads from the Uzbek, Turkmen, or Kirghiz groups normally move their animals only short distances, often moving from winter pasture in the valleys to spring and summer pasture on the steppe and nearby foothills. Nomads raise sheep and use camels to transport their baggage. A few groups also engage in the caravan trade. All are dependent on the sale of animals, cheese, clarified butter, dried yogurt, wool, or skins to urban markets for cash with which they buy wheat. Bread is the main food even of nomads in Afghanistan.

TOWNS

Towns act as centers of trade where agricultural and pastoral products are exchanged for manufactured goods. Local artisans produce many items that are essential for village and nomadic life. Town populations are diverse, including members of many different ethnic groups. In the winter particularly young men from mountain villages will seek temporary work in the towns, returning home in time to help with the new agricultural season. Others settle to form ethnic communities within an urban setting. Because of this, no matter how remote a village may seem, it often has links to regional urban centers and to Kabul. Towns are also centers of government administration, but links between officials and villagers have traditionally been brittle. Afghanistan's rural population has always organized itself around family, tribal, and religious loyalties. The government has few connections to the villages. While often more elaborate in towns, house forms employ the same type of construction techniques as do those in the villages. Domed roofs predominate in an arc running from Girishk and Seistan in the south through Herat to Tashqurghan in the north. Elsewhere flat roofs are found, although in places near Qandahar a vaulted construction is employed and then covered with a flat roof. Urban houses are normally surrounded by high walls of pressed tiered clay so that little detail of domestic architecture is visible from the street. In large cities multistoried buildings are common, based on multiples of the same construction type.

Tribes and Ethnic Groups

The population of Afghanistan is divided into a number of tribal or ethnic groups. In general terms it is possible to produce a map showing their distribution which is useful for many purposes. However it must be noted that

both defining the groups and determining their boundaries are difficult because of multiple criteria in defining them and the overlap in ethnic distribution within individual regions. Mapping would have to take place at the village level on a seasonal basis to begin to give an accurate picture. The national map (Reference Map 11) is useful only to orient an outsider to gross patterns.

Tribal groups usually maintain that they are genealogically related to one another, and groups like the Pashtuns or Turkmen can produce elaborate genealogies that act as tribal charters. Yet descent is not the whole of it. A Pashtun who cannot live up to the Pashtun tribal code of behavior, *Pashtunwali,* may be redefined as a Baluch in the south where the two groups overlap. Physical appearance is sometimes used as a diagnostic indicator of identity, but it too is uncertain because of intermarriage among ethnic groups. Hazaras are presumed to have Mongoloid features and Tajiks Caucasoid ones, but Hazaras are also Shia and Tajiks Sunni. An individual, even with strongly Mongol features, is therefore defined as Tajik if he or she is Sunni, because religious affiliation is ultimately more important than physical appearance. Groups that do not claim common descent like the Tajiks or Farsiwans (Persian speakers) often include a variety of different groups. Nuristanis for example are viewed as a single group by outsiders, but in fact speak different languages and historically fought one another.

Ethnic identity is a product of self-definition, definition by others, and interaction among groups. Within a group fine distinctions are made that are not recognized, nor need be recognized, by outsiders. Within a group people will identify themselves as members of specific clans and lineages or as being from specific areas. In conversation with outsiders a more general gloss, such as Pashtun, Hazara, Tajik, etc., will suffice. This raises particular problems in terms of assigning ethnic labels to house forms and tent types. For example, while there is a major division between nomads from the Turkic tradition who use yurts and Pashtun, Baluch, and others from the south who use black tents, finer distinctions within the yurt or black tent group are rarely recognized by outsiders. The ethnographic literature of Afghanistan is often confusing in this regard because it may be very specific about some types and extremely general about others. Architecturally the situation grows even more complex if one group adopts the style of another, as when the Durrani employ the Baluch barrel-vault for their tents. Nevertheless, domestic architecture in Afghanistan is regionally conservative, and people use it as one marker among many in assigning identities to others and themselves.

Continuity in design and construction of tents, huts, and houses is maintained because they are elements of the local cultural tradition, whether produced by the residents themselves or by specialists. Old designs are replicated because they are believed to be the best designs.

PASHTUNS

Pashtuns are the dominant ethnic group in Afghanistan, comprising somewhat less than half the country's estimated thirteen million population. An equal number are found on the other side of the border with Pakistan. The term Afghan is synonymous with Pashtun, although in recent times governments have tried to give it a broader nationalist definition. Pashtuns are divided into two major segments—the Durranis inhabiting the area around Qandahar and the more numerous Ghilzais to the northeast straddling the Afghan-Pakistan border. Although the Ghilzais are a larger group, the kings of Afghanistan have always come from the Durranis. Pashtuns are organized around a system of lineages. All Pashtuns consider themselves descended from a founding ancestor and through elaborate genealogies can link their own tribe and lineage (*khel*) to any other. In addition to descent, Pashtuns also define themselves by their adherence to a code of conduct, the *Pashtunwali,* and their ability to speak Pashto. Many Pashtuns by descent have lived for generations in Persian-speaking towns and no longer speak Pashto, which might exclude them in the eyes of the hill tribes but not in the eyes of the government or of other groups in the country. Most Pashtuns are village farmers, but a significant minority are nomads. These nomads have expanded their range since the reign of Amir Abdur Rahman (1880–1901), when new mountain pastures in the Hindu Kush and Badakhshan came under the Kabul government's control.

Pashtuns can be found throughout Afghanistan today as products of resettlement. For example as late as 1947 rebellious tribesmen and their families from the Jalalabad region were transported north to Kunduz province. They were given land where they built their traditional *qala*s and began to nomadize using black tents. While *qala*s never became very common in the north, Pashtun nomads with their black tents have become the dominant pastoralists in Turkestan, greatly outnumbering the Turkic nomads who use yurts. However, some recent reports indicate that because of displacements caused by the war many of these Pashtun groups have returned south, abandoning the region to the Turks and Tajiks.

TAJIKS

Tajiks are the most populous group in the northeastern part of the country, amounting to 3.5 million. They speak Persian, and most inhabit mountainous areas. Unlike the Pashtuns, they are not tribally organized, but identify themselves by the location of their villages. These villages support themselves with a combination of unirrigated agriculture and stock raising. They have also traditionally made up the majority of urban residents in Kabul and other towns. The term Tajik is quite broad, but inside Afghanistan it usually includes only Sunni Muslims. They are distinct from the small number of so-called "mountain Tajiks," Ismaili Muslims who inhabit the headwaters of the Amu Darya and speak Iranian languages now extinct elsewhere. Tajiks are also sometimes grouped with the Farsiwans, a Persian-speaking Shia population of half a million around Herat with strong cultural links to Iranian Khorasan across the border. However, in other parts of the country the term Farsiwan is used to label various Sunni Persian-speaking groups of obscure origin.

HAZARAS

The Hazaras, numbering perhaps one million, occupy the central range of the Hindu Kush and engage in subsistence agriculture and livestock breeding. They are believed to be descended from the Mongol armies that conquered Iran. They often have strong Mongoloid features, although their language is a dialect of Persian. They are Shia Muslims who maintained independent control of the Hazarajat until the end of the nineteenth century, when Amir Abdur Rahman conquered the region. Many Hazaras were sold as slaves in Kabul at that time. Later settlement of migrant workers seeking casual work in the capital increased their numbers there, and many became actively engaged in business. Hazaras constituted about a third of Kabul's population before the war. Traditionally ranked at the bottom of Afghanistan's ethnic hierarchy, they have been systematically excluded from almost all government positions and educational opportunities by the Pashtun-dominated governments.

TURKS: UZBEKS, TURKMEN, KIRGHIZ

Turkish groups traditionally dominated northern Afghanistan, as the name Turkestan implies. The Uzbeks conquered Central Asia in the sixteenth century as nomads, and later many became sedentary farmers. The Uzbeks in Afghanistan, numbering about a million, are an extension of the Uzbek population across the border in the Soviet Union. A large number fled to Afghani-

stan following the Russian Revolution and later during the Stalinist period. The Turkmen to the west raided northern Afghanistan for slaves in the nineteenth century, but following the Russian conquest of Khiva and Merv, large numbers of Turkmen moved to Afghan territory. They number about half a million and also are related to the larger Turkmen populations in the Soviet Union and Iran. The Turkmen are most famous for their carpets and *qaraqul* sheepskins, both of which are major exports of Afghanistan. The Kirghiz are the smallest of Turkic groups in Afghanistan. Numbering only a few thousand, they were pastoral nomads inhabiting the Wakhan Corridor, although many left after the Soviet invasion. They are related to larger Kirghiz populations in Soviet Kirghizia and Chinese Xinjiang.

CHAHAR AIMAQ

The Chahar Aimaq occupy the territory west of the Hazarajat. They are Sunni Muslims of Turkish descent who now speak Persian. They number about half a million, although like all figures listed this is an estimate that varies widely. Chahar Aimaq means "Four Tribes," and includes the Jamshidis, Firozkohis, Taimanis, and Taimuris. There is some dispute as to their identity as a single group because there appears to be little unity among them except that outsiders call them the Chahar Aimaq. They are seminomadic with more emphasis on pastoralism than their neighbors.

BALUCH

The Baluch, who are also found in Iran and Pakistan, are south of the Pashtuns in the desert. They number about 100,000 in Afghanistan and have their own language, Baluchi, which (like Pashto) is related to Persian. On the border with Pashtun areas many Baluch speak Pashto, and the distinction between Baluch and Pashtun rests on political allegiance to Baluch khans. The Baluch are mostly pastoral nomads. In the past they often made ends meet by raiding villages for slaves and loot; today they are still renowned as smugglers linking Iran and India.

SMALLER GROUPS

Afghanistan also has a number of smaller groups with distinctive histories. The most unusual are the Nuristanis who live in the mountains northeast of Kabul. Until the late nineteenth century they were independent and maintained their own polytheistic religion and distinctive culture based on goat and cattle raising with terraced agriculture. Forcibly converted to Islam after

the conquest of the region by Amir Abdur Rahman, they became a significant part of the government and military in spite of their small numbers (under 100,000). Their languages are unrelated to any others in Afghanistan and the population shows a high rate of blondism (a characteristic associated in legend with the conquest of Alexander). Other groups such as the nomadic Arabs of northern Afghanistan maintain a separate identity although all speak only Persian or Uzbek.

Resettlements of Ethnic Groups

Although the building types described in the following pages reflect the correlations between locations of various tribal groups, the distribution of these populations is rapidly changing from what is shown on Reference Map 11. The combined influences of extensive foreign aid during the past decades and the Soviet invasion have brought with them both applied modern technology and devastation. Northern Afghanistan now has a large Pashtun population as part of a policy to tie the region more closely to Kabul. The Kunduz River Valley has been developed for agriculture and contains a very wide variety of ethnic groups. The same is true to a lesser extent in the Helmand River Basin because of development there. Most profound, but not included in this description, is the impact of the Soviet invasion of Afghanistan. This caused a massive refugee migration to Iran and Pakistan, doubled the population of Kabul, and wreaked havoc upon many parts of the country. It has also reinforced traditional leadership patterns resulting in organized resistance based in Badakhshan, the Hazarajat, Nuristan, and Pashtun tribal regions. It remains to be seen whether the postwar reconstruction will alter the previously existing relationship among ethnic groups and tribes in various parts of the country.

PART ONE

NONSEDENTARY DWELLINGS

Black Tents

Cotton Tents

Yurts

Huts

Black Tents

Black tents are made of woven goat hair cloth which gives them their distinctive color. Each tent is composed of strips of tent cloth (*palas*) each measuring about a meter in width and three to four meters in length. A number of these panels are pinned or tied together to create the top and sides of the tent. Stakes are driven into the ground to secure guy ropes that hold the tent cloth taut upon poles or a frame. The *palas* absorbs the heat of the summer sun and provides considerable shade. The sides of the tent can also be rolled up to allow the wind to cool the interior. The result is an air temperature ten to fifteen degrees Centigrade cooler than the outside air (L. Dupree 1980 : 172).

Although it may seem counterintuitive to reside in a black tent in the desert, studies on animal hair and human clothing have suggested that black surfaces can reduce solar load. The animal studies found that black hair prevents short-wave radiation to the skin better than white hair. The clothing study found that heat gained by desert tribesmen was approximately the same whether black or white robes were worn. It seems that the additional heat that the black robe absorbed was lost by convection before the heat could reach the skin (Shkolnik et al. 1980; Harvey Bryan, personal communication, 1988). As a perfect absorber of the sun's rays, black tent cloth may facilitate circulation when its internal temperature rises far above that of the ambient air around it. This produces a stack effect in which the hot cloth generates a layer of superheated air above it which induces a convection current by drawing air up from below. Conversely, black tents are poor at coping with cold and wet climates. Thus, it is very plausible that the close connection between the distribution of black tents in arid areas with high seasonal temperatures (Feilberg 1944) is related to their ability to cope with solar loads more efficiently than other types of tents.

Afghanistan forms the eastern end of a black tent zone (with the isolated exception of those found in Tibet) located within a broad band of desert and semidesert environments extending from North Africa and Egypt through Arabia, Syria, Iraq, Iran, and Pakistan (Feilberg 1944). In Afghanistan black tents are found among the Baluch, Brahuis, Durrani and Ghilzai Pashtuns, and some Pashtunized Moguls (Schurmann 1962 : 336–340, 350; Ferdinand 1969 : 127–133). Each tribal group has its own way of constructing and pitching a tent, the resultant form of which can often be identified at a distance.

There are two main types of black tents: vaulted and peaked. It is the selective use of the poles that distinguishes these varieties. The peaked variety, used by the Brahuis and the Ghilzai Pashtuns, employs a set of tent poles to which each *palas* panel is attached. The vaulted style, used by the Durranis

and other groups, employs ribs and sometimes T-bars to create the frame over which the *palas* is stretched. There are more varieties of vaulted black tents than peaked black tents. For example, Klaus Ferdinand (1959a) has noted that Durrani pastoral nomads often have a special vaulted winter tent that is much larger, but less mobile, than the tents they use at other times of year. Such winter tents may be reinforced with mud walls or have their sides closed with plaited grass or flattened reed matting (*buria*). Summer tents by contrast are smaller and lighter in construction, although they too may be pitched on a single spot for a long time, often sheltered from the wind by means of low rock walls which dot summer pasture areas and are the only visible evidence of nomads once the tents are gone. When frequent moves are involved, nomads will often use irregular tent forms that have an ad hoc air, but even a full-sized black tent can be pitched or dismantled in a matter of minutes. With structural elements limited to a few pieces of wood and the *palas*, it is easy to pack and transport.

In Afghanistan the use of black tents is confined to pastoral nomads or to nomads who have only recently settled. These pastoralists raise mostly sheep and some goats. They do not wander; rather they move along regular migration routes from winter to summer pastures in order to maximize the amount of grazing for their animals. The black tent facilitates these moves but requires the use of camels to transport the heavy tent cloth. It is considered the women's responsibility to pitch the tents and to load them on the camels, although the men will often help with the lifting. All of a nomad's belongings, bedding, and equipment must be stored within the tent. Bulky items are kept to a minimum because of the need to make frequent moves. Wealthy nomads, like those in northeastern Afghanistan who own land, often store their tents in the winter and live in a house. In such situations tent life is restricted to the spring and summer when they migrate to seasonal pastures (Schurmann 1962 : 401 – 404).

The vast majority of black tent nomads in Afghanistan are Durrani or Ghilzai Pashtun. Although their black tents can be found throughout Afghanistan, the Pashtun presence in many places is of recent origin. Until the late nineteenth century, Durrani nomads were largely confined to southern Afghanistan in the area between Qandahar and Herat, while the Ghilzais occupied the frontier with India. During the reign of Amir Abdur Rahman (1880 – 1901) the central government conducted a number of military campaigns in the central mountains which allowed the nomads to move into new pasture areas. Use of these pastures put a premium on mobility, and black tents began appearing in areas that previously had been dominated by yurts (Firozkohi) or

chaparis (Hazarajat) (Ferdinand 1962). The government also exiled a number of Durrani groups north of the Hindu Kush in Turkestan (Tapper 1973; Kakar 1971 : 159–180). Others were settled in northeastern Afghanistan and took their stock to the highlands of Badakhshan near Shiwa and Darwaz (Schurmann 1962 : 338–340). They were successful in establishing themselves in the north because most of the yurt-dwelling nomads of the north made only short moves and could not take advantage of seasonal mountain pasture which was ceded to the nomads by the Afghan government (Barfield 1978; 1981 : 42–46). While both the Ghilzai peaked tents and the Durrani vaulted tents are commonly found together in the central mountains, only the vaulted tent is widely used in the north.

The spread of the black tent into the yurt zone of northern and central Afghanistan has highlighted both its strengths and its weaknesses. Although the black tent has advantages over yurts and other heavier frame structures in terms of mobility, it is not well adapted to wind, cold, or wet weather. While some nomads attempt to reinforce their tent walls with woven reed or grass matting to cut the drafts, the black tent provides little security in a snowstorm because the *palas* is only partially waterproof and the tent is subject to being blown over in high winds. In northern Afghanistan black tent nomads have partially adapted to the more stressful circumstances there by abandoning the peaked black tent, traditionally favored by the Ghilzais, in favor of the vaulted tent used by the Durranis. Because the peaked tent has poles projecting through the top, it leaks more readily than a vaulted tent, which does not have poles penetrating the *palas* panels. In northern Afghanistan the vaulted tent is employed by Ghilzais and Durranis alike. However, the expansion of even the best-adapted black tents into Afghan Turkestan has been successful only because the winters there are only marginally colder than in the south and because many of the "nomads" there no longer live in tents year-round, having established permanent villages where they spend the winters. In regions farther north, where cold winters and snow are common, the black tent would provide insufficient protection and could not compete with a yurt.


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
FAIZABAD
KOKCHA RIVER
PAMIR
CHINA
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
BAGHLAN
PUL-I-KHUMRI
KUNDUZ R.
SAMANGAN R.
HINDU KUSH
HARIROD
36
MAIMANA
BALKHAB RIVER
DOSHI
NURISTAN
IRAN
MURGHAB RIVER
SALANG
CHARIKAR
QALA-I-NAO
ISLAM QALA
BAMYAN
ISTALIF
KONAR R.
KABUL RIVER
HERAT
PANJAB
MAIDAN
KABUL
JALALABAD
LOGAR RIVER
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
PAKTYA
FARAH
DILARAM
32
TARNAK RIVER
QALAT
GIRISHK
QANDAHAR
LASHKAR GAH
IRAN
ZARANJ
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
64
68
VAULTED
BLACK TENTS
DURRANI
Location of type illustrated
Winter distribution
Summer distribution
0 50KM 100 200 400 800

Vaulted Black Tents

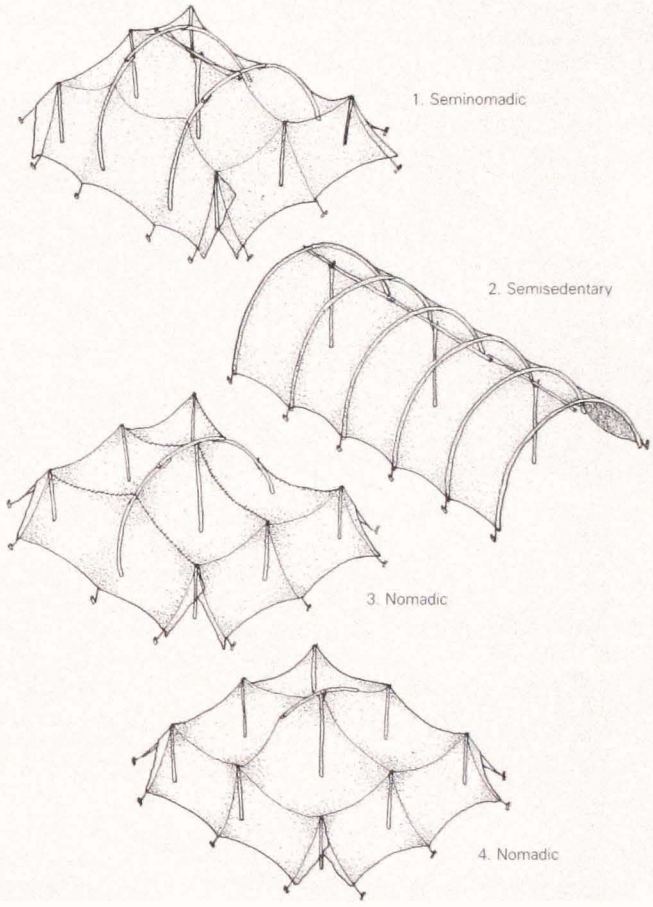
DURRANI

LOCAL NAME
***Ghizhdi* (Pashto)**

PEOPLE
Durrani Pashtuns
Nomadic and seminomadic pastoralists

LOCATION OF ILLUSTRATED EXAMPLES
Northwest of Pul-i-Khumri (No. 4)
Southern Afghanistan near Girishk and Qandahar (Nos. 1, 2, 3) (Ferdinand 1959c; 1960)

USE
1. Summer
2. Year-round
3. Winter and spring
4. Spring and summer



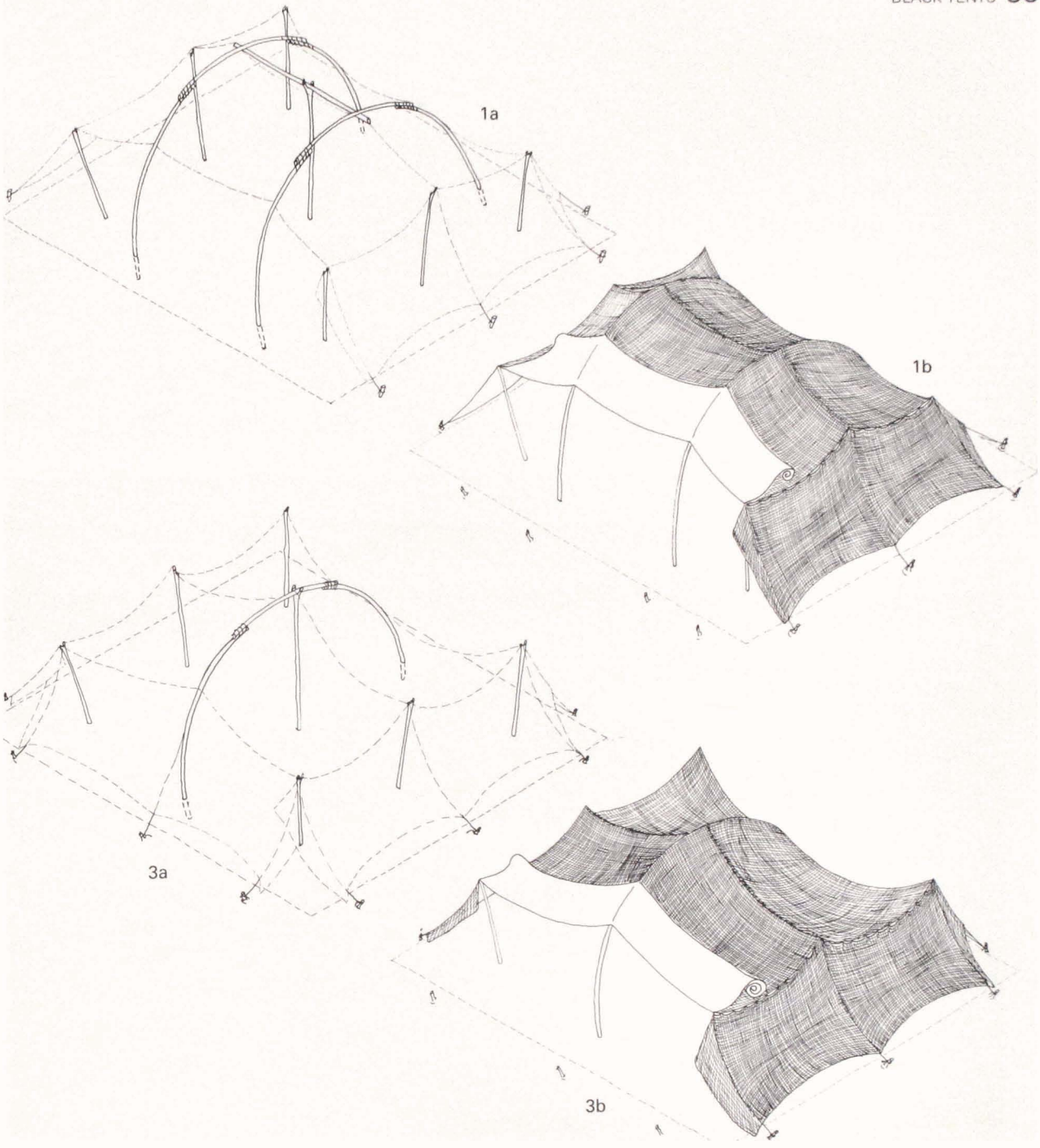
The Durrani black tent employs hoops with T-bars, or a T-bar alone, to produce a vaulted structure over which the pinned panels of *palas* are stretched taut. Plaited grass or flattened reed mats (*buria*) are sometimes used as walls in the winter and spring tents, but usually the sides consist of panels of *palas* attached to the roof cloth. The winter tents employ as many as six panels.

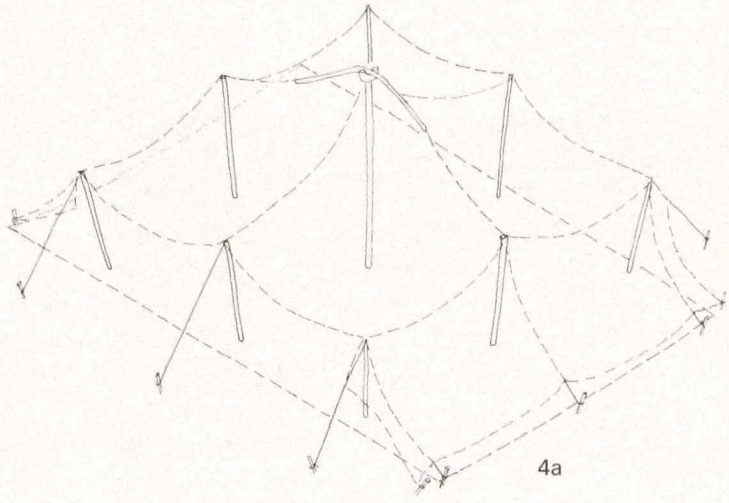
There are a wide variety of Durrani-style tents that use a number of hoops. Variations in the use of each type often reflect the degree of a group's sedentarization. The single hoop tent (No. 3) is preferred by nomads who make long migrations or frequent moves. Semisedentary Durrani villagers prefer the larger and more stable barrel-vaulted type that uses five or more hoops made of bundled reeds or wood (No. 2). In an example reported by Ferdinand among the Achikzai southeast of Qandahar, reeds were used to form seven hoops supported by three T-bars. He observed a less complex tent found among the semisedentary Durranis north of Girishk in southern Afghanistan which employed only two hoops supported by a single T-bar (No. 1). This tent bears the closest relation to the barrel-vaulted tent of the Baluch on whose territory the Durranis border (Ferdinand 1959a; 1960).

The popularity of the single-hooped tent among the most nomadic Durrani tribes is a product of its lightness and flexibility in construction which enable it to assume a number of variations in the course of a year. The key element is the use of a bowed T-bar. In the winter and spring tent two additional pieces of wood will be lashed to the T-bar to construct a continuous hoop (No. 3). In the summer a lighter framework is produced by

2. Durrani vaulted black tent being erected, showing use of T-bar before tension is applied to form the vaulted or bowed center section. West of Faizabad in Badakhshan.

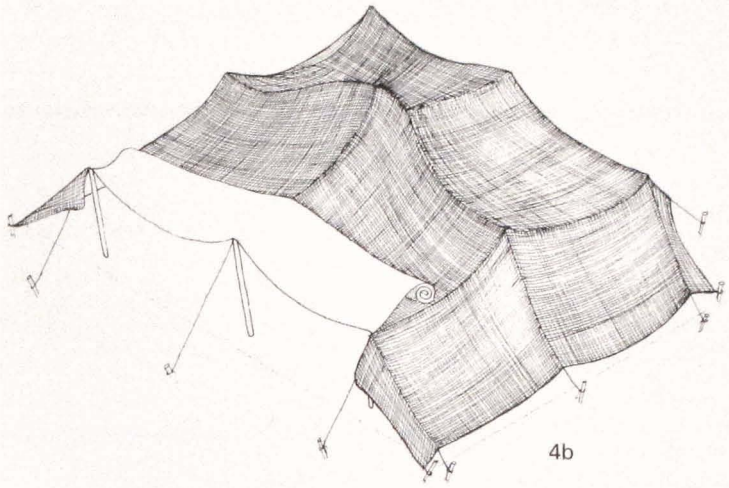
1. Durrani vaulted black tent with characteristic bowed center section. Massive *pakhsa*-walled farm compound in background. Northwest of Pul-i-Khumri.


1a
1b
3a
3b



4a

3. Durrani vaulted black tent with mother, children, and suspended cradle. West of Mazar-i-Sharif. Moments after the picture was taken, the camp was leveled by a dust storm.



4b

dropping the two side pieces and replacing them with short tent poles held taut by guy ropes and tent stakes (No. 4). This lighter frame is easier to pack and to erect than the other varieties. The single bowed T-bar gives the tent a distinctive profile and may be better adapted to holding a heavier *palas* than the Ghilzai tent, which relies on the use of upright poles that project through the top of the tent between the roof panels. Because the Durrani tent allows the panels to be pinned together with no breaks, it has some advantages in wetter areas.

In its use of ribs for vaulting, the Durrani tent shares a number of similarities with the Baluch barrel-vaulted tent. Both have hoops at right angles to the longitudinal direction of the black goat hair *palas,* short tent poles holding up the narrow ends, and a similar system of guy ropes. The Durrani tent's major innovation is in its use of a center T-bar to reinforce the wooden hoops (No. 1) or more distinctively in its use of a single transportable hoop (No. 3). Presumably the use of the T-bar takes some of the stress off the hoops themselves and allows them to be constructed of lighter wood.

Traditionally located between Qandahar and Herat, the Durranis had access to better pastures and raised more livestock than the neighboring Ghilzai tribes on the frontier between Pakistan and Afghanistan. This meant that they could stay longer in a single place and had more money to spend on their tents. The Durranis also were used to combining agriculture with pastoralism. This distinction is shown by the common terms for each group. Durrani pastoralists are called *maldar* (stock owners), while Ghilzai are usually referred to as *kuchi* (those who move). Durranis in the west resent being called *kuchi* (Ferdinand 1969: 146–150).


U.S.S.R.
AMU DARYA
DARWAZ
FAIZABAD
KOKCHA RIVER
PAMIR
CHINA
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
SHIBARGHAN
MAZAR-I SHARIF
KUNDUZ R.
SAMANGAN
BAGHLAN
MAIMANA
PUL-I-KHUMRI
BALKHAB RIVER
SAMANGAN R.
DOSHI
NURISTAN
IRAN
SALANG
MURGHAB RIVER
QAL'A-I NAO
BAMIYAN
ISTALIF
CHARIKAR
KONAR R.
ISLAM QAL'A
HARIRUD
KABUL RIVER
HERAT
PANJAB
MAIDAN
KABUL
JALALABAD
LOGAR RIVER
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
FARAH
FARAHRUD
DILARAM
ARGHANDAB RIVER
TARNAK RIVER
QALAT
GIRISHK
QANDAHAR
LASHKAR GAH
IRAN
ZARANJ
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
VAULTED
BLACK TENTS
BALUCH
Location of type illustrated
Source: Ferdinand 1959a
Winter distribution
Summer distribution
0 50KM 100 200 400 800

Vaulted Black Tents

BALUCH

PEOPLE
Baluch
Nomadic pastoralists

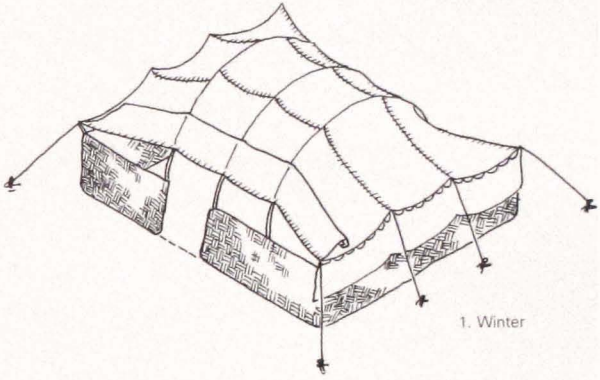
LOCATION OF ILLUSTRATED EXAMPLES
Near Qalat

USE
Summer and winter as shown

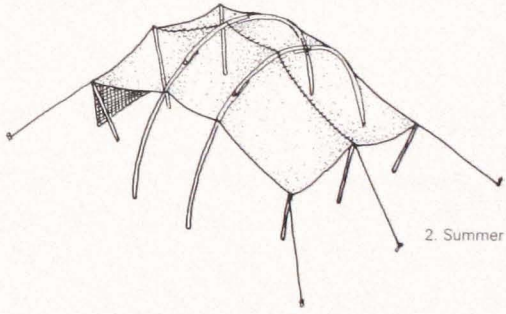
The Baluch tent is distinguished by its use of wooden hoops over which the *palas* is stretched to give it a barrel-vault appearance. Winter tents are more elaborate than summer tents, often with extra *palas* panels and a wall of clay-lined woven reed, but both are built on the same principle. The tents are usually pitched with the entrances facing south. Tents are moved by packing them on camels. Unlike the Durrani vaulted tents, the Baluch variety do not employ any T-bars for additional support.

The summer tent consists of two strips of tent cloth (1 by 3–4 m) stretched over two or three hoops. Because wood is scarce and generally of poor quality in Baluchistan, the hoops are constructed by lashing segments together and then embedding their ends into the ground. The tent cloth is held taut by attaching stays at the long ends to two sets of three poles held upright by guy ropes and tent stakes. In the summer tent the sides are often completely open to maximize the breeze in hot country. Some employ a black cloth, but more commonly tattered cloth rags are used to wall off a narrow end (Ferdinand 1959a: 28–30).

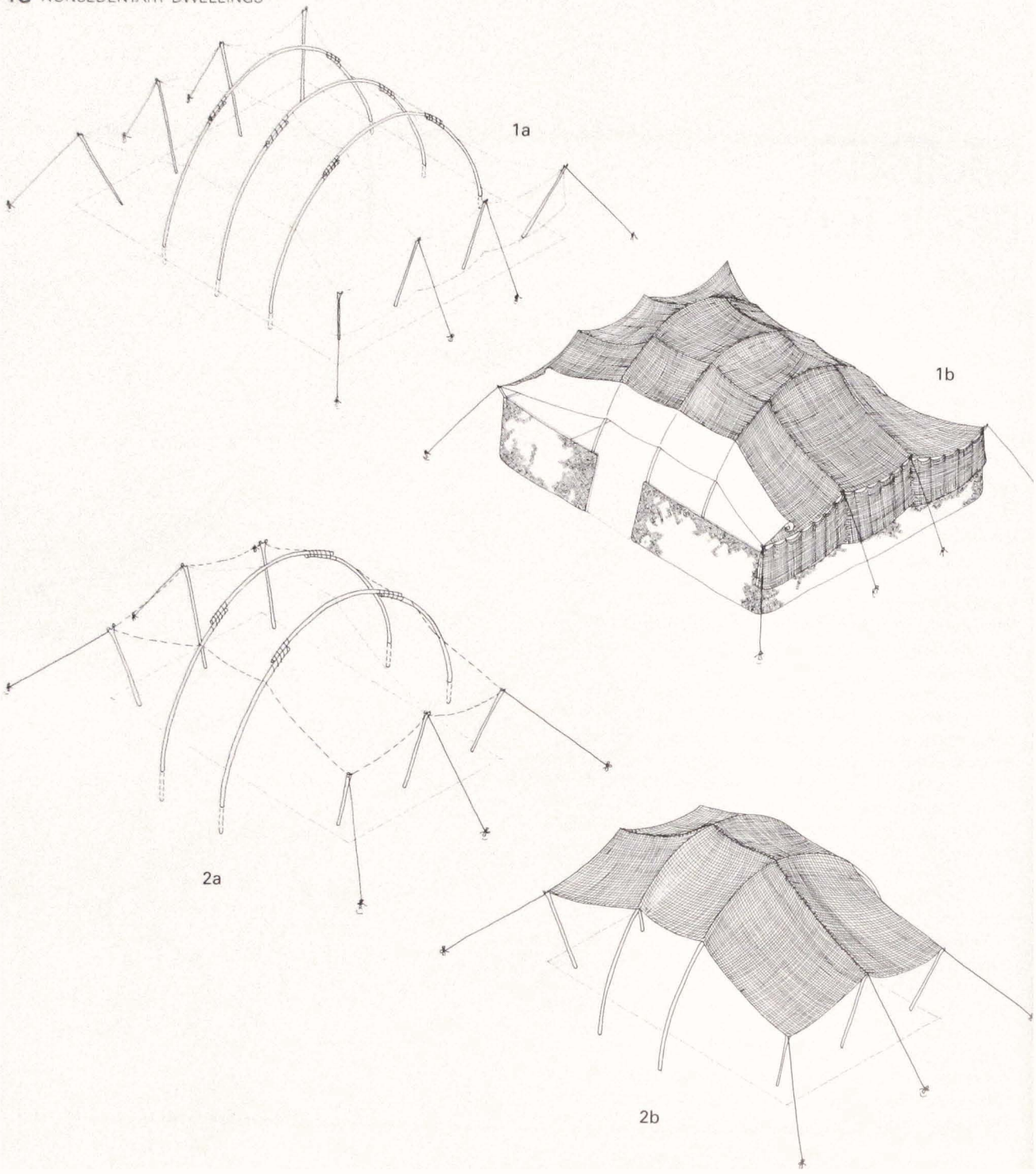
The winter tent is more elaborate. It has more end poles (four at each end), more hoops (from two to five; most have three), and uses five panels of *palas* sewn together. The two outermost pieces form side cloths. Around the sides of the tent four or five woven reed mats (1 by 4–5 m) stand upright to form walls. They are attached to the tent cloth by cotton string. A low wall of clay is built around the foot of the mats to provide more stability and keep out drafts. Winter tents are erected for long stays, often four or five months, and offer protection from the



1. Winter



2. Summer


1a
1b
2a
2b

colder weather, although in the southern regions temperatures rarely drop below freezing. The summer tent basically needs only to provide shade, which it does with a minimum of material. All elements are easily transportable (ibid.: 30–36).

Ferdinand has argued that the barrel-vaulted tent type may have been derived from reed structures in the neighboring Seistan region (1959a; 1960). Reed buildings there often employ the barrel vault, and the Baluch tent hoops approximate the same form with wood. The principle then appears to have spread from the Baluch to the Durrani Pashtuns, who have refined the concept by the addition of T-bars.

The Baluch inhabit the tri-border area that divides Pakistan, Iran, and Afghanistan, a region that is extremely hot in the summer and very arid, with poor resources even for pastoral nomads. The Baluch in Afghanistan constitute only a small proportion of the total Baluch population. Those using black tents are pastoral nomads whose sheep are adapted to the arid conditions of the region. While there are no specific ethnographic studies on the Baluch tribes within Afghanistan, work done in Iran and Pakistan has shown that they combine agriculture, wage labor, and trade with their pastoralism to create what Phillip Salzman (1971) has referred to as "multi-resource nomadism." The seasonal tent forms reflect this. The lightweight mobile tents that catch the breeze are used in the summer when it is often necessary to change locations frequently. More substantial winter varieties incorporate mud walls for long-term residence. In the past the Baluch were feared as raiders of sedentary villages. In more recent times they have turned their skills to international smuggling.


U.S.S.R.
AMU DARYA
DARWAZ
KOKCHA RIVER
FAIZABAD
PAMIR
CHINA
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
KUNDUZ R.
BAGHLAN
PUL-I-KHUMRI
MAIMANA
BALKHAB RIVER
SAMANGAN R.
DOSHI
NURISTAN
IRAN
SALANG
MURGHAB RIVER
QALA-I-NAO
BAMIYAN
ISTALIF
CHARIKAR
KONAR R.
ISLAM QALA
HARIRUD
KABUL RIVER
HERAT
PANJAB
MAIDAN
LOGAR RIVER
KABUL
JALALABAD
FARAHRUD
GARDEZ
SHINDAND
GHAZNI
HELMAND RIVER
FARAH
DILARAM
TARNAK RIVER
QALAT
GIRISHK
QANDAHAR
LASHKAR GAH
ZARANJ
IRAN
S E I S T A N
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
36
32
64
68
PEAKED BLACK TENTS
GHILZAI
Location of type illustrated
Winter distribution
Summer distribution
0 50KM 100 200 400 800

Peaked Black Tents

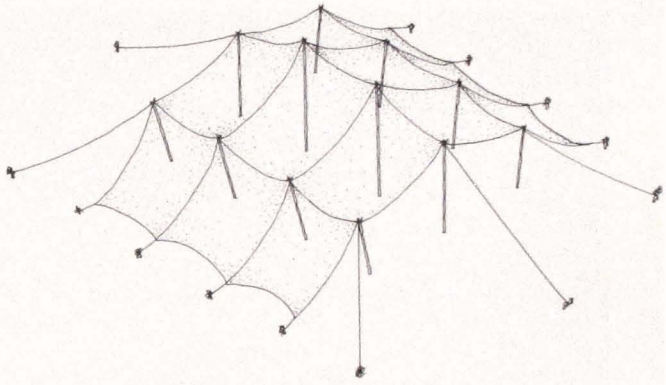
GHILZAI

LOCAL NAME
***Ghizhdi* (Pashto)**

PEOPLE
Ghilzai Pashtuns
Nomadic pastoralists

LOCATION OF ILLUSTRATED EXAMPLE
Basawal

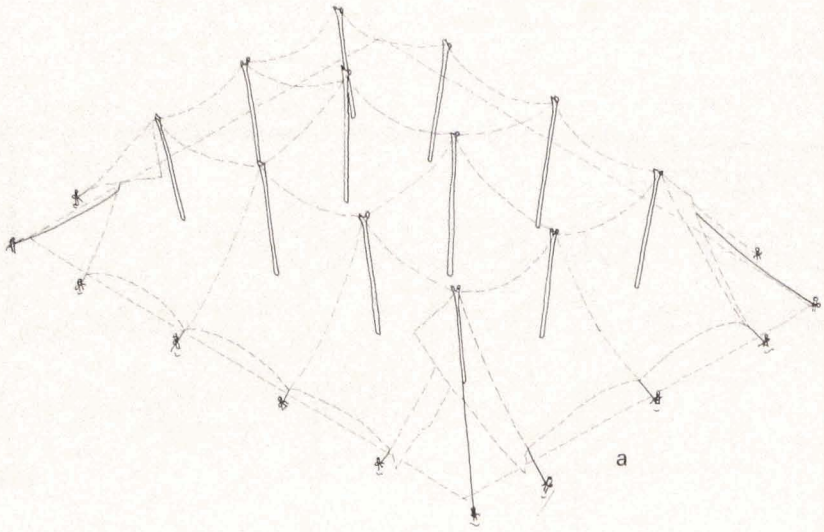
USE
Year-round



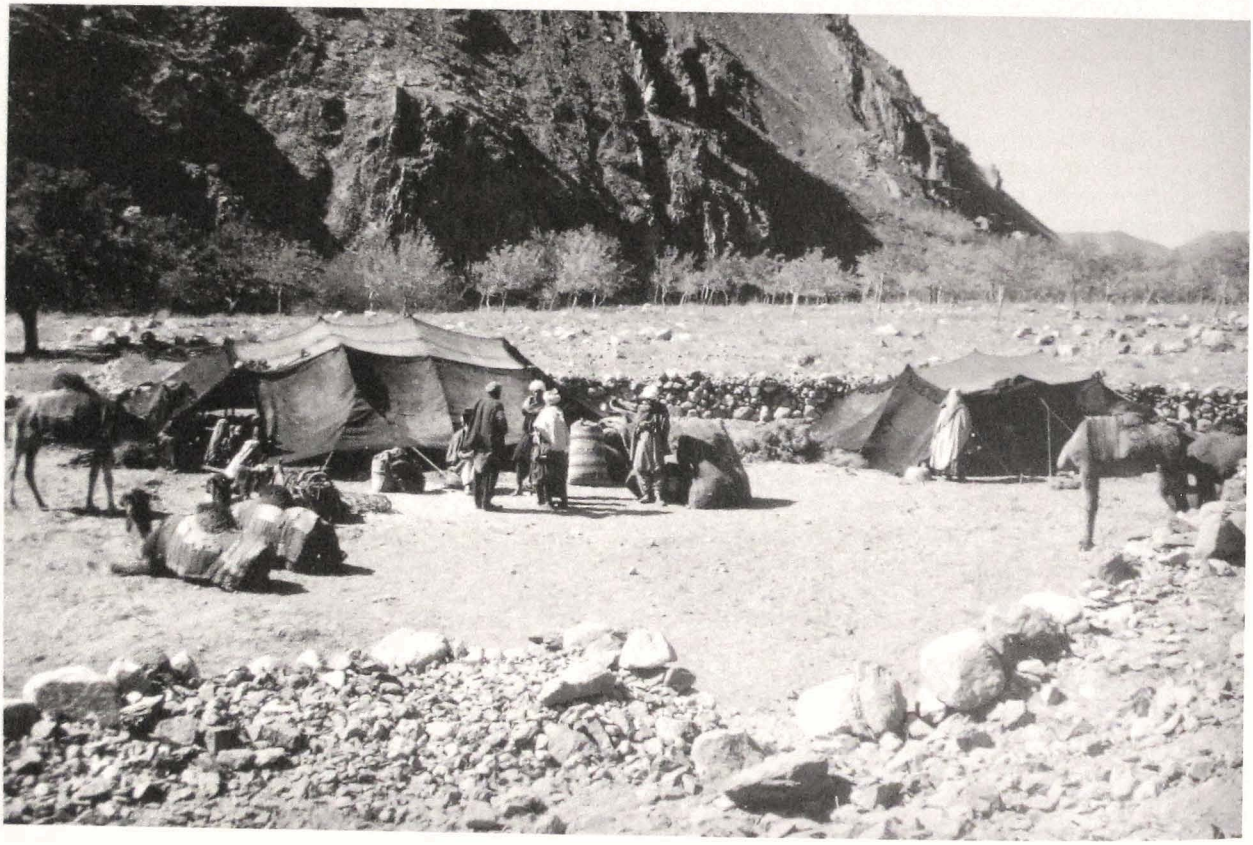
The Ghilzai tent consists of three or four panels of goat hair cloth (*palas*) supported by three sets of poles. The tallest set runs down the center and the shorter two sets are found to either side set at an angle. The cloth is held in place by tension produced by guy ropes and stakes. The average tent has nine poles, the larger ones twelve. The *palas* panels are attached to each other by means of steel pins and to the forked ends of tent poles that project through the top of the tent by means of integral woven loops. This avoids the problem of the poles wearing a hole in the *palas* but means that there is a small gap between each panel and the next at this point. When the tents are to remain in one place for some time, a low wall of mud or stone is often constructed around the base of the tent.

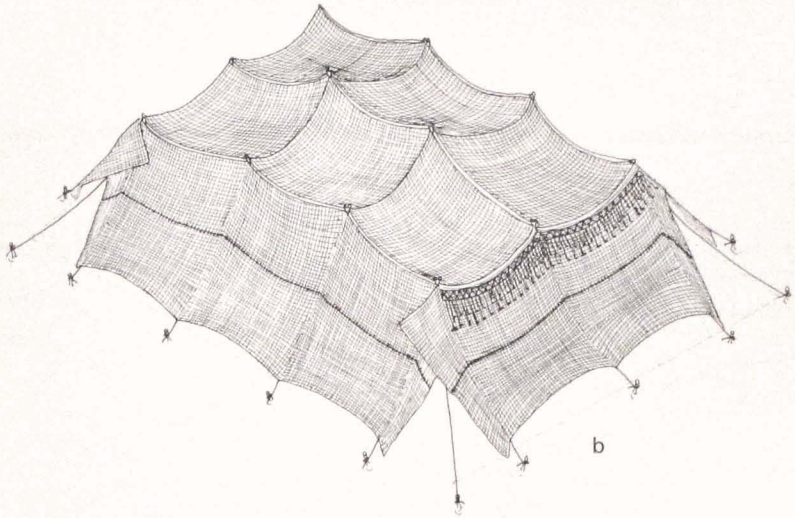
The Ghilzai Pashtuns are the largest group of Pashtuns, although only a minority are nomadic pastoralists. Those that are nomadic specialize in long-range migrations from their winter camps in Pakistan, or near the border in Afghanistan, to their summer pastures in the mountains of central Afghanistan. They raise sheep, which produce milk for making cheese, butter, and yogurt. The sheep also provide the nomads with wool and meat, much of which is sold to urban markets. They also raise considerable numbers of camels and were prominent in the caravan trade until the development of paved roads and motorized transport. Some Ghilzai nomads still engage in trade with the Hazaras in their summer pastures (Ferdinand 1962 : 133–138).

Over the last century the Ghilzais have greatly extended their range. Until the late nineteenth century they were excluded from the high pastures of the Hindu Kush because the Hazaras controlled access to the territory. After a bitter war between



4. Encampment of Ghilzai peaked black tents northwest of Charikar.





1891 and 1893, Amir Abdur Rahman conquered the Hazarajat with the aid of Pashtun tribes. These tribal groups were promised land in the Hazarajat as a reward for their services. It was the nomads who were best able to take advantage of the situation because they had the means to move in and out of the mountains merely by extending their traditional migrations more deeply into the mountains. Once established there, the Ghilzais also became important sources of trade goods for the local Hazara population (Ferdinand 1962; Kakar 1979: 123–134).

In more recent times Ghilzai tribes have moved north of the Hindu Kush into Turkestan. Some migrated voluntarily; others were transported by the government after unsuccessful rebellions. Amir Abdur Rahman made several attempts to move Ghilzai tribes north. As late as 1949 the Kabul government resorted to mass relocations of Ghilzais following the Safi revolt around Jalalabad (L. Dupree 1980: 537). This added a considerable Pashtun nomadic element to Turkestan and Badakhshan. The move to the north gave the nomads new pasture areas to exploit. Many Ghilzais seem to have abandoned their own tents for Durrani-style ones, particularly in the Kunduz region. In most of the northeast all Pashtun nomads are generically referred to as Qandaharis, i.e., Durranis, in spite of their different backgrounds (Barfield 1978).

5. Interior of Ghilzai peaked tent northwest of Charikar with two women seated at right rear.


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
KOKCHA RIVER
FAIZABAD
PAMIR
CHINA
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
BAGHLAN
KUNDUZ R.
PUL-I-KHUMRI
MAIMANA
BALKHAB RIVER
SAMANGAN R.
DOSHI
NURISTAN
HINDU KUSH
HINDARAN
36
IRAN
MURGHAB RIVER
QALA-I-NAO
SALANG
BAMIYAN
ISTALIF
CHARIKAR
KONAR R.
ISLAM QALA
HARIRUD
HERAT
PANJAB
MAIDAN
KABUL RIVER
KABUL
JALALABAD
LOGAR RIVER
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
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HELMAND RIVER
FARAH
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FARAHRUD
ZARNAK RIVER
QALAT
GIRISHK
LASHKAR GAH
QANDAHAR
IRAN
SEISTAN
ZARANJ
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
64
68
PEAKED
BLACK TENTS
BRAHUI
Location of type illustrated
Source: Ferdinand 1960
Winter distribution
Summer distribution
0
50KM
100
200
400
800

Peaked Black Tents

BRAHUI

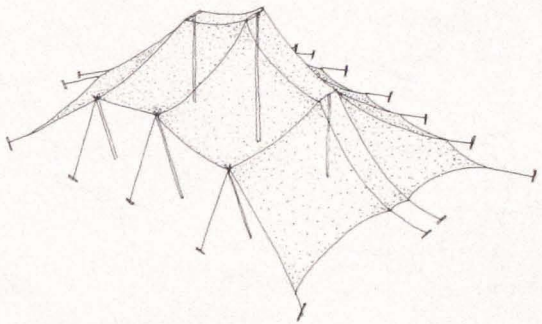
PEOPLE
Brahuis
Semisedentary pastoralists, farmers

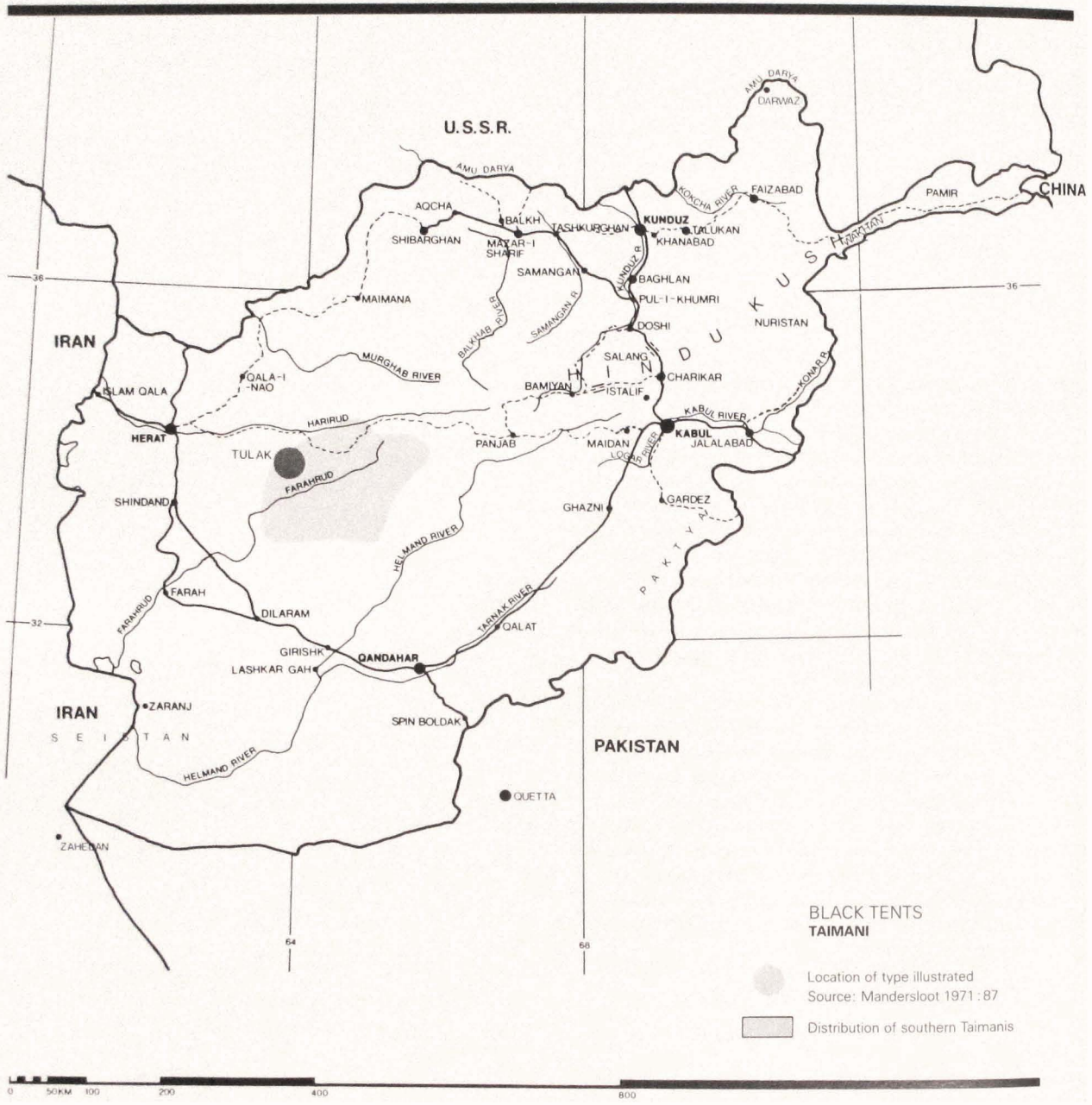
LOCATION OF ILLUSTRATED EXAMPLE
Zahedan, Iran

USE
Spring, summer

The Brahui tent consists of three *palas* panels that are sewn together to form a single unit. The center panel is only half the width of the other two (30–60 cm). The *palas* is stretched over three center poles of uneven height. The middle pole is considerably taller than the other two and gives the tent a distinctive profile. The *palas* panels run parallel to the center poles. Three shorter forked poles are placed on one long side to create an opening which faces south. Guy ropes and stakes hold the other sides down, giving the sides an even slope from the center poles. In order not to wear a hole in the *palas* center panel, the two poles are capped with wadded cloth cushions or wooden T-bars, while the tall center pole is always constructed with a wooden T-bar (Ferdinand 1959b:38).

The Brahui nomads share a territory overlapping with the Baluch in southwestern Afghanistan. The Brahuis are one of the least well known nomadic groups in Afghanistan; there is almost no information available on them. The example illustrated here was documented by Ferdinand in Zahedan, Iran, near the Afghan frontier. Here the people spent five months in black tents and the rest of the year living in a village of clay houses in Seistan. Their pastoral economy depended on sheep raising. They transported their baggage with camels that were also used in the caravan trade before motorized transportation ended most of that business.




U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
AQKCHA RIVER
FAIZABAD
PAMIR
CHINA
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
KUNDUZ R.
BAGHLAN
PUL-I-KHUMRI
MAIMANA
BALKHAB RIVER
SAMANGAN R.
DOSHI
NURISTAN
HINDU KUSH
HARATTAN
36
IRAN
MURGHAB RIVER
QALA-I-NAO
SALANG
CHARIKAR
ISLAM QALA
BAMIYAN
ISTALIF
KONAR R.
HARIRUD
KABUL RIVER
HERAT
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LOGAR RIVER
TULAK
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
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TARNAK RIVER
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LASHKAR GAH
IRAN
SEISTAN
ZARANJ
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
64
68
BLACK TENTS
TAIMANI
Location of type illustrated
Source: Mandersloot 1971 : 87
Distribution of southern Taimanis
0
50KM
100
200
400
800

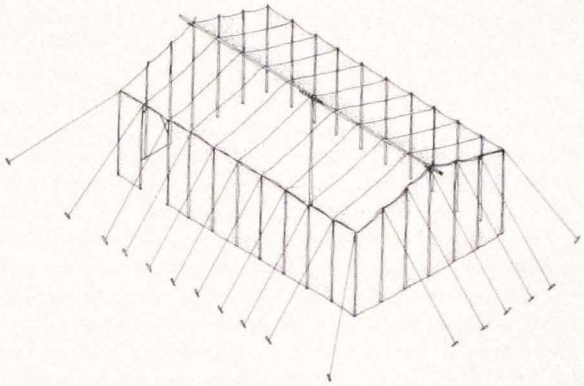
Taimani Black Tents

LOCAL NAME
***Palas-i-siyah* (Dari)**

PEOPLE
Southern Taimanis
Semisedentary farmers and pastoralists

LOCATION OF ILLUSTRATED EXAMPLE
Near Tulak (after Mandersloot 1971)

USE
Summer



The Taimani tent is one of the most unusual in Afghanistan. It combines the black tent *palas* covering with a frame that is derived from the self-sustaining hut or yurt tradition. The tent has a fairly consistent width of about 350 cm but varies in length from 500 to 670 cm depending on the number of poles. It stands about 240 cm at its center.

The Taimani tent's rectangular skeletal framework is produced by imbedding seven to eleven willow poles (180 cm in height) into the ground at regular intervals on each of the long sides with about five poles on each of the shorter sides. These poles (*shangal*) are placed at an angle inclined inward and then pulled upright by means of guy ropes attached to stakes. The poles are reinforced by means of a transverse bar for greater lateral stability. Two longer, forked poles (*sotun*) are placed at the midpoint of each narrow end to support a ridgepole running the length of the tent. If more than a single ridgepole is needed to span the distance, then one or more internal center posts will be used. After the frame is complete, the walls are enclosed by a woven reed *chegh* except for the entrance. Black goat hair *palas* is used to cover both the roof and the side walls. The roof cloth is first sewn together into a single piece, placed over the center ridge, and then allowed to fall over the side walls. Side panels of *palas* are attached to the roof cloth by means of wooden pins. The *palas* side panels can be raised to provide ventilation through the *chegh* on hot days (Schurmann 1962 : 344–349; Janata 1962–1963 : 103–105).

The Taimanis are divided into northern and southern groups occupying the watersheds of the Harirud and Farahrud rivers, but their tent is found only among the southern Taimanis. While

the northern Taimanis move off into the hills during the middle of the summer, using either felt-covered yurts or *chaparis* with a *palas* cover, the southern Taimanis never leave their own villages. They set up their tents in the summer, pitching them in fallow fields near their villages and moving from one area to another throughout the season. In the northern part of the southern Taimani area, tents are always arranged to form a rectangle with their entrances facing the inside, where the animals are kept.

The Taimani way of life depends mostly on agriculture with some pastoralism, and their tent is an adaptation not to nomadism, but to village life. Taimani village women weave *palas* in great quantity, although it is of much looser weave than that used in peaked or vaulted black tents. H. F. Schurmann has noted that Taimani tent design appears to mimic their house structure, which also has a center beam and pitched roof (1962 : 64–73, 344–349). The Taimani tent is much more spacious than either a yurt or a peaked or vaulted black tent, and unlike most other tents, which house only a single nuclear family, the Taimani tent holds an extended group of brothers and their families. This is a reflection of the sedentary Taimani social structure in which land and other property is held by a "brother collectivity" which handles economic affairs in common.

The Taimani tent provides a good example of how in border areas elements of very different cultural traditions may be employed to produce a completely new type of architecture. The Taimani tent combines the principles of both a freestanding structure and a continuous-tension structure. The use of a frame is a product of the yurt/hut tent area. That is, the side poles are designed to be self-sustaining. The supporting poles are embedded into the ground so that they are freestanding even when the *palas* is removed, a common feature with round hut structures such as *lacheqs*, *chaparis*, or yurts. The use of *palas* panels with guy ropes under tension as a structural element is derived from the black tent tradition. Here the tent cloth is more than a covering; it provides the continuous tension necessary to keep the poles erect and is thus an integral part of the structural system, providing tensile support and resiliency. The use of *palas* under tension allows the Taimani to employ a simpler frame that requires less wood than would be needed to create an equally large rectangular area with a frame that was completely tied together. As erected, the Taimani tent has a greater size and more headroom than any other black tent.

The rectangular shape of the tent is unusual because most frame constructions produce a round form. Schurmann hypothesizes that this was a local innovation that involved copying the design of a village house for use as a tent and that the use of the *palas* to cover it was borrowed from neighboring groups to the south (1962 : 70–72). It should be noted that while the rectangular shape is unusual it is not unique to the Taimani tent. The Arab summer *kapa* found in Badakhshan employs a similar, though smaller, rectangular shape built with a freestanding frame.

Cotton Tents

Cotton tents in Afghanistan all employ a ridgepole construction held in place under tension by means of guy ropes and stakes. The use of cotton canvas coverings for these ridgepole tents immediately distinguishes them from black goat hair tents, none of which employ ridgepoles except for the composite Taimani design.

There are two types of cotton tent designs found in Afghanistan. The distinction in form depends on whether the ridgepole runs parallel to the major axis of the tent or perpendicular to it. The perpendicular form, used by the Jugis, requires four supporting poles set in the ground to describe a rectangle with the tent cloth pulled over a ridgepole that joins the top of two rear poles. In this design there are no walls in the conventional sense, the supporting poles create the corners of the tent, and the roof consists of a single untailored cloth panel. The parallel form, used by the Jats and some commercial shepherds, employs a long ridgepole that runs along the major axis of the tent and is supported by a pole at each end, with a third added in the middle if the ridgepole is long enough to require additional support. This produces a peaked tent in which the supporting poles are completely enclosed by a single tailored covering with built-in walls and tension for stability is introduced through guy ropes and stakes.

Tents of cotton canvas, particularly the peaked variety, are often assumed to be of non-indigenous origin because they are now manufactured in factories in Pakistan and bought in the bazaar rather than created by their occupants. Their tailored design strikes many observers as a form adapted from military tents found all around the world. Yet evidence from Persian miniature paintings shows that similar walled tent designs, employing canvas cloth but without ridgepoles, were known in Afghanistan at least as early as the sixteenth century. So the familiar design of the ridgepole walled tent may in fact be of Central Asian origin and these Afghan varieties less a modern innovation than a readoption of a once indigenous tent style!


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
SHIBARGHAN
MAZAR-I SHARIF
AQCHA RIVER
FAIZABAD
PAMIR
CHINA
HINDUKUSH
SAMANGAN
BAGHLAN
KUNDUZ R.
PUL-I-KHUMRI
MAIMANA
BALKHAB RIVER
SAMANGAN R.
DOSHI
NURISTAN
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ZARANJ
IRAN
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
36
32
64
68
COTTON TENTS
JUGI
Location of type illustrated
0 50KM 100 200 400 800

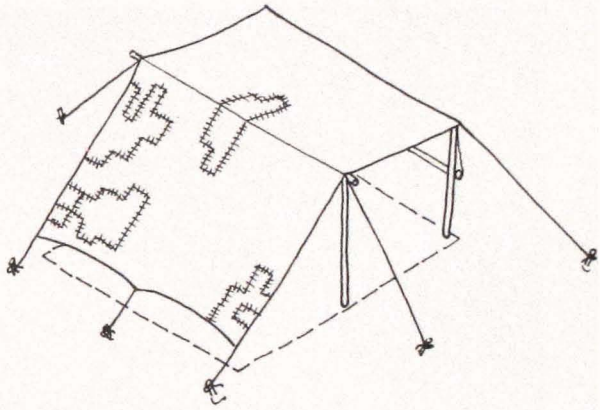
Jugi Cotton Tents

LOCAL NAME
***Khaima* (Dari)**

PEOPLE
Jugis
Peripatetic fortune-tellers, peddlers, and beggars

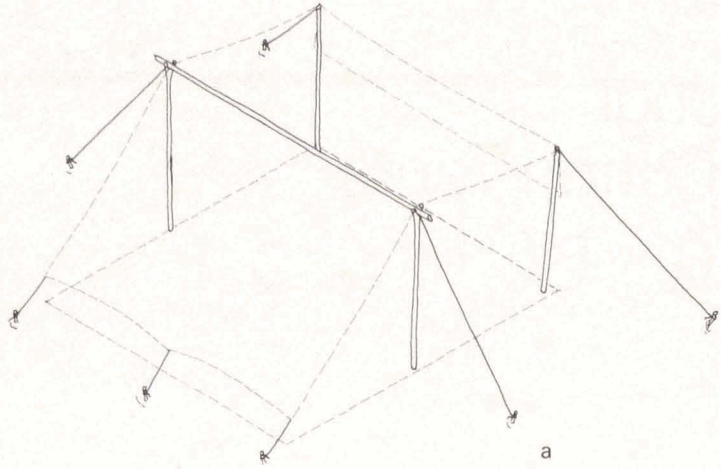
LOCATION OF ILLUSTRATED EXAMPLE
North of Samangan

USE
Summer



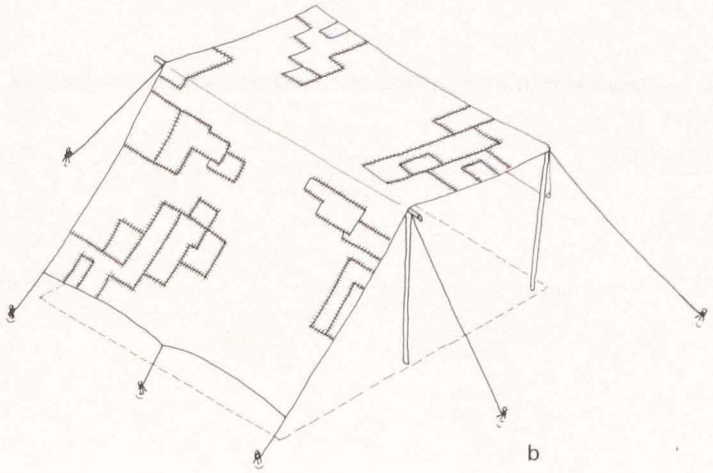
The Jugi tent consists of four vertical poles, each 190 cm in height, dug into the ground to describe a rectangle 350 by 190 cm. The two front poles are secured to the end of the canvas cloth, which is extended back toward the rear poles. The two rear poles are forked and support a horizontal pole. The cloth passes over this horizontal pole and descends at a 45° angle to the ground, where it is secured to stakes. The four vertical poles are also secured by guy ropes and stakes. The total space covered by the tent is a rectangle 350 by 380 cm. The front opening is always oriented toward the south so that it provides the maximum amount of shade during the day for a tent that has no side walls. Sometimes an extension of the front edge of the cloth is wrapped around a pole so it can be raised or lowered to provide sun or shade. The canvas is usually patched with patterned cloth. While at a distance the patches appear to be repairs, from close inspection they seem to be primarily decorative. The tents are suitable only for warm-weather living.

Little has been written about the Jugis. They are often referred to as Jats, but they are a distinct cultural group. They are itinerant, moving from one place to another, engaged in begging and telling fortunes, but almost nothing is known about their schedule of movements, economic life, or social organization (Rao 1987).



a

6. Encampment of Jugi cotton tents in foreground with Durrani black tents in background. Northwest of Samangan.



b

7. Detail of Jugi encampment of white cotton tents near Baghlan. The color patches appear to serve only a decorative purpose.


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
KOKCHA RIVER
FAIZABAD
PAMIR
CHINA
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
KUNDUZ R.
BAGHLAN
PUL-I-KHUMRI
MAIMANA
BALKHAB RIVER
SAMANGAN R.
DOSHI
NURISTAN
HINDU KUSH
HARIRUD
IRAN
MURGHAB RIVER
QALA-I-NAO
SALANG
CHARIKAR
BAMIYAN
ISTALIF
ISLAM QALA
KABUL RIVER
KONAR R.
HERAT
PANJAB
MAIDAN
KABUL
JALALABAD
LOGAR RIVER
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
PAKTYA
FARAH
DILARAM
TARNAK RIVER
QALAT
FARAHRUD
GIRISHK
QANDAHAR
LASHKAR GAH
ZARANJ
IRAN
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
36
32
64
68
COTTON TENTS
JAT
Location of type illustrated
0 50KM 100 200 400 800

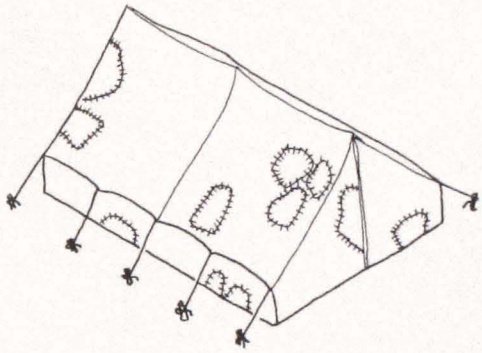
Jat Cotton Tents

LOCAL NAME
***Khaima* (Dari)**

PEOPLE
Jats
Peripatetic tinkers, peddlers, musicians, fortune-tellers, and entertainers

LOCATION OF ILLUSTRATED EXAMPLE
West edge of Kabul

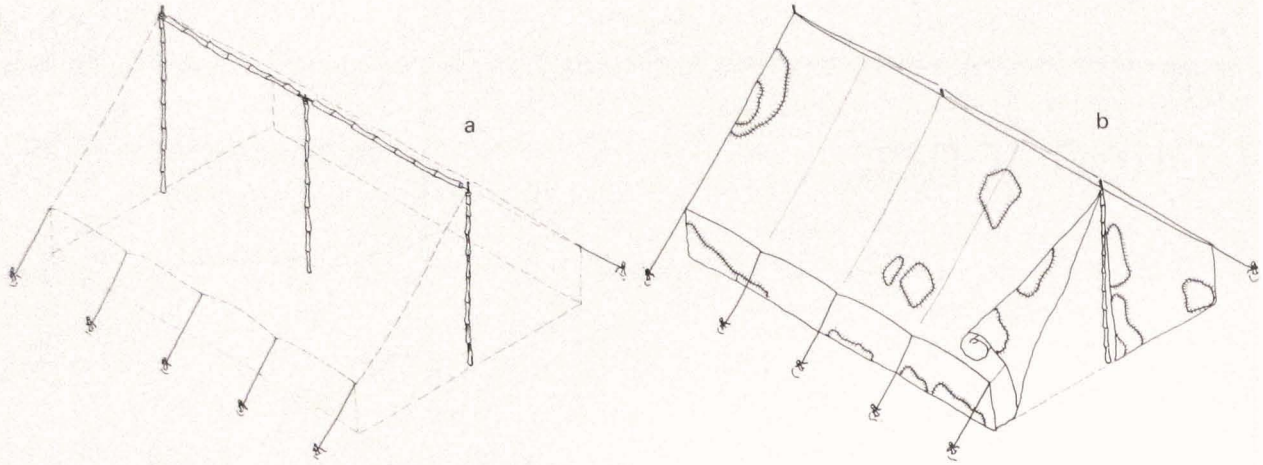
USE
Mostly non-winter seasons



Jats use canvas tents manufactured in Pakistan. They employ two or three vertical poles, each 2 m in height, that support a two-piece ridgepole 4 m long. The vertical poles rest on flat stones to keep them from sinking into the ground. The canvas cloth is tailored to fit over the ridgepole and is held taut by guy ropes and stakes. A short side wall is also sewn into the tent and descends vertically to the ground from the point where the roof cloth meets the guy ropes. The poles are of bamboo, and because the tent is a manufactured item, it comes in a variety of standard sizes. This type of tent is also popular among some pastoral nomads as a traveling tent or for sheltering shepherds. The Jat tent however is further distinguished by its intensive patching, often with many layers of cloth. Besides being an indication of impoverishment, this may also be an attempt to build in more insulation.

If a tent is to be pitched for any length of time, a low mud wall is built around the perimeter. This wall may grow in height until it becomes the side of a building with a canvas roof. The transformation to a simple house is complete when the canvas is replaced by a flat mud roof supported by poplar poles, wood laths, and *buria*.

Jats are considered a pariah group in Afghanistan, and the term *jat* is applied to a number of subgroups which are not necessarily related. They are itinerant peddlers, entertainers, and artisans, usually found near towns, cities, or roads (Rao 1979).



8. Encampment of Jat cotton tents on the edge of Kabul. Tent at left erected on initial settlement, while tent at right demonstrates the gradual transformation of the structure into a simple mud house by adding ever higher walls.

9. Jat cotton tent in Kabul showing the result of continuous repairs.

Yurts

The yurt is an extremely sophisticated framed portable dwelling designed to maximize the amount of usable space within the structure by employing round walls with a domed roof. It is found throughout Inner Asia in a zone stretching from Mongolia and Manchuria across the steppes and mountains into Central Asia to the south Russian steppe. Turkey, northern Iran, and northern Afghanistan constitute the southern margin of the yurt zone (Schurmann 1962 : 336–340, 350–353). The yurt is designed to withstand the most severe conditions encountered by any pastoral nomads. Its framework and form provide exceptional stability against the wind, a favorable ratio of exterior surface to enclosed area permits efficient heating, and this combined with the use of heavy felt for insulation minimizes heat loss through radiation even under very cold conditions.

The yurt's basic structure consists of wooden lattice wall frames that expand and contract in a scissorlike motion. The lattice segments are tied together and linked to a doorframe to form the circular wall. Long wooden struts are tied at equal intervals to the upper edge of the lattice frames and held secure at the top by inserting them into a compression ring. This stable structure supports the felt roof covering. Woven wool bands are wrapped around the outside of the lattice walls to create a compression ring which prevents the lateral thrust of the roof from pushing the walls out. The side walls may be enclosed by felt panels for insulation, or covered only with a woven reed mat to allow air circulation. The best and most detailed description of yurt construction is by P. A. Andrews (1973) based on work among neighboring Turkmen groups in northeastern Iran.

The discussion of variations in yurt types has been traditionally based on the distinctions first drawn by the Russian scholar N. N. Kharuzin (1896). He divided yurts into Mongolian and Turkish types, the former distinguished by straight roof struts, the latter by bent roof struts. Although Kharuzin's associations of yurt types with particular tribal groups was basically sound, there are many exceptions to the general rule and examples that illustrate a mix of types. His typology has also had the effect of generating more debate about the ethnic identification of the peoples who use yurts than on the reasons for the differences themselves. In addition such a typology does not adequately reflect the structural reasons for the variations in yurt types. For this reason we follow Philip Drew (1979 : 29–30) in employing architectural distinctions, such as domical and conical roofs or number of wall lattices, in identifying categories of yurts. The main observable distinction between yurt types is the form of the roof because all true yurts have a circular lattice frame that, regardless of number, produces a cylinder. The use of straight

roof struts, as in the Mongolian yurt, creates a shallow conical form. The use of bent roof struts that have a sharp radius of curvature about 15 cm above where they are attached to the lattice frame creates a steep cone characteristic of the Firozkohi yurt in Afghanistan. In such a structure the bend in the strut creates an obtuse angle which determines the degree of pitch the roof will take. A domical yurt is produced by roof struts that employ a more gentle radius of curvature about 40 cm above its attachment to the lattice. With the exception of the conical Firozkohi yurt, all the yurts in Afghanistan are of the domical design.

In Afghanistan no yurts are found south of the Hindu Kush. There are both cultural and practical reasons for this. Culturally, the yurt is most closely associated with Uzbeks and Turkmen whose territory is in the north, although its use has also spread to a few of their Dari-speaking neighbors such as the Central Asian Arabs and Firozkohis. Even though there were many historic invasions of Turkic peoples who used yurts deep into the Iranian plateau and northern India, the yurt did not survive in southern Afghanistan for practical reasons. First, while the yurt provides excellent protection against high winds and cold temperatures, and provides the highest ratio of enclosed space to perimeter wall, it is very heavy (250–450 kg in total), is time-consuming to erect, and is also expensive, a whole yurt costing 60,000–100,000 Afs ($1,100–1,800) in the mid-1970s (Andrews 1973: 107; Centlivres and Centlivres-Demont 1988: 176–178). For nomads who must survive severe winters with their accompanying rain or snow, the yurt's stability and protection more than compensate for the additional transport difficulties and expense, but in areas where winters are not so severe and where pastoralism requires frequent moves, the yurt loses its advantage over a black tent. Thus while black tents have spread into northern Afghanistan over the last hundred years, yurts have not spread south.

Another reason for the abandonment of yurts is the need to have access to skilled artisans who build the frame. Yurt lattices, doorframes, struts, and compression rings are all products of skilled craftsmen who are often not part of the nomadic community. For example, in addition to Uzbek craftsmen, many yurt frame makers are drawn from ethnic groups like the Tajiks or Hazaras who have no yurt tradition of their own. When such artisans are not available, it is not possible to sustain a yurt tradition. Although a yurt frame may last as long as fifty years, if there are no craftsmen to make new parts, any group using yurts would have to begin looking for another type of dwelling. The felt roof also requires a substantial investment in wool which could otherwise be sold for cash. Even in areas where parts and wool are avail-

able, the use of yurts has been on the decline throughout northern Afghanistan for the past forty years. Many formerly nomadic groups who once used yurts have now settled in villages with permanent houses. The expense of maintaining a yurt was justifiable when they had to spend each winter in a different place, but many households abandoned yurts (or did not replace them) when it became possible to switch to much cheaper types of huts such as the *kapa, chapari,* or *lacheq* for spring and summer use. And of course even in the past not all households could afford to purchase yurts and lived year-round in various types of huts, such as the *kapa-i-chamshi,* in areas of lower elevation where winters were not too severe.

Nomads who use yurts in Afghanistan generally make only short migrations. Yurts are packed on the backs of camels (one yurt equals two or three loads) and moved to a site where they usually stay pitched for the whole season. Sheep raising is the major pastoral activity, although pastoralists in northern Afghanistan also raise camels, horses, and sometimes goats.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FAIZABAD
PAMIR
CHINA
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BAGHLAN
KUNDUZ R.
PUL-I-KHUMRI
MAIMANA
BALKHAB RIVER
SAMANGAN R.
DOSHI
NURISTAN
HINDU KUSH
IRAN
SALANG
MURGHAB RIVER
QALA-I-NAO
BAMIYAN
ISTALIF
CHARIKAR
KONAR R.
ISLAM QALA
HARIRUD
KABUL RIVER
HERAT
PANJAB
MAIDAN
LOGAR RIVER
KABUL
JALALABAD
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
PAKTYA
FARAH
DILARAM
TARNAK RIVER
QALAT
GIRISHK
QANDAHAR
LASHKAR GAH
ZARANJ
IRAN
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
36
32
64
68
DOMICAL YURTS
Location of type illustrated
Distribution of domical yurts
0 50KM 100 200 400 800

Domical Yurts

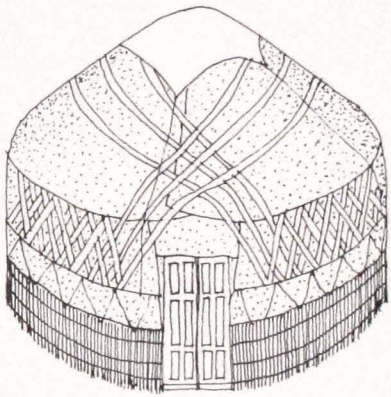
TURKMEN
UZBEK
CENTRAL ASIAN ARAB
KIRGHIZ

LOCAL NAME
***Kherga* (Dari), *Ooee* (Turkic)**

PEOPLE
Turkmen, Uzbeks, Central Asian Arabs, Kirghiz
Semisedentary and seminomadic pastoralists

LOCATION OF ILLUSTRATED EXAMPLE
Qala-i-Zal

USE
Northern Afghanistan, spring and summer (formerly year-round)
Pamirs: year-round



The domical yurt is found throughout northern Afghanistan and also in the Pamir Mountains among seminomadic pastoralists and semisedentary farmers. It is used by a wide variety of mostly Turkish-speaking peoples including the Turkmen, Uzbeks, and Kirghiz, although it is also used by some neighboring Dari-speaking Arab and Farsiwan peoples (Gafferberg 1953; Schurmann 1962:336–340; Centlivres-Demont 1978).

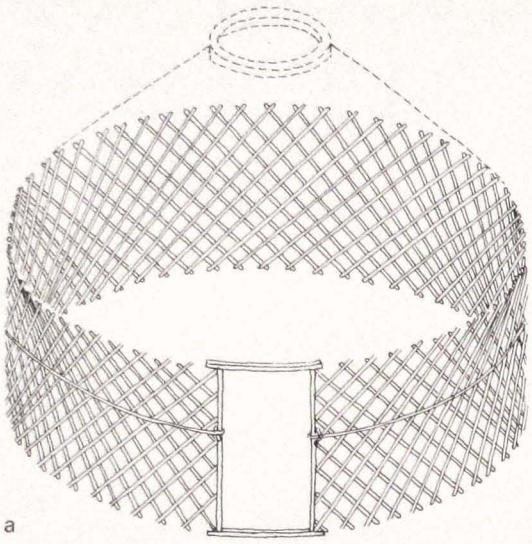
There are two structurally similar types:

(1) The double-tier lattice frame yurt found in Qataghan and neighboring provinces in northeastern Afghanistan (i.e., Samangan, Kunduz, Baghlan, Takhar, and Badakhshan provinces) which is associated with the Uzbeks.

(2) The single-tier lattice frame yurt of the Turkestan plain and Amu Darya (Samangan, Balkh, Jowzjan, Faryab, Badghis provinces) which is associated with the Turkmen.

Both types have the domical roof that gives them a distinctive profile so different from the conical roof shape of the Firozkohi yurt, but in profile the single lattice yurt is steeper (370 cm in height on a base diameter of 460–500 cm) than the double lattice yurt, which is lower and wider (320 cm in height on a base diameter of 465 cm) (Centlivres and Centlivres-Demont 1988: 176–178). The pitch of the dome may also vary depending on the angle at which the roof struts enter the compression ring (Andrews 1973:98–99). Because the wooden frame is a product of skilled carpenters, the location of single and double tier lattice types better reflects the marketing network of their builders than the tribal distribution of their owners.

A yurt consists of three basic components: a wall system, a roof system, and material to cover them. The most common



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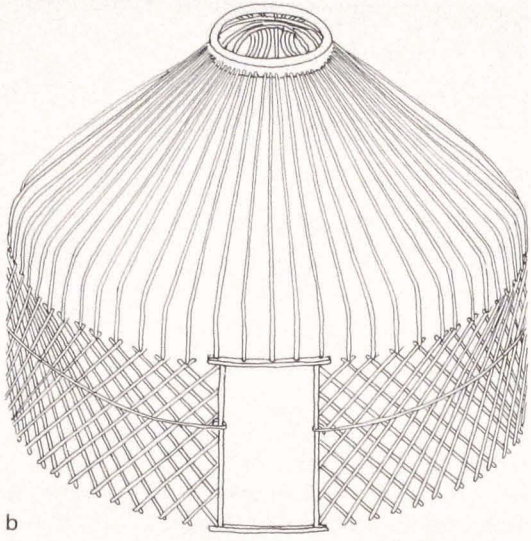

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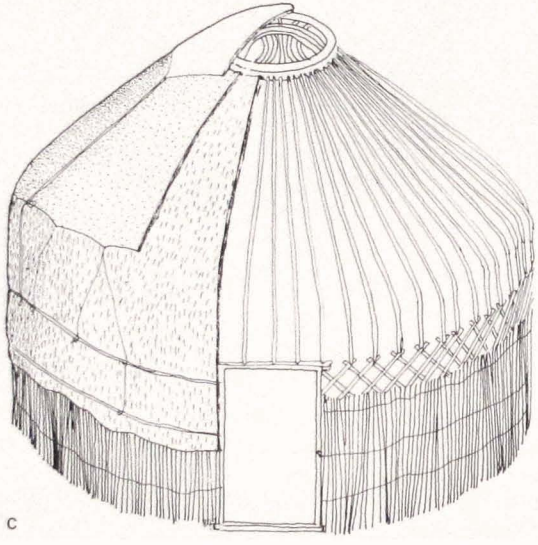

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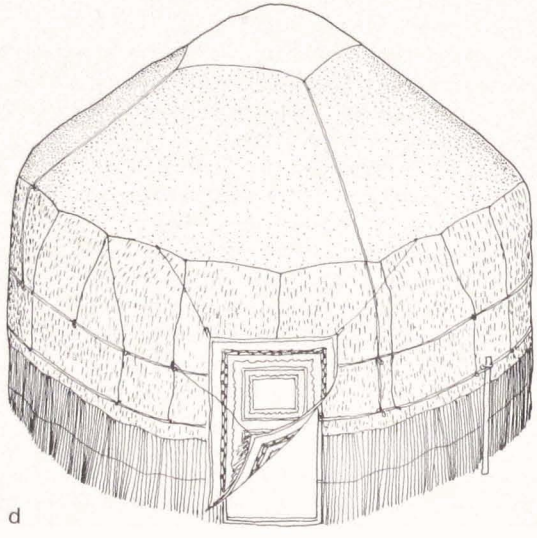

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Table 1 Terms for Yurt Parts

1. *Wall system*
   Lattice frame (*kerege/qoshqanat,* Uzbek; *tarem,* Turkmen)
   Tension bands (*üp,* Turkmen; *baghesh, qur,* Uzbek)
   Doorframe (*eshik, ergenek,* Uzbek; *darwaza,* Dari)
2. *Roof system*
   Struts (*uq,* Uzbek)
   Roof ring (*tunuk, changarak,* Uzbek; *sarkhana,* Dari)
3. *Covering*
   Felt (*kiz,* Uzbek; *namad,* Dari)
   Ropes (*tanau,* Dari)
   Woven reed (*chegh,* Uzbek and Dari)

terms for the individual parts (Table 1) are Turkish in origin, but the mixture of Persian and Turkish speakers is so common, particularly in northeastern Afghanistan, that they often borrow terms from one another and use them interchangeably (Centlivres-Demont 1978).

The wall system is constructed of linked lattices (*qanat*) and a doorframe secured together to form a cylinder (*kerege*). The Qataghan-style yurt has eight double lattices in two tiers of four lashed atop one another, while the Turkestan-style yurt is composed of one tier of four single lattices. Each lattice section is constructed of two layers of equally spaced narrow willow wood strips laid diagonally across one another. Where the strips intersect, holes are drilled to allow them to be pinned together with knotted leather thongs, mostly along the top and bottom region, sometimes along the middle. The number of thong pins must be sufficient to hold the lattice frame together while permitting it to be expanded or contracted in a scissorlike fashion. To erect the yurt, its lattice wall frames are expanded, set on the ground, and lashed together to form a circle, which is completed by securing the two loose ends to the doorframe. Several poles are driven into the ground and bound to the lattices to secure the yurt against shifting or overturning due to high winds. This cylindrical assembly is then further strengthened against the outward thrust of the roof struts by several woven woolen tension bands. The bands are first secured to one doorpost, then wrapped around the lattice and secured to the opposite post. These tension bands are essential to resist the outward thrust of the roof struts caused by the dead load of the roof and the live load of the wind.

The doorframe (*ergenek, darwaza*) consists of two wooden posts, a lintel, and a threshold. It has a width between 80 and 100 cm and a height of 150 cm. The posts are grooved to receive the lattice wall frame on either side and the roof struts at the top. The doorframe is usually covered by a piece of felt, sometimes reinforced with a backing of woven reeds. Wooden doors are relatively rare in northern Afghanistan, except among some Turkmen groups. The whole frame is of mortise and tenon construction and can be easily assembled. The door is normally oriented to the south in open country, although the Kirghiz orient their doors to the east to avoid the prevailing winds. Yurts erected in compounds have their doors facing the entrance of the house.

The roof system normally consists of around forty, fifty, or sixty struts (*uq*), depending on the size of the yurt's lattice frame, and a roof ring (*tunuk, sarkhana*). The roof struts are made from bent willow poles which are tapered at their upper ends to fit into the roof ring and bent at their lower ends, where they are tied into each V created by the top edge of the lattice and several shorter struts that are set into the doorframe. The circular roof ring is of wood and consists of a rim reinforced by two sets of spokes. It acts to resist the compressive thrust of the roof struts. Sockets are cut into the rim to receive the struts and equally space them. Finally a narrow band of woven wool tape is wrapped around the lower area of each strut to equalize spacing and to further stabilize them.

The yurt covering consists of heavy felt mats (*kiz, namad*) which are placed over the struts and the lattice walls. In colder weather the felts come down to the ground and the *chegh*

10. Domical Arab yurt encampment on knoll south of Tashqurghan where villagers graze their animals in summer. Their winter village and agricultural land are located only a few kilometers away at the base of the foothills in the background.

wraps around the felt to secure it against the wind. Often the roof felt is made with the longer sides curved to better fit the circular roof perimeter and around the roof ring. The felts are secured by means of ropes (*tanau*), some of which may be sewn directly on the felt to reinforce the edges and provide a way to secure the other ropes and bands that tie the covering to the frame. The *chegh* that covers the lattice frame may be embellished with woven designs or painted decorations that often denote the owner's tribe or clan. When the wall felts are rolled up in the summer, the *chegh* allows for ventilation while preserving privacy. The felt weighs about 100–130 kg (the product of about 190 sheared sheep) and lasts between five and ten years, darkening with age (Andrews 1973:99; Centlivres and Centlivres-Demont 1988:176; Schurmann 1962:351–352).

The yurt is erected in about an hour by four or five women, who set up the lattices in a circular plan on each side of the doorframe and then link and stabilize the overlapping lattices with bands of wool strapping. To secure the base, two or three wooden poles are driven into the ground and tied to the lattices. A few struts are placed in the roof ring to enable the women to lift it up and tie these struts to the lattices. The remaining roof struts are placed in their sockets and in turn tied to the lattices and each other. The woven wool tension bands are then wrapped around the lattices. If there is to be no felt on the sides, a woven reed mat is tied in place and the large felts pushed on top with a stick and tied in place with narrow woolen bands. Placing the felt requires strength, skill, and practice.

If the yurt is to stay in one place for a long time, its walls may be reinforced by building a low mud wall around the bottom of the reed mat. Ventilation is controlled by opening and closing the separate felt flap that covers the compression ring or by raising the lower felt mats to permit air to pass through the woven reed mats. Because yurts are expensive, not all members of a group may own one, the poorer families instead employing a cheaper *kapa* or *chapari,* which wealthier households reserve for cooking.

Yurts in northern Afghanistan are most often found among the Turkmen. They are mostly newcomers to the area, driven into Afghanistan over the last hundred years by Russian conquests in Central Asia. They brought with them the valuable *qarakul* sheep that produce fine lambskins and carpet wool. Most of these Turkmen groups have established permanent winter quarters (*qishloq*) that have turned into villages of houses with domed brick roofs. The yurts are brought out for use in the spring and summer on the neighboring steppes and foothills. The Uzbeks follow a similar pattern. They were formerly much more engaged in pastoralism but over the past 150 years have become largely sedentary. The Central Asian Arabs have maintained a nomadic tradition of pastoralism and yurt use, though most of them now also have permanent winter villages. For example those in Samangan move only a few kilometers from their village in order to graze their sheep beyond the limit of their cultivated fields. Further to the west in Kunduz and Baghlan, related yurt-dwelling Arabs make a long migration to their *ailoq*s in Badakhshan for the summer, but they normally use special summer huts (*kapa-i-Arab*). One group of Arabs in Imam Saheb declared that yurt use in the northeast had declined drastically since the 1950s. The Arabs and Uzbeks generally raise fat-tailed sheep, although some have adopted the profitable *qarakul* sheep from the Turkmen so that their herds contain a mix of both. De-

11. Domical yurt, showing the outer wall of reed matting, *chegh,* removed at left to increase the ventilation, thus revealing the lattice framework.

pendable pastures in northern Afghanistan make short-range pastoralism viable, but during the past fifty years much of the livestock raising has fallen to immigrant Pashtun tribes who use the black tent.

The other area of domical yurt use in northern Afghanistan is among the Kirghiz who inhabit the high Pamir region of the Wakhan Corridor. Their yurt uses a single-tier lattice frame and is constructed along the same basic principles as those found on the Turkestan plain. The major differences are in wrapping the felt over the *chegh* which is set against the lattice wall, a greater variation in the number of lattices employed, and the use of decorative cloth embroidered onto the felts. While yurts elsewhere in Afghanistan use only four single lattice elements, the Kirghiz create both larger sizes, using five or six lattices, and smaller sizes, using three lattices (Nazif Shahrani, personal communication, 1977; Dor 1978:59).

The use of the yurt during all seasons in high mountain regions like the Pamirs is an extreme test of its strength and durability. Traditionally the Kirghiz used the high Pamirs only as summer pasture. In the fall they would move their yurts to lower altitudes in order to spend the winter in the relatively more protected valleys. Following the Soviet and Chinese revolutions, one group found itself cut off from its traditional winter camping grounds. Rather than return to either Russian or Chinese territory, about two thousand Kirghiz decided to camp permanently in the Wakhan Corridor. They settled in the valley at an altitude between 2,700 and 3,700 m. Averaging 5,500 m, the surrounding mountains tower over the valley and justify the area's reputation as "the roof of the world." Climatically there are only two seasons: winter and spring/summer. Temperatures as low as −50°C have been reported, and temperatures are below freezing for most of the year. Even during the short summers (late June to early September), there is often early morning frost. However, the high altitude means that solar radiation is intense, with summer temperatures reaching as high as 30°C. Diurnal temperature changes range between 20 and 40°C (Shahrani 1979:3–18).

These extreme conditions demand well-designed shelter. The yurt with its heavy felt insulation is probably the only portable dwelling that could provide enough protection. Its shape is also protection against the high winds that sweep the Pamirs. Some wealthy Kirghiz have built houses, but these are not as easy to heat in the winter and so are not in widespread use. The only fuel that is available at this altitude is animal dung, which can be burned inside the yurt for cooking and heating. The yurt's mobility is also critical to the Kirghiz way of life. They raise sheep, goats, yaks, Bactrian (two-humped) camels, and horses. In the summer the Kirghiz move to the shady side of the valley to graze their animals, while the grass is allowed to grow ungrazed on the other side. In the fall they move to the sunny side, where the grass will be used as grazing in the winter. This move also allows the yurts to maximize the amount of winter sunlight. Although the move is only about 5 km, the Kirghiz adaptation to the Pamirs through the use of periodic movements works on the same principle as among nomads who move longer distances: both try to take advantage of seasonal changes by moving their entire household from one place to another (Shahrani 1979).


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ZARANJ
IRAN
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
36
32
64
68
CONICAL YURTS
Location of type illustrated
Source: Mandersloot 1971 : 129
Distribution of conical yurts
0 50KM 100 200 400 800

Conical Yurts

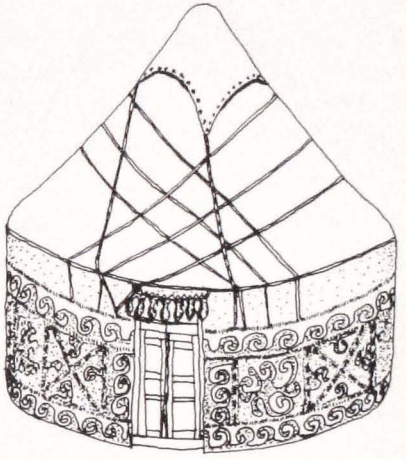
FIROZKOHI

LOCAL NAME
***Kherga* (Dari)**

PEOPLE
Firozkohi
Semisedentary farmers, transhumant pastoralists

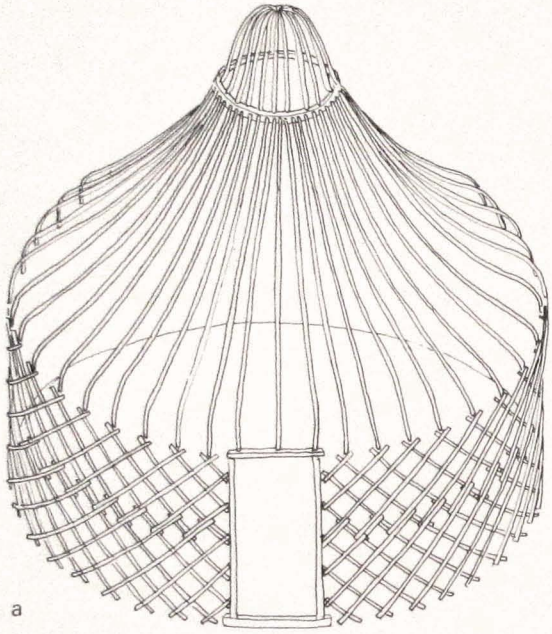
LOCATION OF ILLUSTRATED EXAMPLE
Near Sufak (after Mandersloot 1971)

USE
Summer



The Firozkohi yurt has a distinctive conical roof, slightly concave under the weight of its overlaying felts, and a small-diameter (70 cm) bell-shaped roof compression ring. Its profile is therefore quite unlike that of any of the domical yurts found among neighboring groups. It is smaller than most other yurts with a diameter of 350–430 cm and a height of 430 cm. Both single-tier and double-tier lattice wall frames have been reported for the Firozkohi conical yurt, although this difference does not appear to alter their overall dimensions. The single-tier lattice frame has four elements, while the double-tier wall frame is composed of eight lattices: two tiers of four each bound together. The upper lattice is smaller than the lower by a ratio of 3:4. The lattice wall frame is made of willow wood constructed by spacing a layer of wood strips laid diagonally across another layer. These strips are much thicker and more crudely made than those found in the lattices of neighboring domical yurts. Holes are drilled at regular intervals near the top, bottom, and middle of the frame where the strips intersect, to allow them to be pinned together with knotted leather thongs. This permits the frame to be expanded or contracted in a scissorlike fashion (Herberg and Janata 1982; Centlivres and Centlivres-Demont 1988:178).

To erect the yurt, its lattice wall frames are expanded, top and bottom segments lashed together, and then set onto the ground. To complete the cylindrical wall, the doorframe is tied to each end of the lattice assembly. To maintain the integrity of the wall against the outward thrust of the inclined roof struts, two wide tension bands of cloth are placed on the outer circumference of the wall and secured to the doorjambs. The steeply



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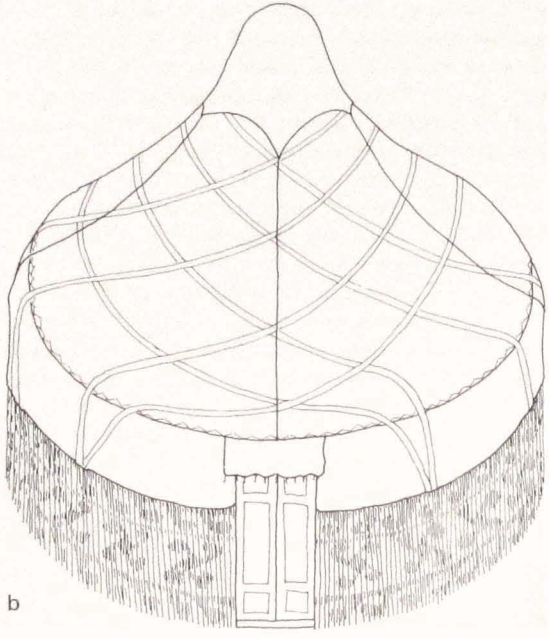

b

angled roof struts are held in place at the top by slots in the roof compression ring, at the bottom by being tied to the top of the lattices and spaced apart by means of a narrow cloth band wound around each strut. A pole is driven into the ground and bound to the lattice to secure the yurt against shifting or overturning due to high winds. The tension bands are essential to resist the outward thrust of the roof struts caused by the dead load of the roof and the live load of the wind. The weight of the roof felts causes the struts to deflect and gives this conical yurt a concave profile. A reed mat *chegh* elaborately woven with colorful designs is wrapped around the felt on the outside of the tent. The door is often made of wood, but the use of a felt mat (*namad*) as a curtain is also widespread.

When one compares the roof struts of the conical Firozkohi yurt with those employed by the domical yurts of Turkestan, several differences are immediately apparent. First, the Firozkohi yurt employs only forty-four struts compared with the fifty to sixty found in most domical yurts. The Firozkohi strut is also bent lower down (about 12–15 cm from the end) through a smaller radius of curvature, thus leaving a greater proportion of the strut straight compared with domical roof struts, which have a much larger radius of curvature and therefore leave less of the strut straight. For these reasons the roof of a Firozkohi yurt is deflected by the weight of the overlying felts to produce its distinctive concave profile. This profile is accentuated by the use of a bell-shaped roof ring. The strength imparted to the domical struts by their longer, more gradual bending and the use of a larger number of them account for the domical yurt roof's greater stiffness and thus less deflection under loading.

The smaller size of the Firozkohi yurt may be in part an adaptation to transport difficulties rather than structural problems. Other nomads who use yurts have large baggage animals like camels that can haul heavy loads easily, but the Firozkohis must divide their loads into smaller units in order to move them using horses, donkeys, or oxen.

The use of the yurt by the Firozkohi people also varies from that of their neighbors in a number of respects. The Firozkohis are not pastoral nomads but semisedentary mountain farmers who mix livestock production with unirrigated agriculture. Their villages are divided into extended households of fathers and married sons or sets of brothers who live and work together. Yurts are employed only when these extended families break into nuclear units to take their animals into the mountains above their villages for the summer. Even then most people make do with *chaparis*, because only wealthy families can afford the expense of the yurt's wooden frame, which must be purchased from Tajik artisans who specialize in their production (Schurmann 1962: 49–73; Alfred Janata, personal communication, 1989).

Huts

Huts in Afghanistan are constructed of semi-rigid wooden poles or reed bundles tied together to produce a freestanding skeletal frame. Unlike tents, huts are not dependent on tension exerted by guy ropes via a roof cloth to remain standing. Most huts in Afghanistan are portable structures, round or oblong in plan, with curved roofs. Because they do not perform a structural purpose, the number of roof finishes is quite large, consisting variously of reed bundles, woven reed mats, plaited grass mats, pieces of felt, cotton cloth, or even mudded plaster. Most portable huts are used only seasonally, and the materials needed to make them are easy to transport and assemble. These types of huts include a large variety of *chaparis* found in central Afghanistan as well as various *kapas* and *lacheqs* found in northern Afghanistan. Such huts leave very little trace of their presence when disassembled.

There is a smaller category of relatively permanent huts which serve as year-round or winter dwellings. In theory such huts are also portable but only with appreciable effort (in the way that American "mobile homes" are portable). These permanent huts employ a more rigid reed or wooden frame. Unlike portable huts in which the "walls" consist of woven reed mats or thin cloth laid over the supporting poles, permanent huts employ wall frames and roof covers that are both heavier and better secured against windstorms, rain, or changes in temperature. For example, huts that employ bundled reeds or scrub tamarisk boughs to create their frame (e.g., *kapa-i-chamshi, chubdara, kodik*) all have their walls set within a shallow trench for stability. The *kodai* of eastern Afghanistan, which uses wooden poles to create the structural frame, employs a low mud foundation wall to achieve the same end. Some permanent huts, such as the *chubdara,* are so reinforced that they mimic sedentary buildings in employing a rectangular plan and a pitched roof.

Simpler huts are found throughout Afghanistan, erected in fields to provide temporary shelter for workers during the agricultural season. However the use of huts as living quarters or for storage is more restricted. Of the ten types of huts we documented, only two, the *kodik* and the *kodai,* were found south of the Hindu Kush, and the distribution of both of these types was relatively limited. Like the distribution of yurts the widespread use of huts is confined largely to central and northern Afghanistan. Indeed, the yurt could be technically defined as an elaborately engineered hut because it depends on a freestanding frame. In this region the *kapa-i-chamshi, lacheq,* or *kapa* is often employed as a less expensive substitute for the yurt by nomadic or seminomadic pastoralists. Even after these nomads settle, they continue to erect huts to use as more comfortable summer dwellings, as cook houses, or for storage. Similarly the alpine farmer/herders of mountainous central

Afghanistan build a wide variety of *chapari*s for use in nearby fields or pastures during the summer. This practice is particularly common where mountain pastures are scattered, for in many parts of Afghanistan, such as mountainous Badakhshan, transhumant villagers commonly build permanent summer villages of stone construction and do not use portable huts.

The relatively small number of huts found south of the Hindu Kush is a result of competition with the black tent. As we have seen, the south is home to a wide variety of black tent types which serve the same function as do huts in the north, providing portable seasonal shelter for pastoralists or transhumant farmers. The advent of tent-using Pashtun and Baluch nomads in northern Afghanistan in the late nineteenth century intermingled black tents with yurts and huts throughout the north. Yet cultural preferences are still so strong that the northern peoples have shown little interest in adopting tents. By contrast, relatively few northern groups have moved south, so their hut tradition has remained confined to its traditional territory. Only at the boundary between the two zones do we find such hybrid forms as the Taimani tent. It combines the principles of the freestanding frame drawn from the yurt/hut tradition with the use of guy ropes and cloth panels under tension, a structural element derived from the black tent tradition.

The hut varieties that do exist in the south appear to be derived from a different architectural tradition than those found in the north. The southern huts employ above-grade foundation walls and are ovate-oblong in form, while northern huts are, with a few exceptions, round and have no foundation walls. In the north portable hut varieties are more common than permanent varieties, while in the south the situation is reversed: the only residential huts we could document were designed for permanent use, with black tents taking the place of huts as portable seasonal dwellings. The *kodik* of Seistan, with its mud-plastered walls pierced by a window and door, for example, is strikingly different from the residential huts found in the north, as is the *kodai*'s use of a ridgepole with supporting columns to create a frame. Indeed, the *kodai* frame appears more similar to that used to create a tailored cotton tent than to the curved skeletal form employed by the *chapari, kapa,* or *lacheq* of the north.


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
KOKCHA RIVER
FAIZABAD
PAMIR
CHINA
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
KUNDUZ R.
BAGHLAN
PUL-I-KHUMRI
MAIMANA
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SPIN BOLDAK
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ZAHEDAN
36
32
64
68
CIRCULAR HUTS
LACHEQ
Location of type illustrated
0 50KM 100 200 400 800

Circular Huts

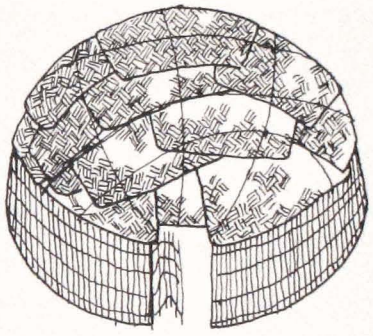
LACHEQ

LOCAL NAME
***Lacheq* (Uzbek)**

PEOPLE
Uzbeks, Central Asian Arabs, Tajiks, Turkmen
Semisedentary farmers and pastoralists

LOCATION OF ILLUSTRATED EXAMPLE
North of Samangan

USE
Summer

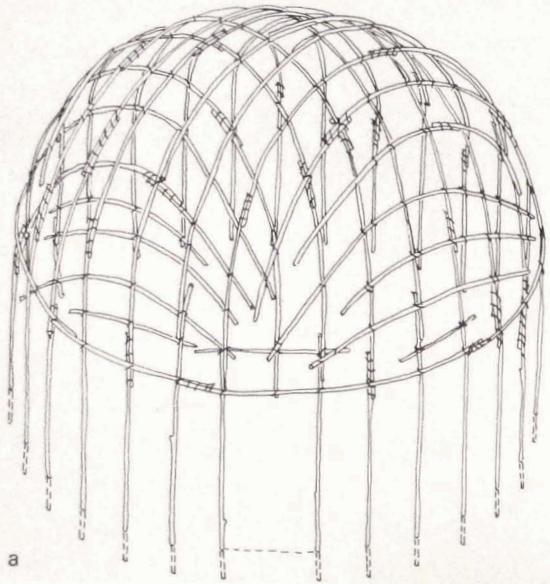


The *lacheq* is constructed by placing about twenty-eight flexible poles between 120 and 240 cm in length into the ground at equal intervals (except around the door opening) to form a circular plan. These poles rise vertically to a height of 170 cm to form a cylindrical wall. (If a pole is too short, an additional piece of wood will be lashed to it to produce the right length.) At this height the poles are secured by rope to a tension ring consisting of random lengths of flexible wooden poles that have been lashed together. From this tension ring the poles are bent over to form a hemispherical roof. This is done by bending each pole over the top and lashing it to its counterpart on the other side, thereby forming a series of semicircular roof ribs. For added stability a number of short poles are lashed in a regular symmetrical pattern to the main poles for diagonal bracing. The result is an extremely strong and resilient basketlike structure. The wall covering consists of woven reed matting (*chegh*) which is wrapped around, and then secured to, the cylindrical wall frame.

The roof consists of overlapping panels of plaited grass or flattened reed matting (*buria*) that are placed on top of the roof ribs and enclose the top of the *chegh* wall. The *buria* is held secure by a network of crisscrossing ropes, some of which are tied to individual mats while others pass over the mats and are secured by stakes driven into the ground. The door is just an unsecured piece of *chegh* wall.

The *lacheq* is a summer hut found among a variety of groups in northern Afghanistan: Uzbeks, Arabs, Tajiks, and perhaps Turkmen. The layers of *buria* provide shade and insulation from the sun's heat, while the *chegh* wall allows breezes to ventilate the hut. It is used by poorer families who cannot afford yurts,

12. Village of flat-roofed mud buildings and seasonal circular huts, *Iacheq*, north of Samangan.



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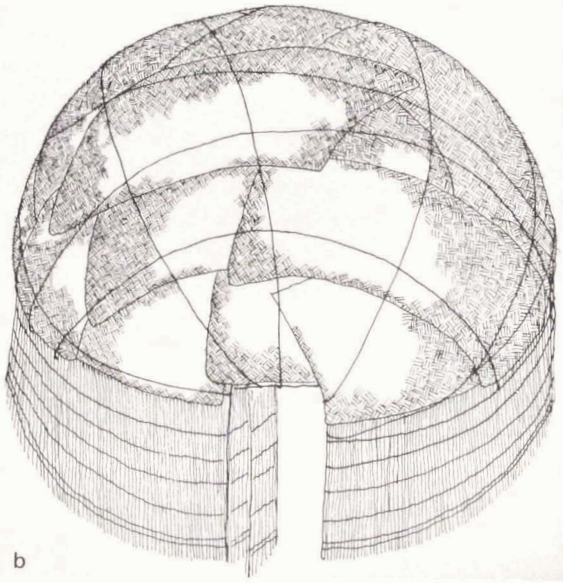

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13. Example of seasonal circular *lacheq*. It is well ventilated by the wind and is a popular alternative to the nearly windowless mud-walled houses in the summer.

and it is not uncommon to see an encampment of yurts mixed with *lacheq*s. Like the yurt, the *lacheq* is suitable for short-range migrations where pastoralists stay in one pasture area for a long time. It requires none of the sophisticated elements produced by specialized craftsmen that make the yurt so expensive, yet the *lacheq*'s framework is very strong. It is possible that in the past the *lacheq* was also widely used as a winter hut among the poorer classes of yurt-using tribes. The frame's construction is designed to handle much stronger winds than are found in the summer, and its multiple layers of *buria* appear to be designed to withstand rain and snow as well as sun. Just as yurts themselves are now used mostly in the spring and summer because their owners have permanent villages with houses, the *lacheq* too is rarely seen in winter use. In addition to the yurt-using seminomads who employ *lacheq*s, sedentary villagers often build them in their courtyards as summer residences because they are cooler than their houses and free from insects which hatch in their permanent houses in the spring. On the steppe they are used as bases from which to herd animals beyond the confines of village agriculture.

14. Interior of *lacheq* showing elaborate structural framing, with blankets and other bedding stacked against the wall.

CIRCULAR HUTS
KAPA-I-CHAMSHI

Location of type illustrated

Circular Huts

KAPA-I-CHAMSHI

LOCAL NAME
Kapa-i-chamshi (Dari, "reed hut")

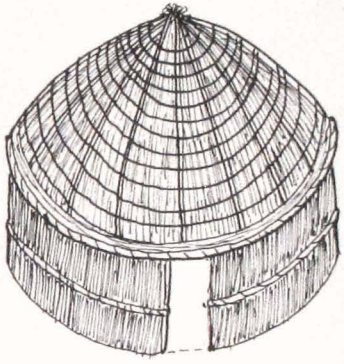
PEOPLE
Central Asian Arabs
Seminomadic pastoralists

LOCATION OF ILLUSTRATED EXAMPLE
Imam Saheb

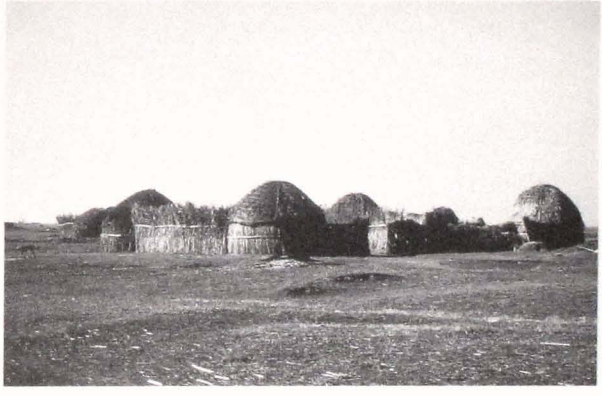
USE
Fall, winter

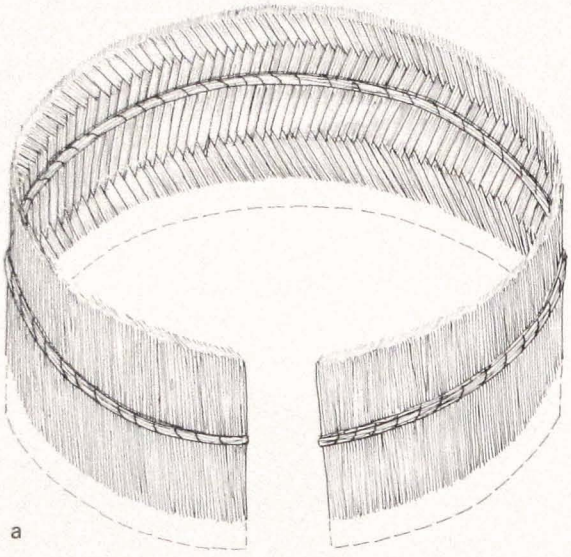
The *kapa-i-chamshi* is constructed entirely of reeds and stands approximately 475 cm high on a circular base 520 cm in diameter. It is made by embedding a wall of reeds in the ground to form a circle with a space left open for a doorway. This reed wall is 10–15 cm thick and 160–170 cm high, held together by the use of a horizontal reed bundle which acts as a compression ring at the wall's midpoint. The doorway is also created by the use of a reed bundle to secure the sides and top. The high dome (310 cm) of this hut is created by first placing two bundles of reeds so that they arch the span and placing a second pair perpendicular to the first to arch in the other direction. Other reed bundles are set diagonally so that from the inside the dome appears to be a hemispherical lattice. Because the wall must support the dome's weight, the two are connected with a tension ring at the top of the wall. The roof is thatched with lighter reeds held in place by the use of eight reed battens secured at the top where they intersect and on the dome itself with twine. Smoke must filter out the top, for unlike a yurt this structure has no smokehole. The inside walls are lined with woven reed matting (*chegh*) or less commonly with plaited grass or flattened reed matting (*buria*) pegged to the reed wall. The floor is usually covered with a thick felt (*namad*) except where there is a fire pit in the center.

This structure has many unusual features. Most striking is its size and height. Unlike most other structures in Afghanistan, it employs only one material: reeds of various sizes. Most other structures combine wood, reed, felt, or cloth. The reeds are obtained in large numbers in the Amu Darya Valley in Imam Saheb, which is the only recorded site for these structures. They are



15. Encampment of circular reed huts, *kapa-i-chamshi,* on the Amu Darya plain at Imam Saheb, north of Kunduz.





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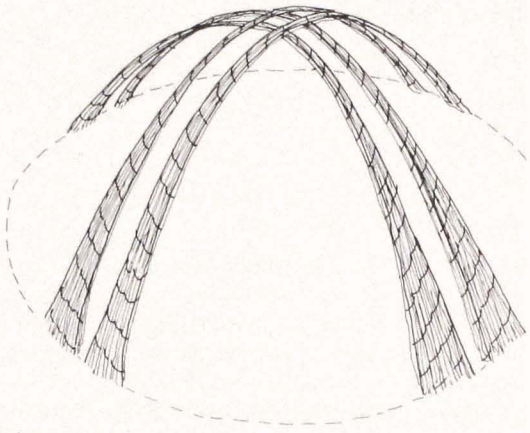

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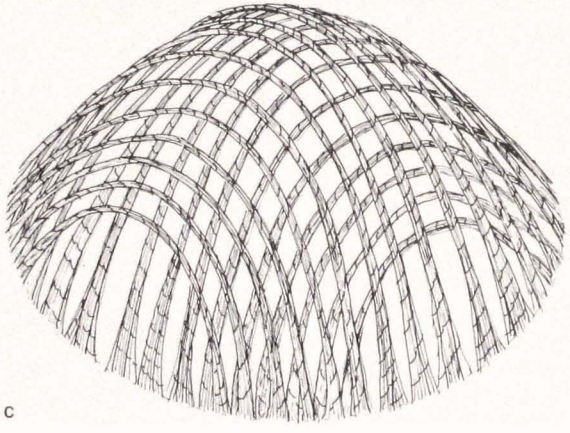

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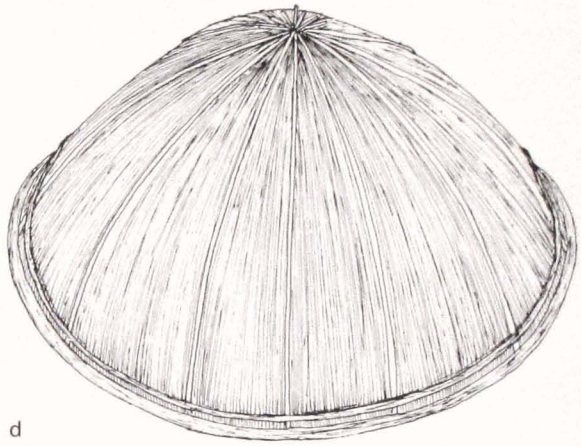
16. View of *kapa-i-chamshi* in a village household compound showing exterior detail.

built by Arab pastoral nomads. In the past the wealthy nomads used yurts in the winter and the poorer nomads used the *kapa-i-chamshi*. Since the 1930s yurts have gradually disappeared among the Arabs in Imam Saheb, as they have been replaced by flat-roofed houses built of sun-dried brick or *pakhsa*. Those living in villages still construct the *kapa-i-chamshi* to use as cookhouses (Barfield 1981 : 48).

Those nomads who use the *kapa-i-chamshi* for their winter camp must abandon their huts in the spring and summer because they are not portable. In those seasons, portable rectangular huts (*kapa-i-Arab*) are employed on the steppe and in the mountains of Badakhshan.

Each *kapa-i-chamshi* is home for a nuclear family. An extended family will often create a compound by linking their *kapa*s with reed fencing called *towara* which stands 4–5 m high. The entrances of the *kapa*s face inside the compound, which has a common gate. From the outside the round domes, circular sides, and fencing make the compound look like a series of walls and bastions. The compound provides privacy and is used at night as a stockpen for the sheep.



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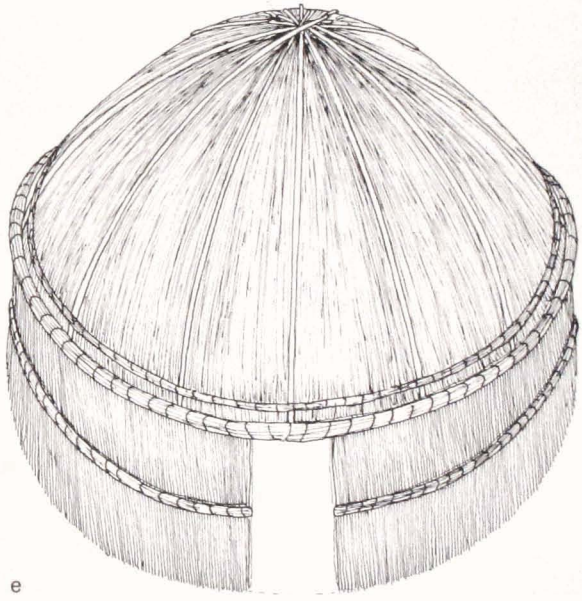

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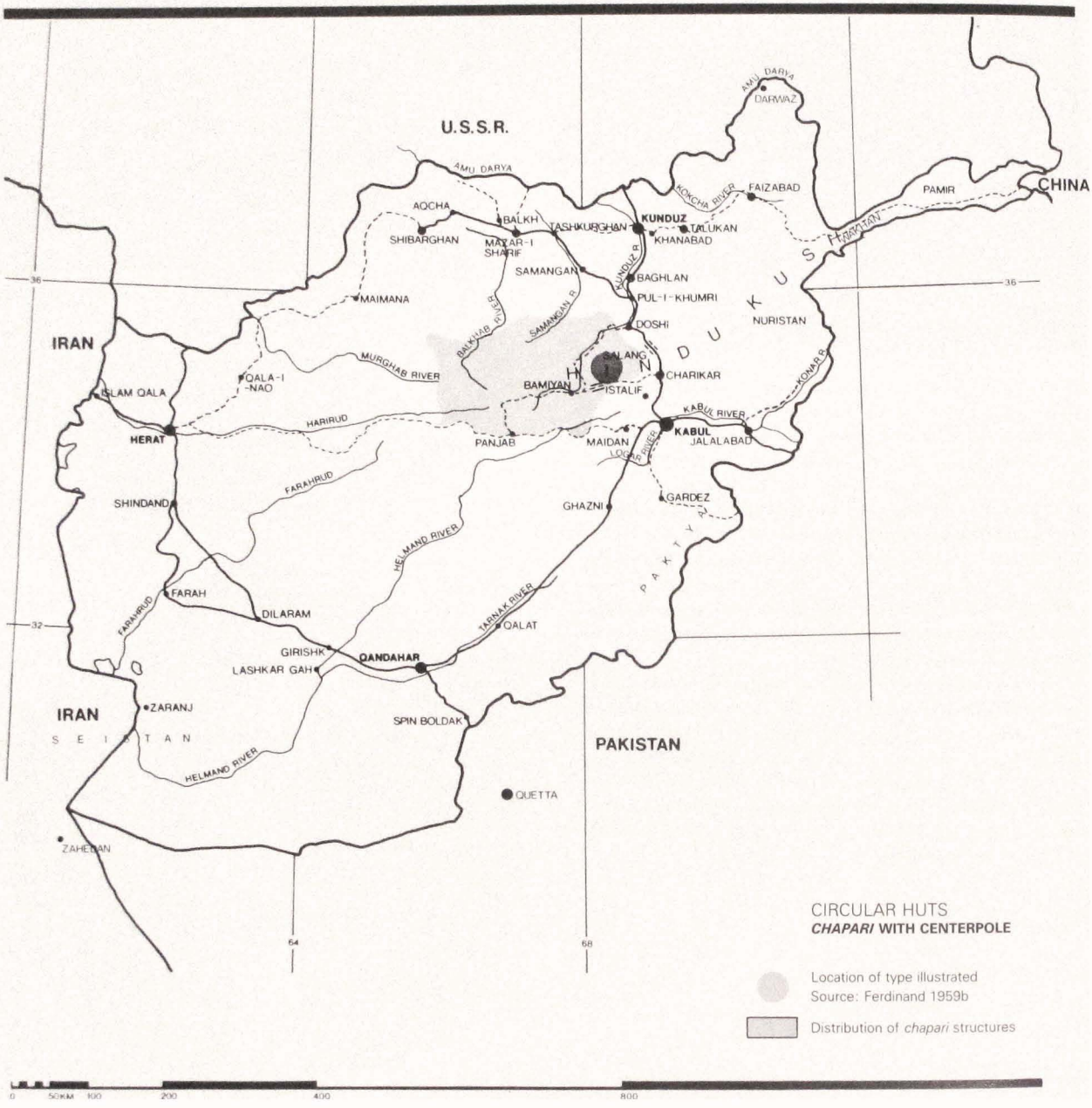
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SPIN BOLDAK
PAKISTAN
HELMAND RIVER
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CIRCULAR HUTS
CHAPARI WITH CENTERPOLE
Location of type illustrated
Source: Ferdinand 1959b
Distribution of chapari structures
0
50KM
100
200
400
800

Circular Huts

CHAPARI WITH CENTERPOLE

LOCAL NAME
***Chapari* [*chapar*] (Dari)**

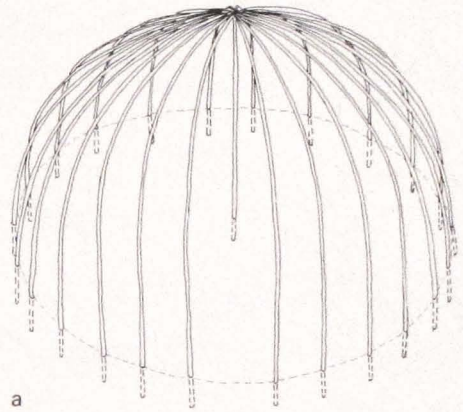
PEOPLE
Day Kalos, Hazaras
Semisedentary farmers and pastoralists

LOCATION OF ILLUSTRATED EXAMPLE
Ghorband Valley

USE
Summer and autumn

The *chapari* with a centerpole is constructed by setting about twenty-four poles into the ground in a circular pattern with a diameter that varies between 400 and 500 cm. The poles are bent toward the center and attached to a forked centerpole. The resulting framework is low and squat in appearance. The wall consists of woven reed mats (*chegh*) which are secured onto the wooden poles. The roof is covered with pieces of felt (*namad*), but these enclose only the lower part of the roof and leave a large open hole at the top. The door is a part of the wall *chegh* that can be rolled over the entrance.

The *chapari* is used by the northern Hazaras for six months out of the year, from early summer to late autumn. It provides shelter for villagers taking their animals to mountain summer pastures, where they also have small irrigated fields of barley, wheat, and alfalfa, in addition to their unirrigated fields of wheat. Formerly the *chapari* was used alongside the yurt in the Hazarajat, but now only the *chapari* is still in use. The *chapari* is popular in summer because it allows the Hazaras to escape flea infestations in their houses (Ferdinand 1959b: 28–29).



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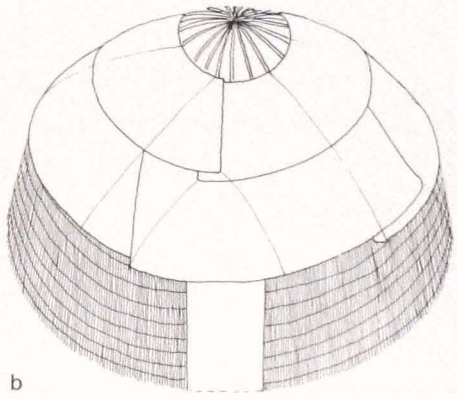

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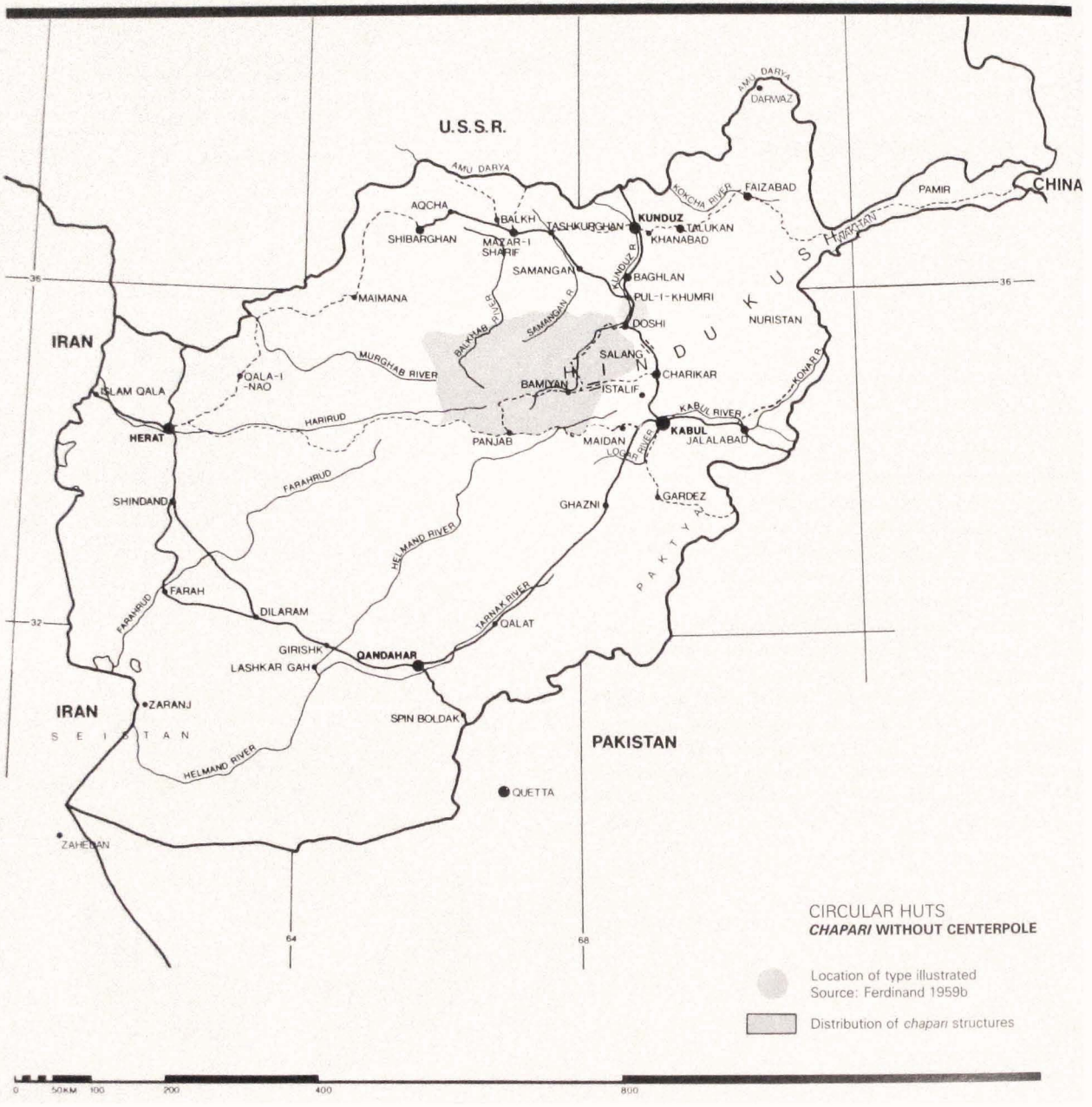
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CIRCULAR HUTS
CHAPARI WITHOUT CENTERPOLE
Location of type illustrated
Source: Ferdinand 1959b
Distribution of chapari structures
0
50KM
100
200
400
800

Circular Huts

CHAPARI WITHOUT CENTERPOLE

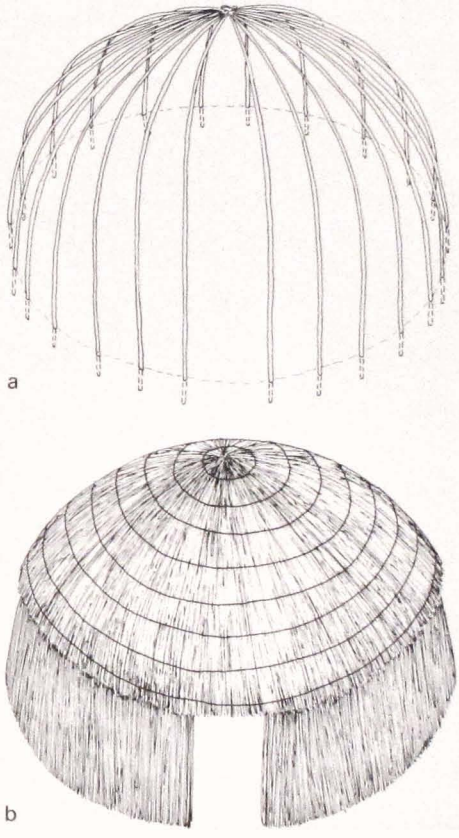
LOCAL NAME
***Chapari* [*chapar*] (Dari)**

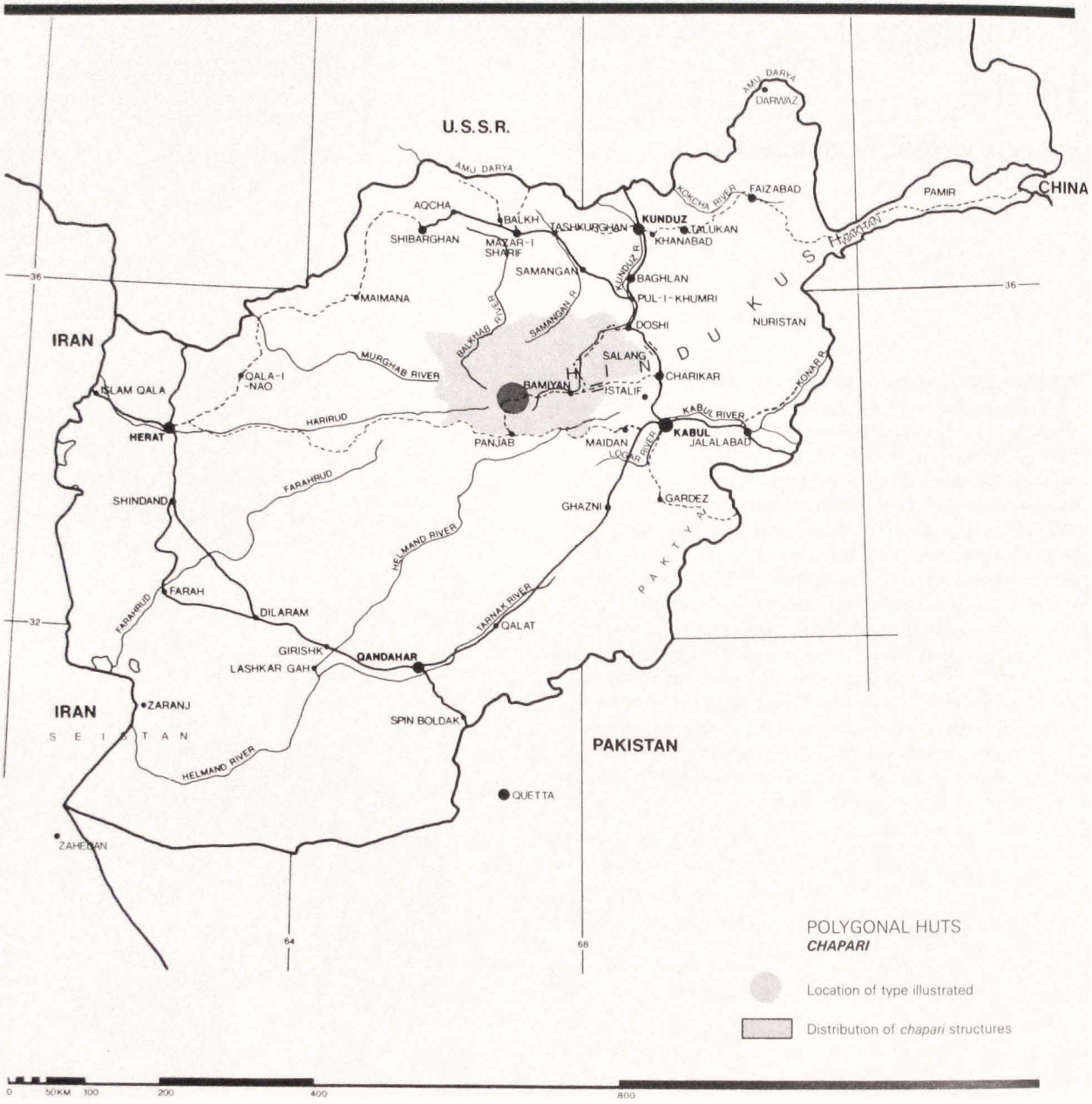
PEOPLE
Hazaras and northern Taimanis
Semisedentary farmers and pastoralists

LOCATION OF ILLUSTRATED EXAMPLE
Between Doshi and Pul-i-Khumri

USE
Early summer and autumn

The *chapari* without a centerpole is constructed using a frame that consists of about twenty-four curved poles 370 cm in length set in a regular circular pattern 45 cm apart. The poles are dug into the ground, bent toward the center, and lashed together with rope to form a domed roof. A woven reed *chegh* is wrapped around the bottom part of the hut and tied to the poles. The outer cover takes a variety of forms. The illustrated example is covered completely with straw thatch held in place by several circular battens of rope on the roof (resembling the Arab *kapa-i-chamshi*), while the sides are made of reed (Ferdinand 1959b: 17). The alternative is to use panels of dark felt sewn together for the top covering and let the woven reed *chegh* serve as the wall. The door is usually a separate panel of *chegh* tied to the top of the frame. This style of *chapari,* particularly with the felt cover, is commonly used by Hazaras and northern Taimanis. The straw-covered *chapari* was recorded in an ethnically mixed area of Tajiks, Hazaras, Uzbeks, and Farsiwans between Pul-i-Khumri and Doshi.

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PAKISTAN
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ZAHEDAN
64
68
POLYGONAL HUTS
CHAPARI
Location of type illustrated
Distribution of chapari structures
0
50KM
100
200
400
800

Polygonal Huts

CHAPARI

LOCAL NAME
***Chapari* [*chapar*] (Dari)**

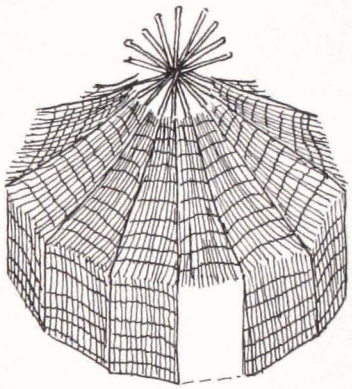
PEOPLE
Hazaras
Semisedentary farmers and pastoralists

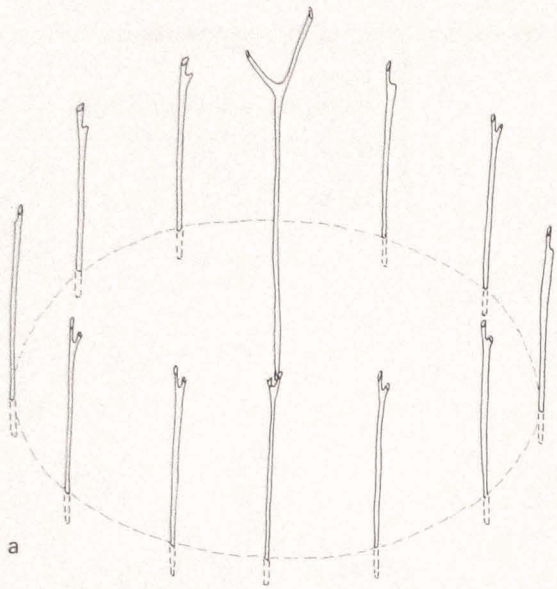
LOCATION OF ILLUSTRATED EXAMPLE
Sabziel

USE
Summer

The polygonal style of *chapari* is constructed by setting twelve vertical poles 180 cm long into the ground evenly spaced in a circular pattern. The plan diameter may vary between 425 and 550 cm. The poles are linked together at the top by the use of a continuous piece of rope tied to each pole keeping them an equal distance apart. The roof poles are attached to the peak of each vertical pole and then tied together at the top where they all intersect. A centerpole is dug into the ground and placed underneath the apex of the roof poles to reinforce them. The sides consist of woven reed matting (*chegh*) which is pulled around the wall poles. Because there are relatively few poles, the resulting form is polygonal rather than circular. *Chegh* is also used to form the roof cover. However, since *chegh* is made in rectangular panels, it does not fit evenly over the roof and produces a conical shape with a hole in the center from which the tied roof poles project. The door is merely an extra length of the wall *chegh* which can be pulled over the opening.

The polygonal *chapari* is used seasonally by Hazaras who live in permanent flat-roofed villages nearby. It is erected in the spring and summer so that the livestock, mostly cows, can be taken to graze on pasture away from the village crops. The *chapari* is also preferable in this season because the village houses become infested with vermin. The *chapari* would provide little protection from the elements at other times of the year: the roof would leak in a hard rain, and it would not hold up against high winds.





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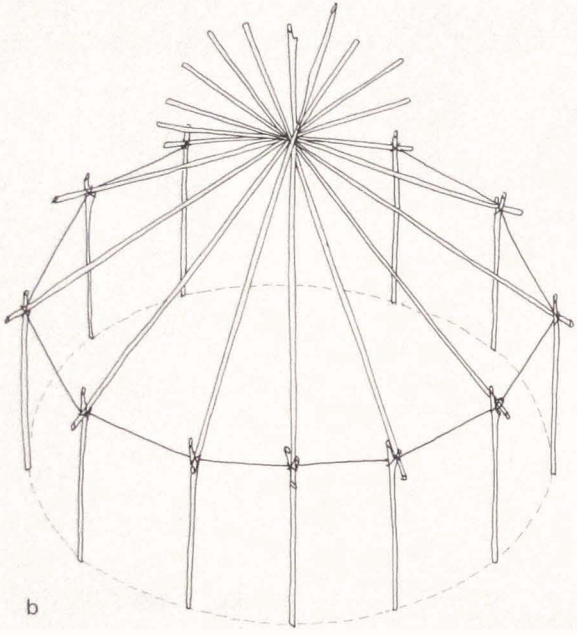

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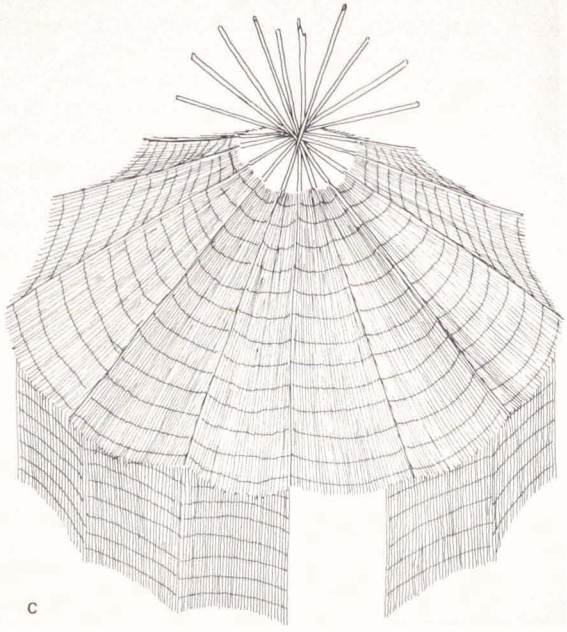


c

18. Interior of polygonal *chapari* showing family with infant in cradle at right.

17. Summer encampment of polygonal huts, *chapari,* near Sabziel, west of Bamiyan, used for grazing animals by Hazara villagers who have their winter village a few kilometers away.


U.S.S.R.
AMU DARYA
DARWAZ
RAGH
FAIZABAD
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
BAGHLAN
PUL-I-KHUMRI
DOSHI
NURISTAN
PAMIR
CHINA
HINDU KUSH
MAIMANA
IRAN
MURGHAB RIVER
QALA-I-NAO
ISLAM QALA
HERAT
HARIRUD
SALANG
CHARIKAR
BAMIYAN
ISTALIF
KABUL RIVER
KONAR R.
KABUL
JALALABAD
PANJAB
MAIDAN
LOGAR RIVER
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
PAKTYA
FARAH
DILARAM
TARNAK RIVER
QALAT
GIRISHK
LASHKAR GAH
QANDAHAR
ZARANJ
IRAN
SEISTAN
SPIN BOLDAK
PAKISTAN
QUETTA
ZAHEDAN
36
32
64
68
RECTANGULAR HUTS
KAPA-I-ARAB
Location of type illustrated
0
50KM
100
200
400
800

Rectangular Huts

KAPA-I-ARAB

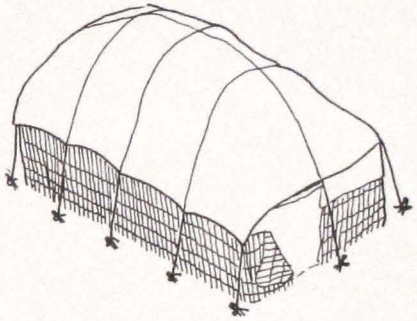
LOCAL NAME
***Kapa-i-Arab* (Dari, "Arab hut")**

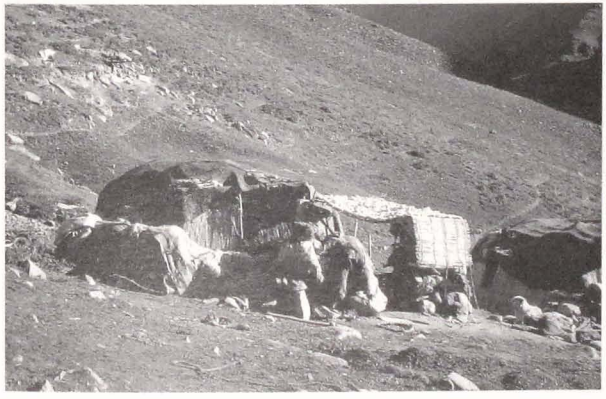
PEOPLE
Central Asian Arabs
Seminomads

LOCATION OF ILLUSTRATED EXAMPLE
Between Ragh and Darwaz

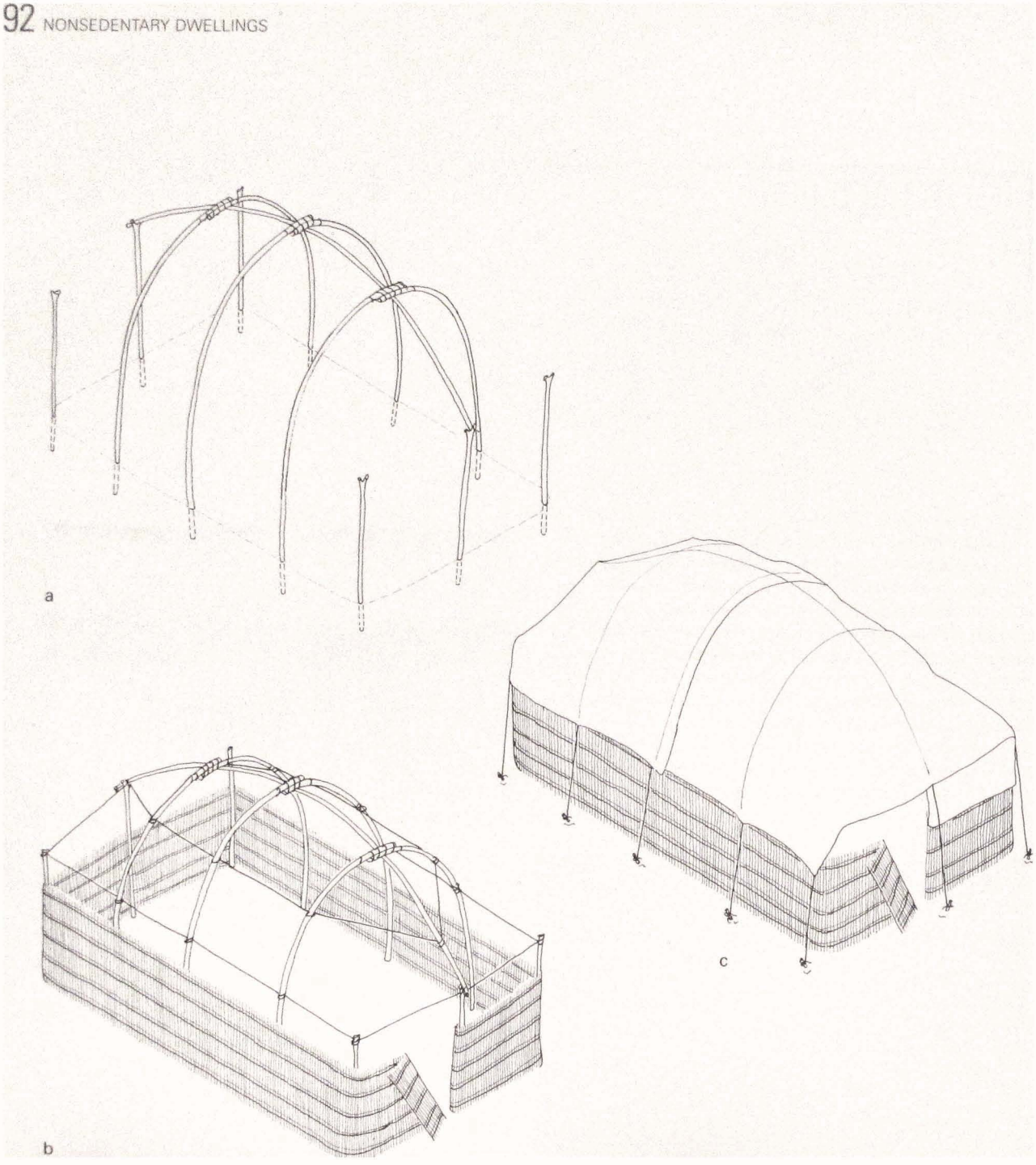
USE
Spring, summer

The *kapa-i-Arab* is a spring/summer hut used by nomadic Arabs who take their sheep to Badakhshan. It consists of three sets of flexible wooden poles supported by two end poles. The poles are all soaked in water for a few hours before the hut is constructed in order to make them more flexible. These poles are then set into the ground and their ends bent over until each pole can be tied to its counterpart. The top is reinforced by the use of a ridgepole that runs down the center and links the three sets of side poles into a single framework. The ridgepole is attached to the two end poles. A felt covering is usually thrown over the top for the roof, though on some huts a white canvas cloth is used instead. Four corner poles are driven into the ground to create a rectangular plan. A woven reed mat *chegh* is wrapped around the corner poles to create the side walls. The entrance is





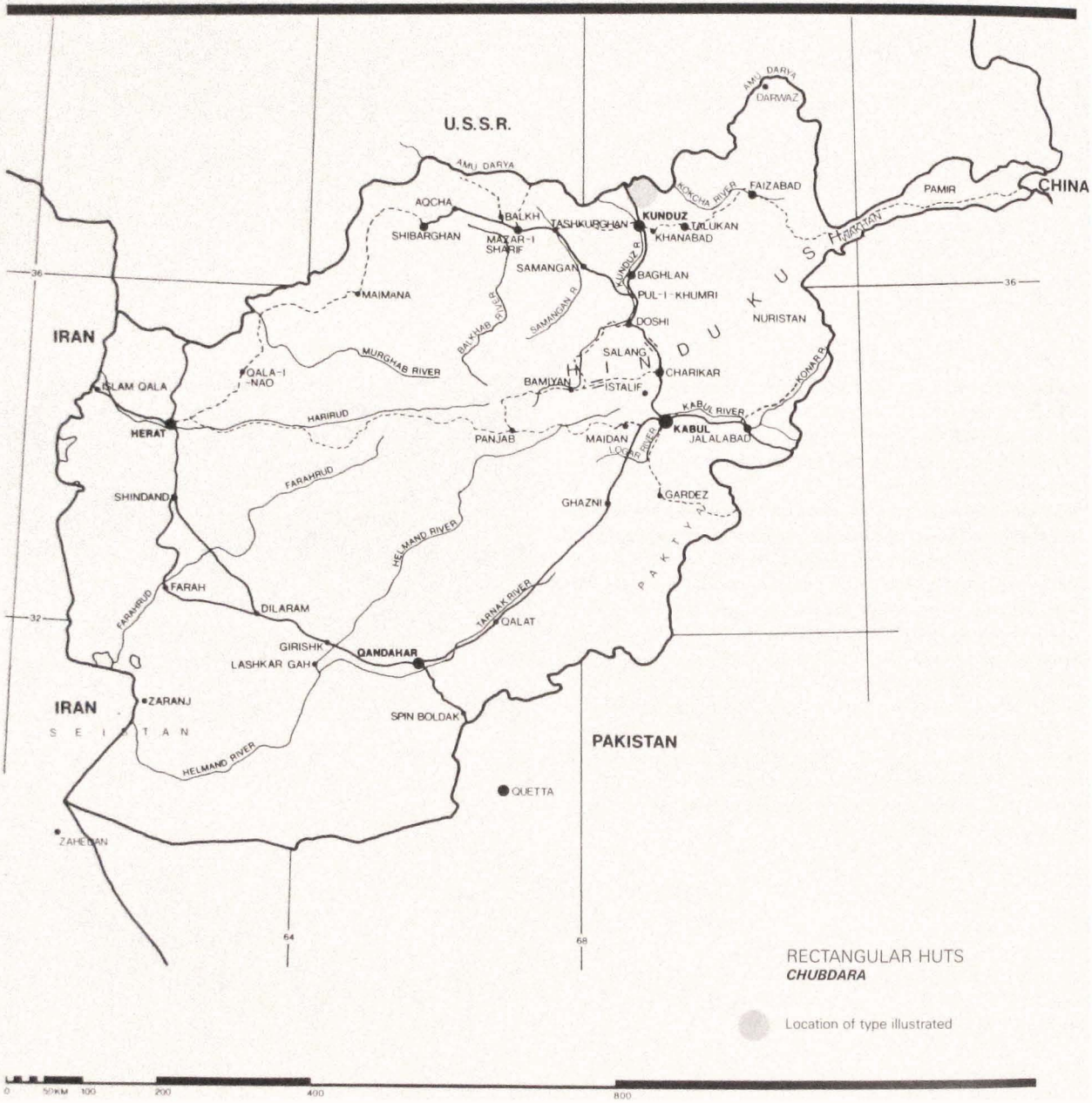
19. Rectangular summer huts, *kapa-i-Arab,* employed by Arab pastoralists between Shiwa and Darwaz in Badakhshan. Note the rack stacked with balls of dried yogurt, *qrut.*


a
b
c

at one of the narrow ends. The roof felt and the *chegh* are kept in place by the use of guy ropes thrown over the top and held secure with stakes.

The Arab *kapa* is not erected until the nomads reach their spring or summer pasture. Between four and five huts are found in an encampment, and a low rectangular stone enclosure may be constructed nearby for receiving visitors. Each family stays in its own pasture for the whole season. Hence the hut is usually put up only once in each pasture area. These summer huts are well designed for the mountains because their frame is resistant to winds and the felt can keep out the cold at high altitudes. Some poorer nomads even use the summer hut as a year-round dwelling, though this is rare. The hut's components are carried by camels and constitute less than one load, but the camels carry the oversize poles more easily than a horse or donkey. When on migration, the Arabs often make only a simple shelter, consisting of a roll of *chegh* wrapped around the corner poles to provide privacy and the roof cloth erected only if there is the danger of a storm.

20. Rectangular Arab summer hut in Badakhshan between Shiwa and Darwaz. The baggage stacked on low stone walls creates a protected forecourt for additional workspace.


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
KOKCHA RIVER
FAIZABAD
PAMIR
CHINA
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
BAGHLAN
PUL-I-KHUMRI
KUNDUZ R.
SAMANGAN R.
BALKHAB RIVER
MAIMANA
DOSHI
NURISTAN
HINDU KUSH
HAMRATAN
36
IRAN
MURGHAB RIVER
QALA-I-NAO
SALANG
CHARIKAR
KONAR R.
ISLAM QALA
BAMIYAN
ISTALIF
HARIRUD
KABUL RIVER
HERAT
PANJAB
MAIDAN
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JALALABAD
LOGAR RIVER
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
PAKTYA
FARAH
DILARAM
TARNAK RIVER
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32
GIRISHK
LASHKAR GAH
QANDAHAR
IRAN
ZARANJ
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
64
68
RECTANGULAR HUTS
CHUBDARA
Location of type illustrated
0
50KM
100
200
400
800

Rectangular Huts

CHUBDARA

LOCAL NAME
***Chubdara* (Dari, "having wood")**

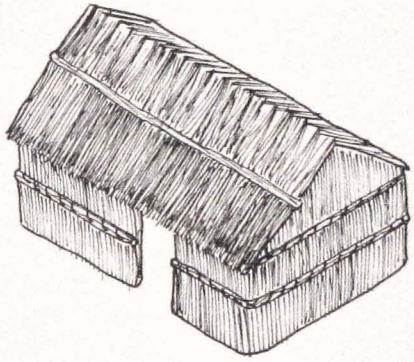
PEOPLE
Central Asian Arabs
Seminomads

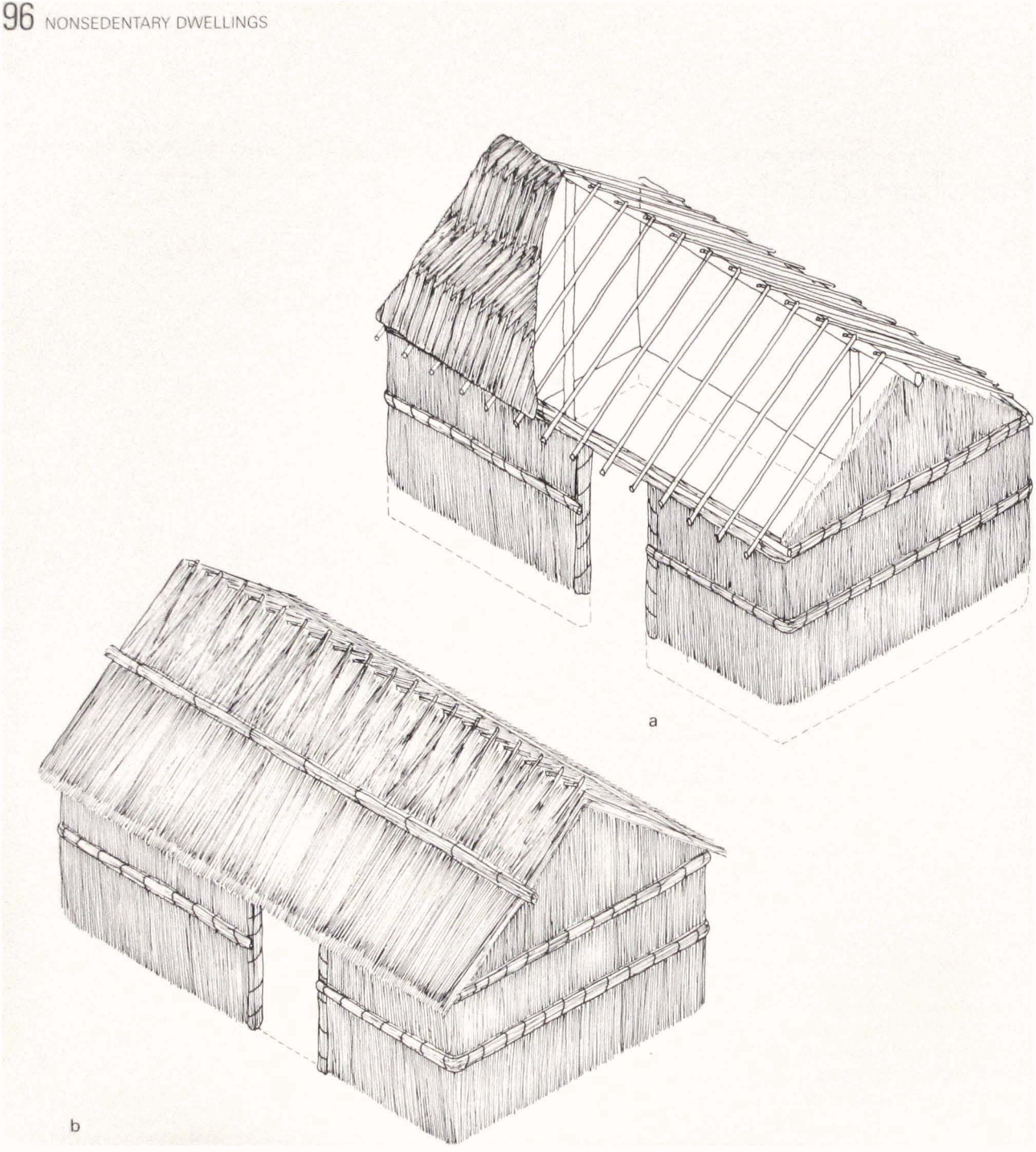
LOCATION OF ILLUSTRATED EXAMPLE
Imam Saheb

USE
Year-round storage

The *chubdara* is a rectangular building constructed of reeds with a wooden frame for the roof support. The walls are constructed with tightly packed vertical reed bundles dug into the ground and reinforced by a horizontal reed bundle at the midpoint. The roof is pitched, descending from a ridgepole to the top of the wall. The ridgepole is supported by vertical poles at either end. The doorway is usually found in the center of one of the long sides. The roof consists of reed thatching, sometimes reinforced by poles, held in place by bundles of reeds. Dimensions of the building vary from 400 to 750 cm length, but most have a width of about 300–350 cm. The roof ridge stands about 370 cm above the ground.

The *chubdara* is a close cousin to the *kapa-i-chamshi*. Both are built by Arabs in Imam Saheb and employ the same type of wall structure. The *kapa-i-chamshi* has no wooden framework, a distinction made by the Arabs themselves, for *chubdara* means "having wood" in the local dialect of Persian. The *chubdara* is used only for storing things and as a shelter for animals. It is an outbuilding usually attached to a clay house, or sometimes to a *kapa*. It has less headroom than a *kapa-i-chamshi* but more usable storage space because of its rectangular shape. Like the *kapa-i-chamshi* it is seasonally abandoned when the livestock are taken to the steppes and mountains. The abundance of reeds in the Imam Saheb valley makes them a favorite building material for the Arabs who use the marshy areas for grazing. Reed is considerably cheaper than wood here, and the skills of working it are highly developed.

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21. Rectangular hut, *chubdara,* used for permanent storage space by Arab villagers at Imam Saheb, north of Kunduz.

OVATE-OBLONG HUTS
KODAI

Location of type illustrated

Ovate-Oblong Huts

KODAI

LOCAL NAME
***Kodai* (Pashto)**

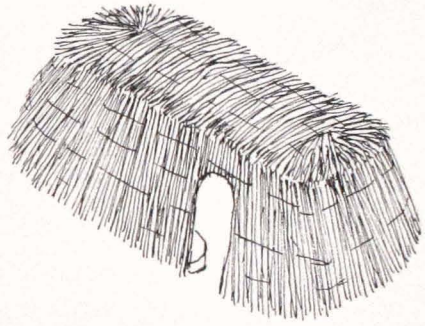
PEOPLE
Pashtuns
Seminomadic pastoralists, traders

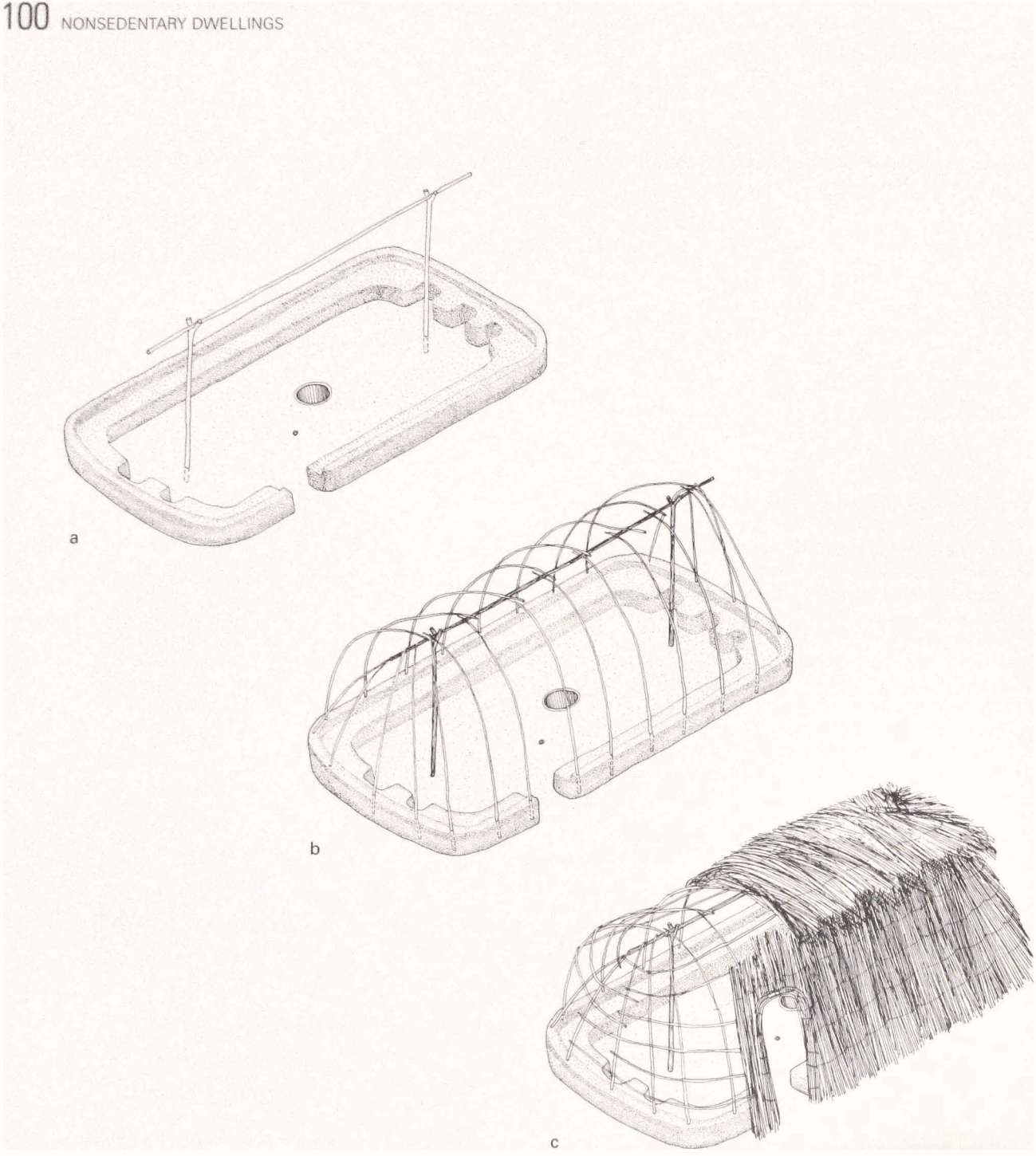
LOCATION OF ILLUSTRATED EXAMPLE
Basawal

USE
Fall and winter

The *kodai* is constructed by building an ovate-oblong clay wall 30 cm in height into which twenty-four poles are symmetrically and equidistantly placed. The side poles (eight pairs) are bent over the center and each is tied to its opposite number at the ridgepole. The ridgepole itself is supported by two forked vertical poles set inside the hut about a meter from each end. Each end of the building is then framed by four end poles which, like the side poles, are set into the oblong wall. They are bent and tied to the cantilevered section of the ridgepole. All the poles that make up this framework are reinforced by the use of horizontal secondary poles that secure them together in a regular pattern. The roof and walls are covered with thick bundles of straw tied to the frame. The door opening is always put in one of the long sides and is sometimes reinforced with an arched bundle of straw.

These huts are used as summer dwellings by Pashtun villagers who keep cows and sheep. The animals are fed from clay troughs. The *kodai*s are intended for long seasonal use since many of them have installed heavy clay *kandu*s, large (95 by 75 by 25 cm) vessels for storing grain, as well as below-ground clay ovens called *tandur*s. Pits are often dug near the huts to keep small calves and lambs. In spite of this relatively sedentary appearance, there are camels in the camp. Because this area is near the border, it is possible that the camels are used to facilitate trans-border trade or smuggling. When the *kodai* is abandoned, only the two center poles and the ridgepole are retained for later use.

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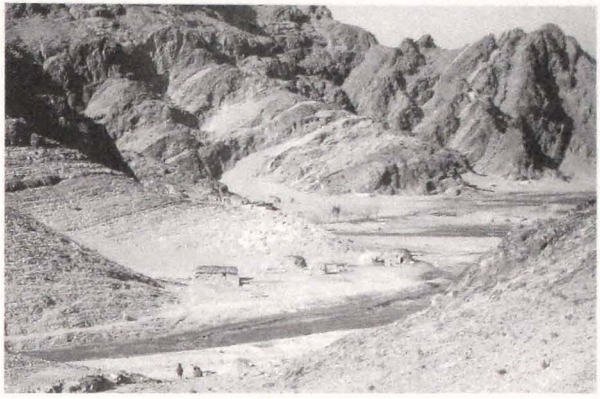
22. Encampment of ovate-oblong *kodai* huts used by seminomadic Pashtun pastoralists and traders in the foothills of Basawal, southeast of Jalalabad.



23. Ovate-oblong *kodai* hut.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AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
SHIBARGHAN
MAZAR-I SHARIF
AQKCHA RIVER
FAIZABAD
PAMIR
CHINA
WAKHAN
SAMANGAN
KUNDUZ R.
BAGHLAN
PUL-I-KHUMRI
MAIMANA
BALKHAB RIVER
SAMANGAN R.
DOSHI
NURISTAN
IRAN
SALANG
MURGHAB RIVER
QALA-I-NAO
BAMIYAN
ISTALIF
CHARIKAR
KONAR R.
ISLAM QALA
HARIRUD
KABUL RIVER
HERAT
PANJAB
MAIDAN
LOGAR RIVER
KABUL
JALALABAD
FARAHRUD
GARDEZ
SHINDAND
GHAZNI
HELMAND RIVER
FARAH
DILARAM
TARNAK RIVER
QALAT
GIRISHK
QANDAHAR
ASAK
LASHKAR GAH
ZARANJ
IRAN
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
SEHYAK
QUETTA
ZAHEDAN
36
32
64
68
OVATE-OBLONG HUTS
KODIK
Location of type illustrated
Source: Trousdale in press
Distribution of kodiks
0
50KM
100
200
400
800

Ovate-Oblong Huts

KODIK

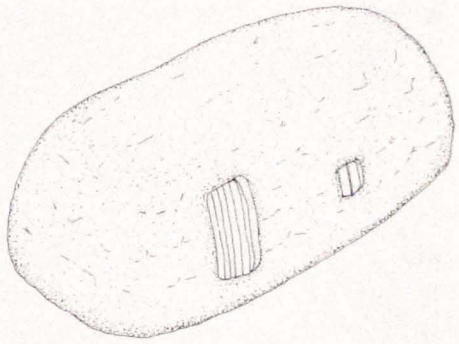
LOCAL NAME
***Kodik* (Baluchi)**

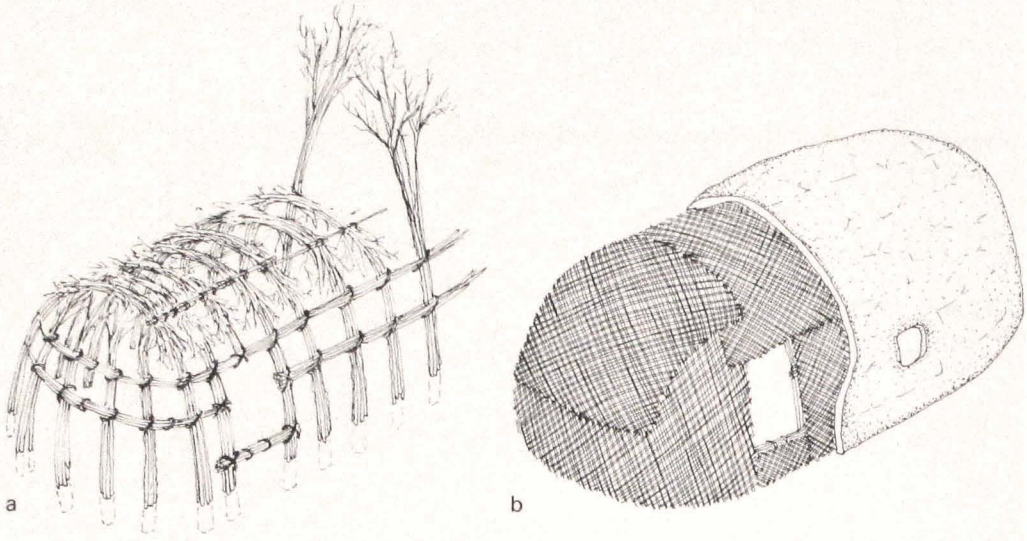
PEOPLE
Baluch, Pashtuns, Brahuis
Semisedentary farmers and pastoralists

LOCATION OF ILLUSTRATED EXAMPLE
Sehyak (after Trousdale in press)

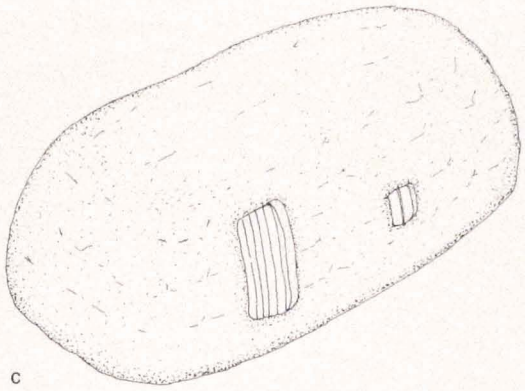
USE
Year-round

The tamarisk hut, or *kodik,* is found among the Baluch of Seistan along the lower course of the Helmand River in southeastern Afghanistan. It is constructed of scrub tamarisk boughs (actually tamarisk-like *tagaz* or *targaz,* Haloxylon ammodendron; cf. Aitchison 1890:203) 2–6 cm in diameter. Clusters of these boughs are set into the ground to form an ovate-oblong plan 730–820 cm long and 240–300 cm wide. The spacing between these clusters is about 25 cm on the straight sides and about 30 cm on the narrower rounded ends. The frame (*kori*) is created by arching and joining the clusters together at the top to create a curved roof 240–300 cm high. Since the tamarisk boughs are branched at the top, the roof is denser than the side walls. The walls are reinforced with two lateral bundles of tamarisk running along the entire framework (except for the door) placed about 50 cm apart midway between the ground and the roof line. When the frame is complete, loosely woven tamarisk mats (*chapar*) are used to cover it completely. The mats are then completely mudded to finish the hut for winter use, while in the summer the mud on the top of the roof is removed for better ventilation. A low (25 cm) foundation layer of mud is added on the inside of the hut to keep insects and snakes from crawling into the completed structure. The window and door openings are quite small and have no predetermined orientation. Frames and closures of both may be made of wooden boards. These huts are mobile to the extent that they are periodically disassembled and moved by their residents to new locations when the old sites are deemed too dirty inside or outside, or both.





24. The three stages of construction of an ovate-oblong *kodik* hut in Sehyak, southwestern Afghanistan: at left, tamarisk framework; at right, mat covering applied to frame; in center, mud plaster applied to mat work.

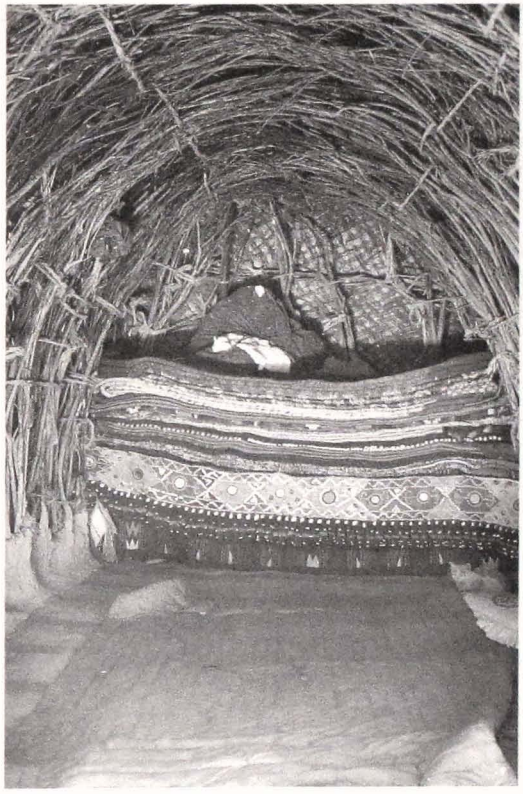


c

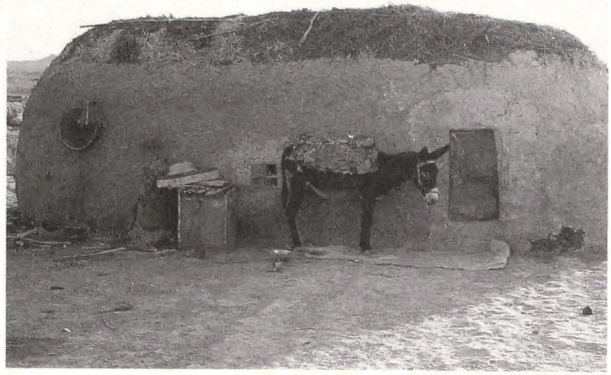
North of Zaranj, around Hamun-i-Puzak and Hamun-i-Sabari near Asak, a similar type of hut is constructed of bulrushes by Baluch *gaudars* ("cattle keepers") who live along the edges of these lake marshes. Here thick bundles of reeds are set into the ground about a meter apart in an oblong plan to create a vault 250 cm high. These reed arches are held together by three lateral bundles of reeds placed 60 cm apart running along the midsection of the wall. The lateral supports are also used to hold a wall of loose reed in place. The wall is then mudded inside and out to a height of 180 cm. The roof consists of loose reed thatching held in place by battens. The door is simply an opening in the reeds. In the winter more layers of reed are added to the roof. These huts are used year-round. (See Photos 27–29.)

The use of similar structural forms with different materials is the result of environmental variation in Seistan. Reeds are common in the shallow lake regions north of Zaranj, but in the lower Helmand Valley tamarisk predominates.

25. Interior view of *kodik* showing tamarisk bundles used as structural framework with household goods stacked at one end.

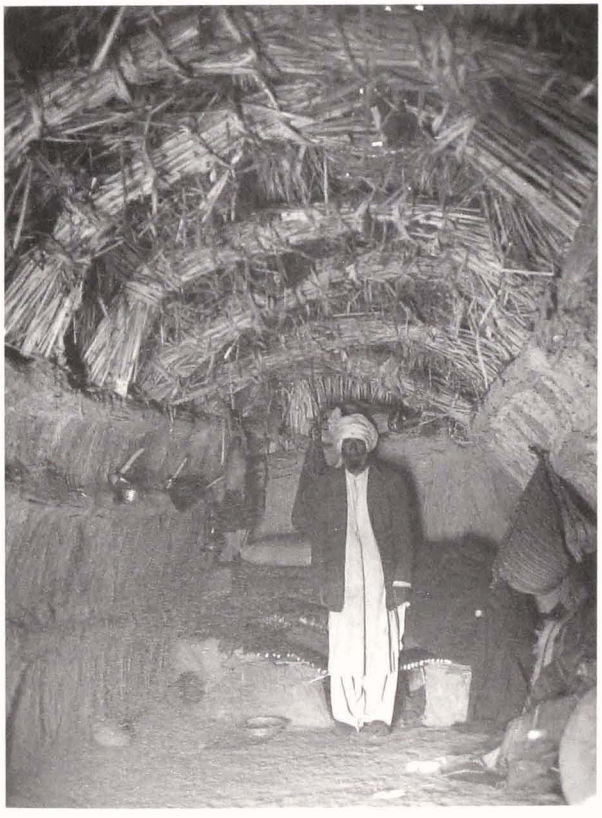


26. Completed *kodik* with a high threshold to deter snakes and illustrating the use of an unmudded roof to increase ventilation in the summer.



27. Ovate-oblong huts constructed of bulrushes by Baluch *gaudars*, "cattle keepers," near Asak, north of Zaranj, in southwestern Afghanistan.

28. Exterior details of Baluch bulrush hut near Asak, north of Zaranj, in southwestern Afghanistan.



29. Interior of Baluch bulrush hut showing use of bundled reeds for vaulted framework. Near Asak, north of Zaranj, in southwestern Afghanistan.


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
FAIZABAD
PAMIR
CHINA
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
BAGHLAN
PUL-I-KHUMRI
DOSHI
NURISTAN
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IRAN
QALA-I-NAO
ISLAM QALA
MURGHAB RIVER
BALKHAB RIVER
SALANG
CHARIKAR
BAMIYAN
ISTALIF
KABUL RIVER
HERAT
HARIRUD
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MAIDAN
KABUL
JALALABAD
LOGAR RIVER
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
FARAH
DILARAM
TARNAK RIVER
QALAT
GIRISHK
LASHKAR GAH
QANDAHAR
ZARANJ
SPIN BOLDAK
PAKISTAN
QUETTA
ZAHEDAN
64
68
OVATE-OBLONG HUTS
KAPA
Location of type illustrated
0 50KM 100 200 400 800

Ovate-Oblong Huts

KAPA

LOCAL NAME
***Kapa* (Dari, "hut")**

PEOPLE
Tajiks
Semisedentary farmers and alpine pastoralists

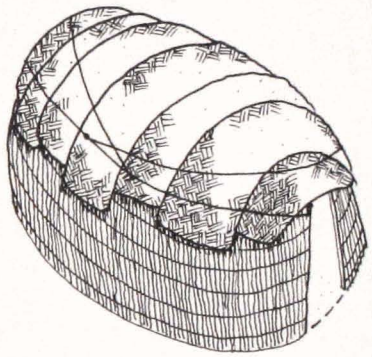
LOCATION OF ILLUSTRATED EXAMPLE
Shahr-i-Bozorg District, Badakhshan

USE
Summer

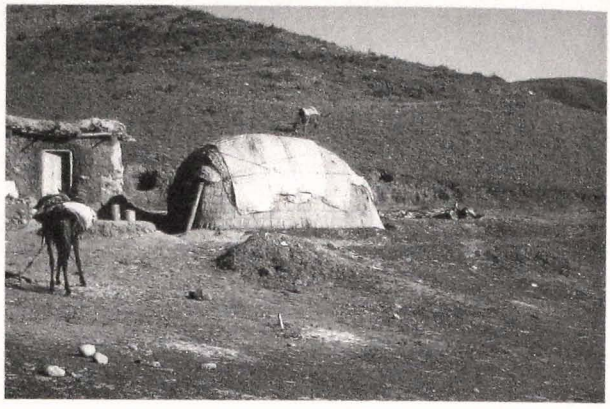
The Tajik *kapa* consists of about fifty poles set into the ground at equal intervals to form an ovate-oblong plan. At one of the narrow ends space is left for an entryway. The poles are bent over so that they overlap at the top, where they are lashed together. Only a few short poles near the entry are lashed at a right angle to vertical poles to provide stability. Woven reed mats (*chegh*) are used as side walls. Plaited grass or flattened reed mats (*buria*) are set over the top in overlapping layers and secured to the frame with the use of ropes that run over the roof. The door is a piece of unsecured wall *chegh*.

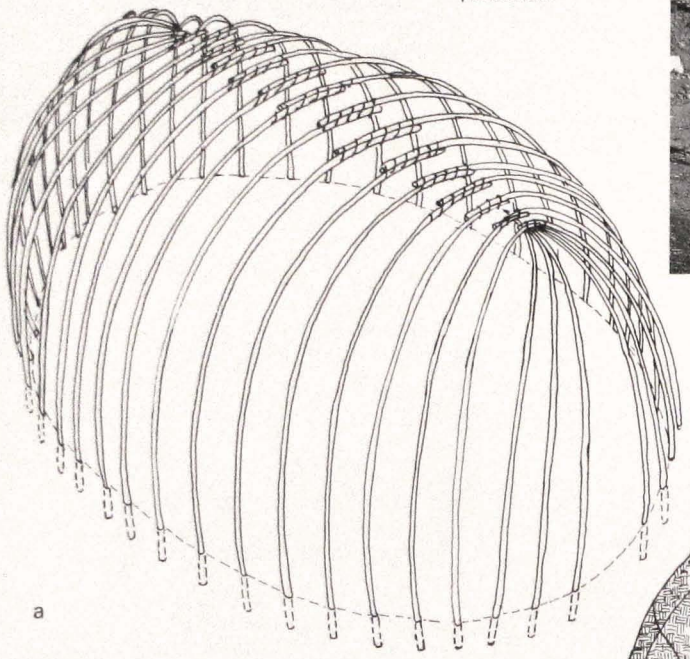
The Tajik *kapa* is found in Badakhshan and is used by villagers there in the summer. It is also popular with merchants, who set up shop along the nomad trails into the mountains and use the huts as teahouses. This *kapa* is structurally similar to the *lacheq*. The major difference is its ovate-oblong plan and the lack of reinforcing poles. In addition the *buria* is secured only to the frame and not to the ground. While the *lacheq* may have once been used as a winter dwelling, the same could not be true of the Tajik *kapa*. The winters in Badakhshan are severe, and this hut could not support itself against winter snowstorms.

This structure is also used by pastoral tribes of Moghuls who have villages in Badakhshan (Schurmann 1962: 100–101). They take fresh willow poles to Lake Shiwa to construct new huts there. These are smaller than the one illustrated (twenty-five to thirty poles) and sometimes employ a ragged felt covering on the roof, though most use *buria*.



30. Ovate-oblong Tajik *kapa* hut in Badakhshan, west of Faizabad near Shahr-i-Bozorg, used by alpine farmers and pastoralists.





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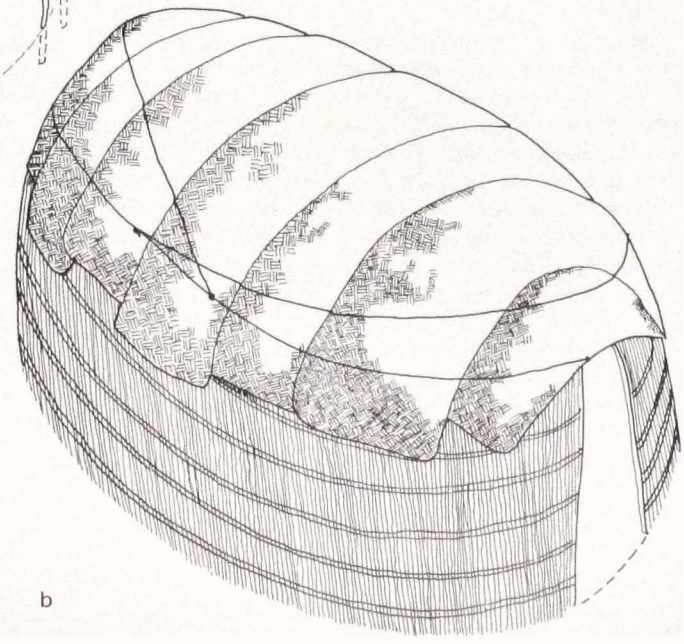


b

PART TWO

SEDENTARY DWELLINGS

Caves

Curved-Roof Construction

Flat-Roof Construction

Afghanistan is home to many village architectural traditions, and its building types may be divided along a number of criteria: by design, by construction materials, by construction techniques, by what features they have in common or in what ways they differ. We have chosen to divide our data primarily by design type and construction technique for individual units; however, the types we describe capture only the main varieties of domestic architecture. They are representative of most geographic areas and ethnic groups, but far from exhaustive in detailing the small differences that a close observer would note distinguish buildings of one region from another.

All Afghan house designs are square or rectangular in plan, even those employing curved roofs. Although curvilinear designs would allow a more efficient use of materials than a rectilinear design to enclose the same amount of plan area, round houses are found almost exclusively in places where dwellings consist of only a single room (Whiting and Ayres 1968: 123). In Afghanistan, by contrast, most houses are composed of multiple rooms constructed with shared walls for which rectilinear designs are more efficient.

Except in Nuristan, where skilled carpenters are employed in timber construction, residents do the building themselves. The major building materials are mud, brick, stone, and wood, which are invariably located on or near the building site. Mud is by far the most common material employed in construction. In the developed world "mud" has a poor connotation as a building material, but its plastic form, ready availability, and simplicity of use make it an ideal choice in arid regions where precipitation is less of a threat. Indeed, under the less pejorative name of adobe, mud construction is popular in parts of the arid southwestern United States. In Afghanistan mud construction usually employs either lumps of mud (*pakhsa*) thrown into place or sun-dried bricks (*khesht-i-kham*) laid in courses to create a wall. The use of fired brick (*khesht-i-pukhta*) is more expensive and much less common. In mountainous areas stone is the most common building material. While some mountain villages, such as those in the Salang Pass, are constructed almost entirely of stone, many mountain villages use a combination of mud and stone (see photo, page iv), with the proportion of stone rising as one moves higher into the mountains. Heavy timber is used in wall construction only in the forested region of Nuristan. Elsewhere poplar poles are used as frames for lightweight walls or balconies for second stories (*senj* construction).

Roof constructions fall into two basic categories: flat-roofed or curved-roofed. Construction technique rather than outward appearance is what distinguishes the flat from the curved roof. For example, some seemingly flat-roofed buildings, such as the *khancha-poosh* in Qandahar, actually use a vault construction technique to create a curved roof which is then walled and infilled to produce a flat finished surface. Flat roofs are the most common where wood is available for use as support beams. Although Afghanistan has relatively little forest land, fast-growing poplar trees are produced by farmers as a cash crop for this purpose and are widely available. Most multi-storied buildings employ flat-roof construction. Curved-roof construction is common to areas where wood is scarce or where boring insects destroy it. Curved roofs are also popular in very hot regions where their relatively high ceilings provide better separation of cooler air from warmer air.


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
FAIZABAD
AQKCHA RIVER
PAMIR
CHINA
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
BAGHLAN
KUNDUZ R.
MAIMANA
BALKHAB R.
SAMANGAN R.
PUL-I-KHUMRI
HINDU KUSH
DOSHI
NURISTAN
IRAN
SALANG
MURGHAB RIVER
QALA-I-NAO
BAMIYAN
ISTALIF
CHARIKAR
KONAR R.
ISLAM QALA
HARIRUD
KABUL RIVER
HERAT
PANJAB
MAIDAN
LOGAR RIVER
KABUL
JALALABAD
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
PAKTYA
FARAH
DILARAM
TARNAK RIVER
QALAT
GIRISHK
QANDAHAR
LASHKAR GAH
ZARANJ
IRAN
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
36
32
64
68
CAVES
Location of type illustrated
0
50KM
100
200
400
800

Caves

LOCAL NAME
***Magara* (Dari)**

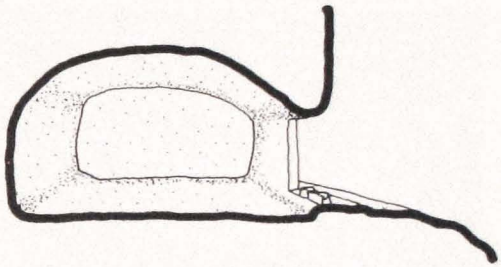
PEOPLE
Hazaras, mountain Tajiks
Sedentary or transhumant subsistence farmers

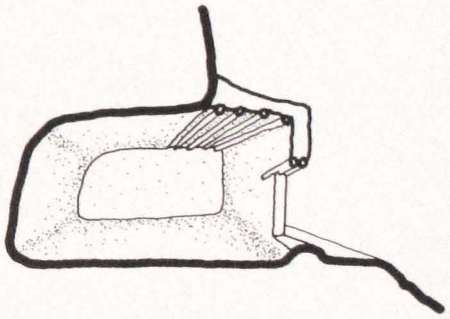
LOCATION OF ILLUSTRATED EXAMPLE
Bamiyan

USE
Year-round

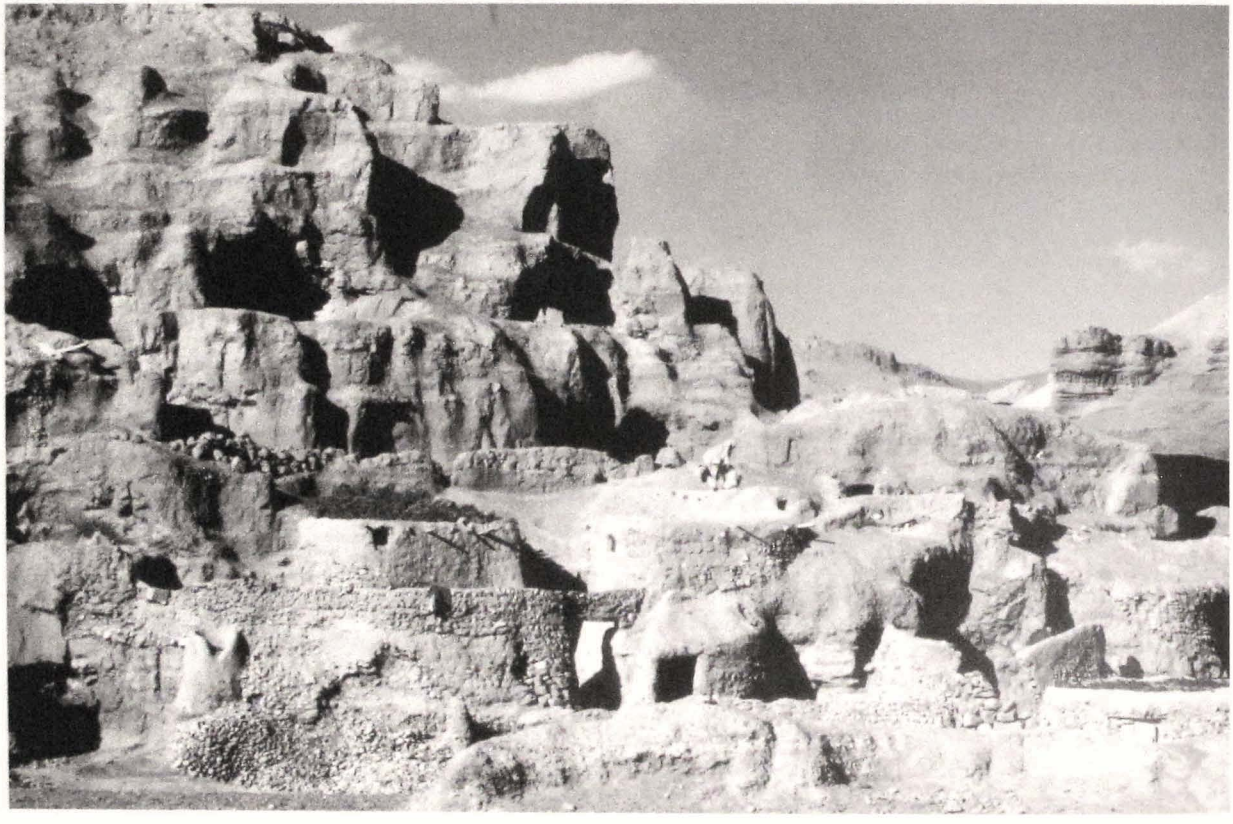
Cave dwellings have been reported in the Hazarajat and Pamir regions of Afghanistan. Most of these caves are the result of human construction rather than natural formation, and they are concentrated in regions with sandstone or conglomerate rock formations. These rock formations are resistant to erosion but possible to carve with simple tools. Caves are cut into the sides of cliff faces, often well above the surrounding valley floor. The construction of these caves usually involves carving the sandstone or extracting conglomerate until the room is the proper dimension. Variations include the building of extensions by using a wood and mud roof to extend the front. The entry wall of such an extension is constructed by building a masonry or clay wall. These additive constructions often take advantage of natural rock shelters which are then enclosed.

Cave dwellings are relatively rare in Afghanistan today, and only in the Hazarajat and the Bamiyan Valley are caves still regularly being used as residences. However there is reason to believe that in earlier times the use of caves and the construction of cave complexes were more widespread. For example the famous Buddhist monastery complex in the Bamiyan Valley was constructed by carving the sheer sandstone cliffs that rise from the valley floor. Many of these rooms have high ceilings carved into the rock and include deeply incised coffering. The massive standing Buddhas that dominate the valley were carved into the same rock face. A similar sandstone cave complex located north of Bamiyan in Samangan, known as the Takht-i-Rustam, is associated with Sassanian remains but may also have been part of a Buddhist religious complex.



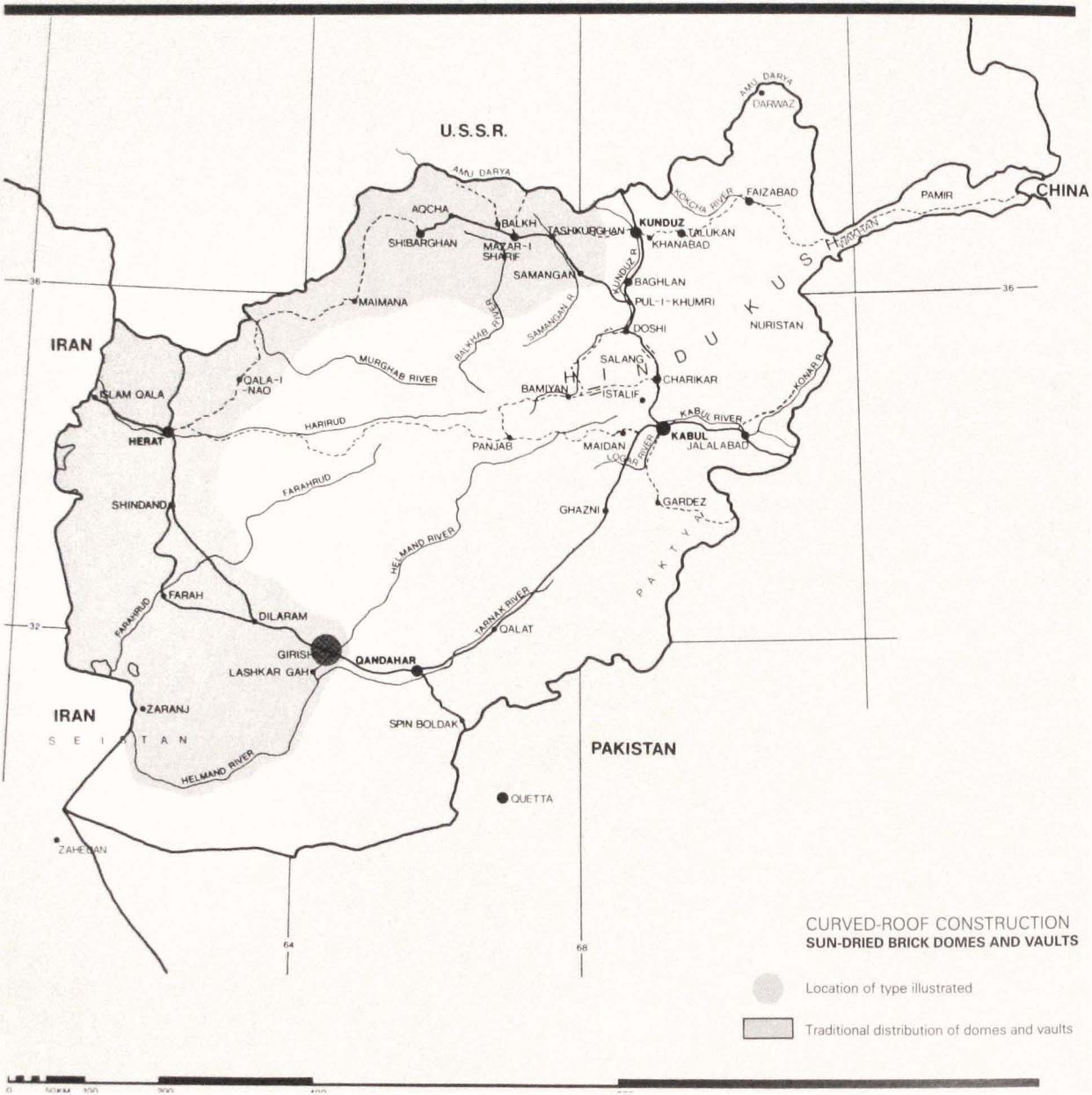


31. Inhabited caves in Bamiyan Valley illustrating both additive and subtractive construction techniques.



With the introduction of Islam to Afghanistan, the tradition of cave complexes as religious centers came to an end because Islam had no monastic organization similar to those of the Buddhists. Islamic shrines centering on caves usually are associated with the Ashab-i-Kaaf, a story from the Koran in which a group of companions and their dog were put to sleep by God in pre-Islamic times so that when they arose they might receive the revelation of Mohammad. These caves, such as one reported by Louis Dupree outside of Maimana, appear to be natural rather than artificial (L. Dupree 1980 : 116–118).

Most of the caves found in the Hazarajat or Samangan today are either abandoned or used for domestic purposes such as stables for animals, but in the past cave complexes also served defensive purposes. J. P. Ferrier (1857 : 230) reported a large complex at Div Hissar in the upper Murghab River Valley, and a defensive cave complex near Varang in the Wakhan was still in use in the late nineteenth century according to Ole Olufsen (1904 : 89–94). It was built high off the valley floor with connecting paths from one part to the others and a fortress at the top. In Olufsen's time it was used by the Wakhis to escape raids by the Kirghiz. He also observed other more primitive caves nearby inhabited by poor people (ibid. : 89–93).


U.S.S.R.
AMU DARYA
DARWAZ
FAIZABAD
KOKCHA RIVER
PAMIR
CHINA
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
KUNDUZ R.
BAGHLAN
PUL-I-KHUMRI
MAIMANA
BALKHAB R.
SAMANGAN R.
DOSHI
NURISTAN
IRAN
HINDU KUSH
SALANG
MURGHAB RIVER
QALA-I-NAO
CHARIKAR
ISLAM QALA
BAMIYAN
ISTALIF
KONAR R.
HARIRUD
KABUL RIVER
HERAT
PANJAB
MAIDAN
LOGAR RIVER
KABUL
JALALABAD
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
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FARAH
FARAHRUD
DILARAM
TARNAK RIVER
QALAT
GIRISH
LASHKAR GAH
QANDAHAR
ZARANJ
IRAN
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
36
32
64
68
CURVED-ROOF CONSTRUCTION
SUN-DRIED BRICK DOMES AND VAULTS
Location of type illustrated
Traditional distribution of domes and vaults

Curved-Roof Construction

SUN-DRIED BRICK DOMES AND VAULTS

LOCAL NAMES
***Gunbad* (Dari, "dome")**
***Zarbi* (Dari, "vault")**

PEOPLE
Pashtuns, Turkmen, Uzbeks, Tajiks
Sedentary

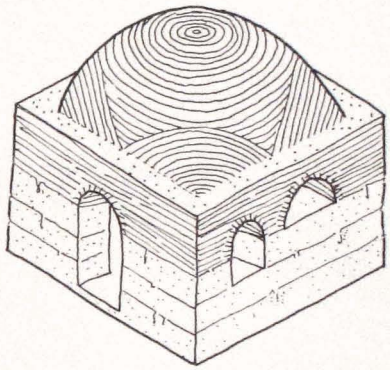
LOCATION OF ILLUSTRATED EXAMPLES
Girishk

USE
Year-round

Domed and vaulted buildings of sun-dried brick are found throughout western and northern Afghanistan, where wood is scarce, because they do not require beams to support the roof. The walls of such buildings are more massive than those employing beams and flat roofs because they must compensate for the lateral thrust generated by the dome or vault.

Domes are constructed on the thick walls of square buildings (No. 1a–b). The masons start by creating inclined arches of brick (squinches) that are laid upon each corner of the thick bearing walls. These act as a base from which infilling can be done with inclined layers of brick to create a continuous circular base for the dome. The upper parts of the dome are then completed by adding further inclined layers of brick (No. 1c–e). No form work is necessary because the layers of bricks are inclined and the individual bricks are secured in place with quick-drying, highly viscous mortar.

Vaults serve the same structural purpose as domes but are best built on rectangular plans. The thick brick or pressed mud side walls are built up to the level where the vault begins. The masons then construct brick squinches at the corners of one of the narrow ends of the rectangle. These squinches are merged to form a semicircular inclined layer of bricks which can be continued along the length of the building until the vault is completed and merges with the squinches at the other end (No. 2a–c). Like the dome, it requires no form work because the layers of bricks are inclined and the mortar is highly viscous and quick setting. When completed, both domes and vaults are covered with a finished coat of *kahgil,* a mud plaster containing straw bits.



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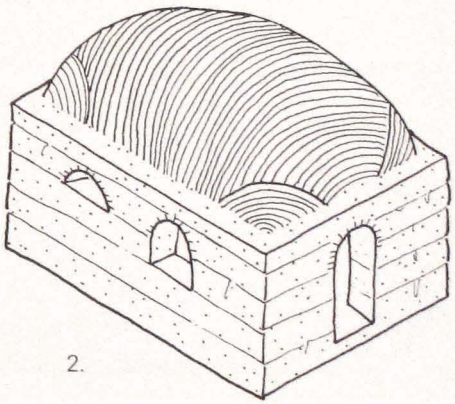
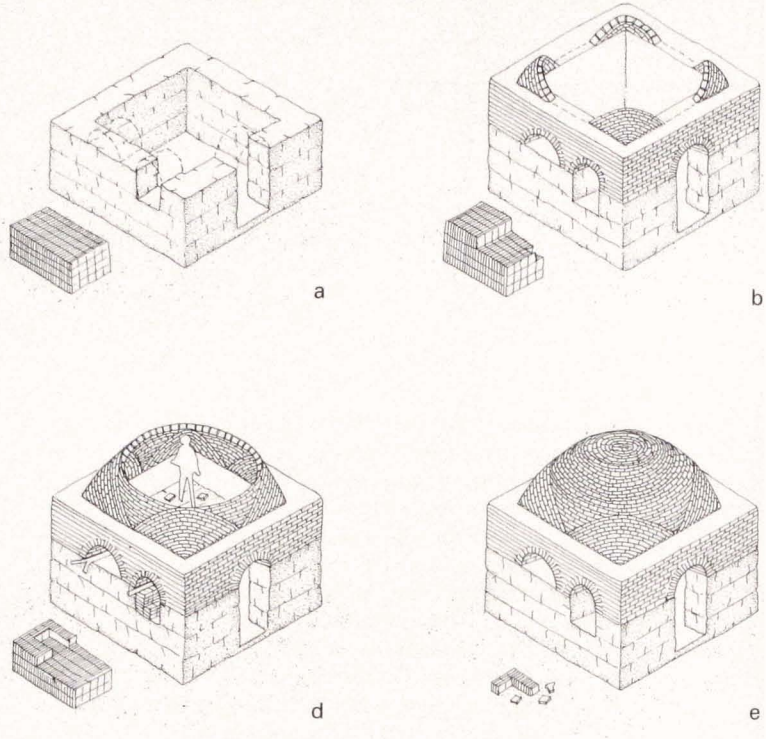
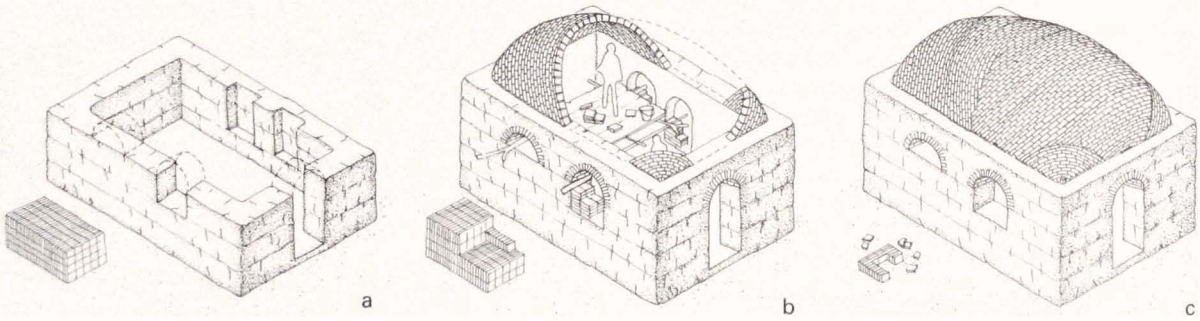


2.

1.
Dome construction



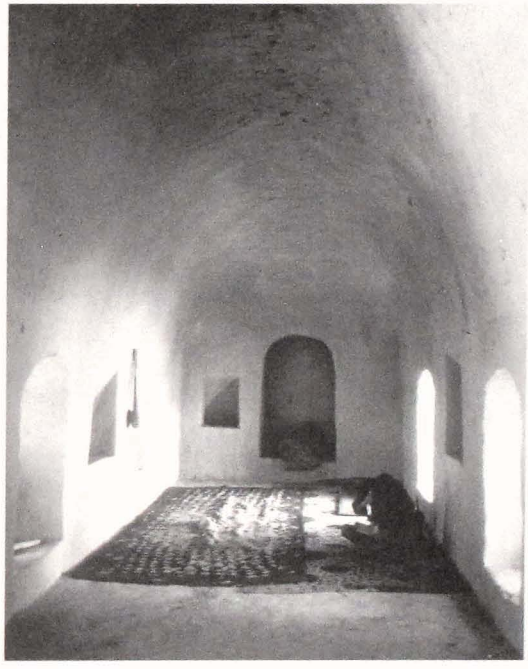
2.
Vault construction



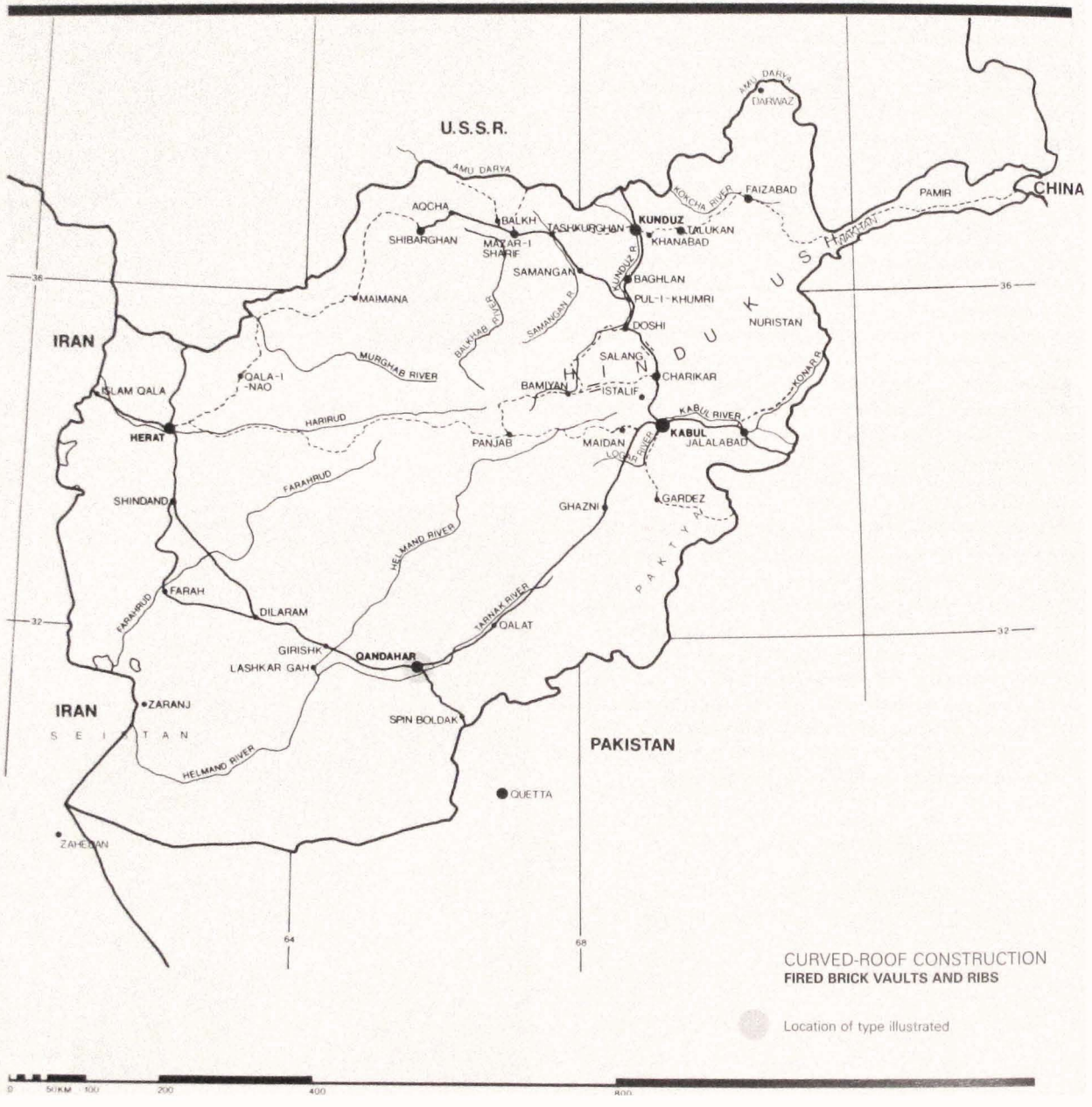
Domed and vaulted buildings offer a number of advantages in desert areas where temperatures fluctuate radically between hot days and cold nights. Though curved and flat roof forms covering the same area in plan absorb similar amounts of heat through solar radiation, curved roof forms dissipate more heat at night. This is for two reasons. First, the curved roof has more surface area for heat transfer through direct radiation. Second, in areas with regular winds a greater amount of heat transfer occurs by means of convection when the wind passes over the curved roof surface at night. Furthermore, curved roofs provide higher ceilings, allowing warmer air to rise well above the residents below. This higher-temperature air just below the curved roof also minimizes the transfer of heat from the roof to the interior. The thick *pakhsa* or brick bearing walls used to support the domed or vaulted roof also reduce the impact of great diurnal variation in outside temperature by acting as efficient insulators and heat collectors. Thus in the daytime, when it is hot outside, the thick walls retard the heat from migrating inside, but during the cold nights the heat captured by the walls during the day is radiated to the inside rooms as well as to the outdoors (Bahadori 1978).

Ventilation in domed buildings in the vicinity of Herat in western Afghanistan is achieved by use of a *bad-gir* ("wind catcher"), an air vent at the apex of the dome (see photos, pages vi–vii). The openings of these vents face the prevailing winds and direct the breezes into the structure to provide air circulation. When there is no wind, they act as chimneys to funnel the hot air that accumulates in the space under the dome out of the structure. Of course such wind vents must be seasonally closed in areas where cold winters create a need for heating; otherwise their admirable ability to cool buildings in hot seasons would become a severe liability during any period of cold.

32. Village employing dome and vault roof constructions near Tashqurghan framed by surrounding foothills and mountains.



33. Interior of vaulted guesthouse in Turkmen village of Qala-i-Zal, northwest of Kunduz.



CURVED-ROOF CONSTRUCTION
FIRED BRICK VAULTS AND RIBS

Location of type illustrated

Curved-Roof Construction

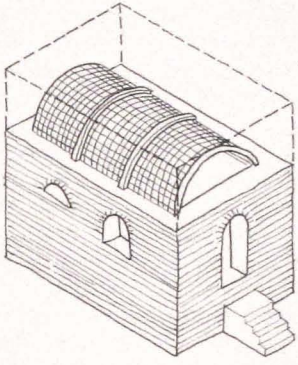
FIRED BRICK VAULTS AND RIBS

LOCAL NAME
***Khancha-poosh* (Dari)**

PEOPLE
Pashtuns
Sedentary

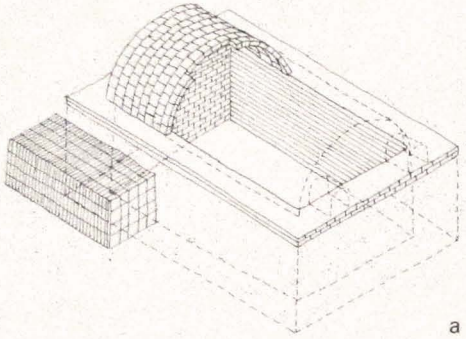
LOCATION OF ILLUSTRATED EXAMPLE
Qandahar

USE
Year-round



Domes and vaults are generally employed where wood is scarce and there is no attempt to make roofs flat. In Qandahar the flat roof is the preferred form and there is no shortage of wood. However, this region does suffer from wood-destroying insects that can make short work of untreated wood beams. Consequently wood construction traditionally had a short life-span and the more labor- and material-intensive technique of a rib-vault system is employed. Filling the sides of the vault provides the basis for the flat roof. This vault system has an additional advantage because the building is well insulated by thick supporting walls and has high ceilings which are useful in modifying the effect of the summer's intense heat. The name for this construction, *khancha-poosh,* is derived by analogy from an inverted tray by that name which the vault resembles from the inside, particularly after it is plastered. The average vault span is about 360 cm.

The most curious aspect of this construction is the use of an expensive fired-tile ribbed-vault construction in order to support the extra weight of a flat roof. An unreinforced single-vault design using sun-dried bricks would collapse under the additional weight of the flat roof system. The ribbed-vault structure is built on a rectangular plan in which the side walls are constructed of sun-dried bricks or *pakhsa* to the height at which the vault begins. The rear wall is built to its full height. Against this rear wall the first vault rib of fired brick is constructed. Form work is avoided by the use of a quick-setting gypsum mortar and by having the master mason's assistant hold the brick in place until the mason places the next one. After several courses of brickwork are completed, another rib is constructed. This process



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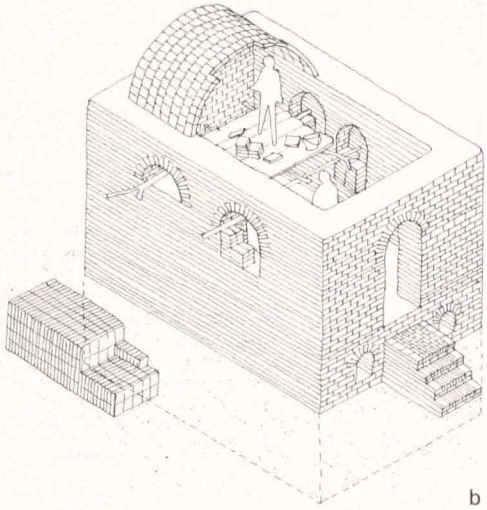
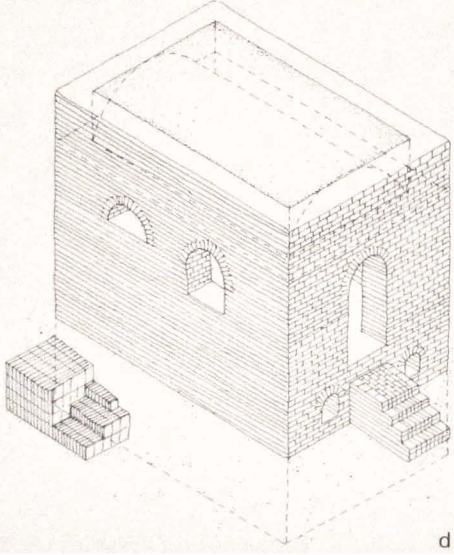


b



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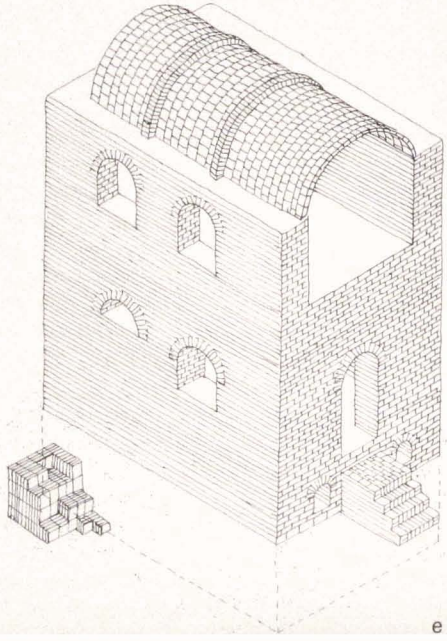

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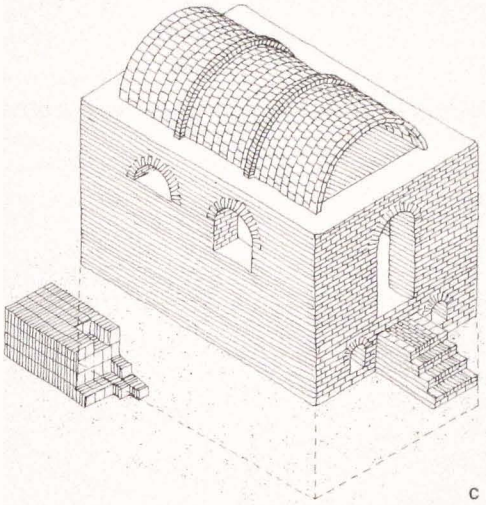

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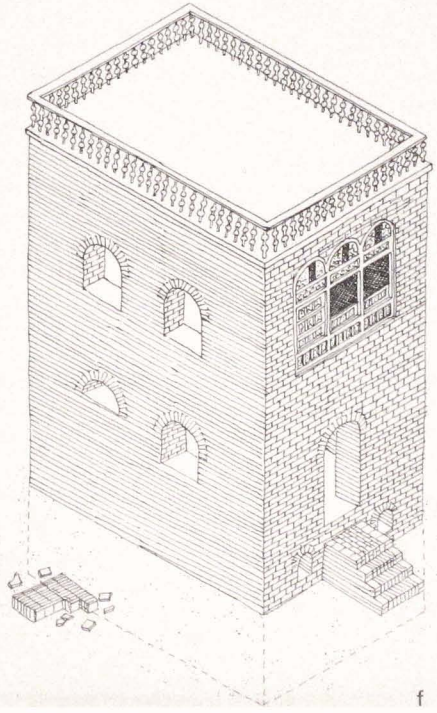
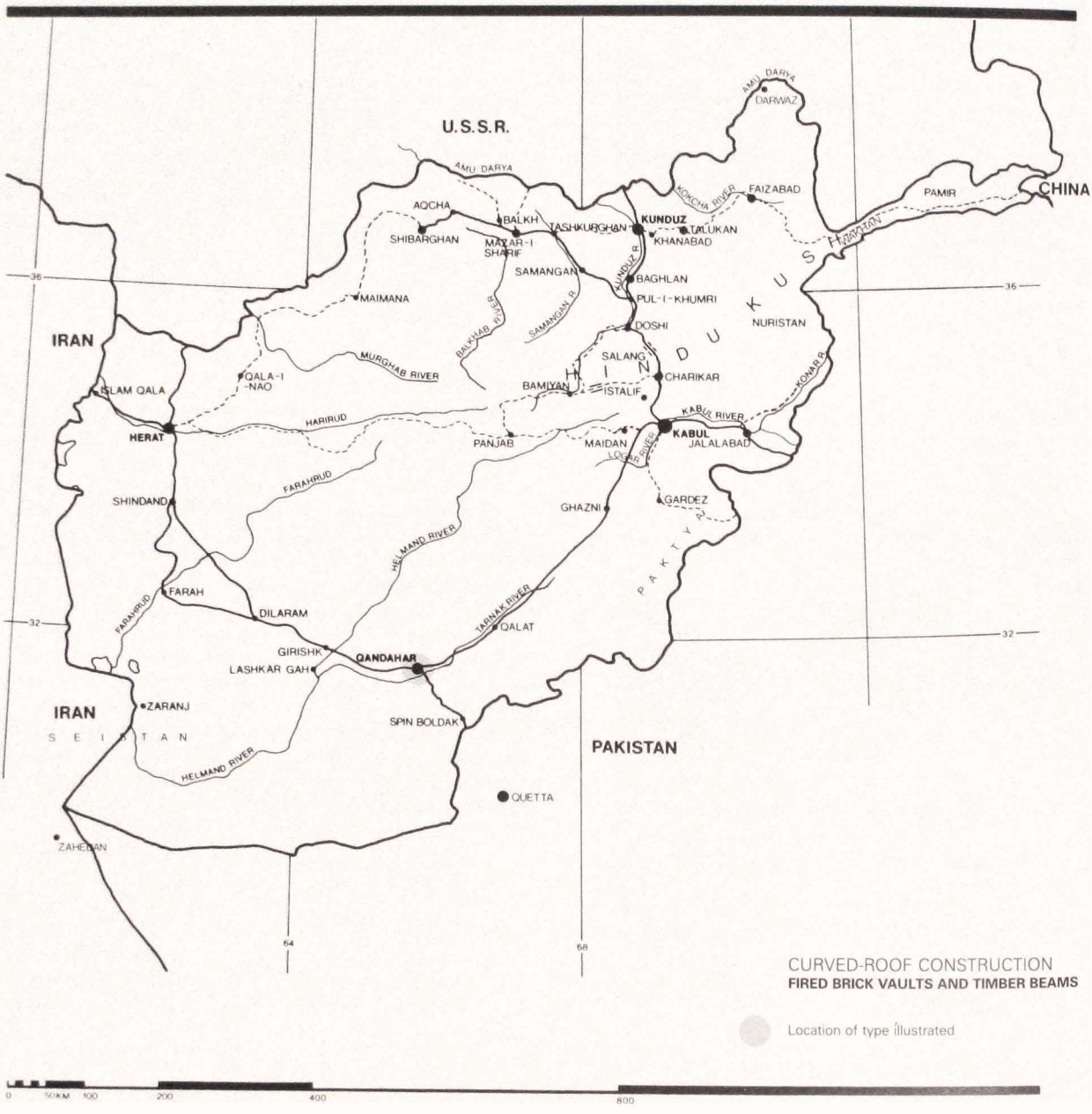


f

continues until the whole room is covered. The remaining side walls are then built to their full height. To achieve the planned flat surface that can be used as the second floor or the roof, the voids between the side walls and the vault are filled in with potsherds and earth.

This modification to a vaulted construction to support a flat roof (or floor for a second story) is another example of how in frontier areas different traditions are combined to produce unique forms. Normally we look for such combinations in areas where ethnic groups with different cultural traditions overlap. Qandahar is not a frontier area in this sense, however, for it has been the center of the Durrani Pashtuns for hundreds of years. But it is located in an architectural frontier zone where the flat-roof tradition of the east and northeast encounters the dome-and-vault tradition of the north and west. Qandahar represents their overlap; culturally the flat roof takes priority, but it can be built only by employing the structural design techniques for domes and vaults.



CURVED-ROOF CONSTRUCTION
FIRED BRICK VAULTS AND TIMBER BEAMS

Location of type illustrated

Curved-Roof Construction

FIRED BRICK VAULTS AND TIMBER BEAMS

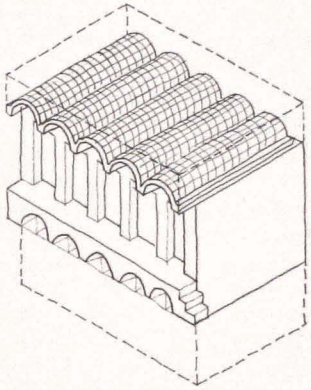
PEOPLE
Pashtuns
Sedentary

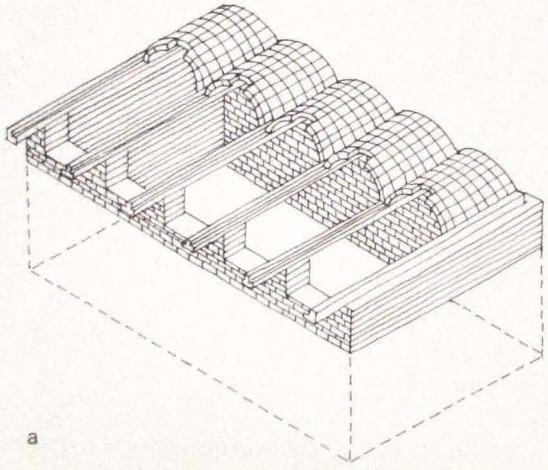
LOCATION OF ILLUSTRATED EXAMPLE
Qandahar

USE
Year-round

The multiple vault and beam system is a refinement of the older single-vaulted *khancha-poosh*. It employs wood beams which support a series of small vaults constructed of fired brick (*khesht-i-pukhta*). The walls are built on a rectangular plan to the height of where the vault is to begin. Inverted T-shaped wood beams are spaced about 1.2 m apart, and the vaults are constructed between them in the same manner as the *khancha-poosh,* but without the use of ribs since the span is shorter. Both techniques employ fired brick and quick-setting mortar. When completed, the flat roof is constructed by filling in the spaces between the vaults with potsherds and earth.

This system has a number of advantages over the *khancha-poosh* construction. This multiple vault requires less skilled masons than the single vault and less material. The side walls can be less massive because the smaller multiple vaults exert less lateral thrust on them. The amount of clay needed to fill the space between the vaults and the walls is much less and therefore creates less deadweight for the building to support. The smaller radius of the multiple vaults makes them easier to construct and means fewer steps from the floor to the roof when the construction is finished. The main disadvantage is that the rooms are not as spacious and the ceilings are lower and thus do not serve as well in the summer heat.





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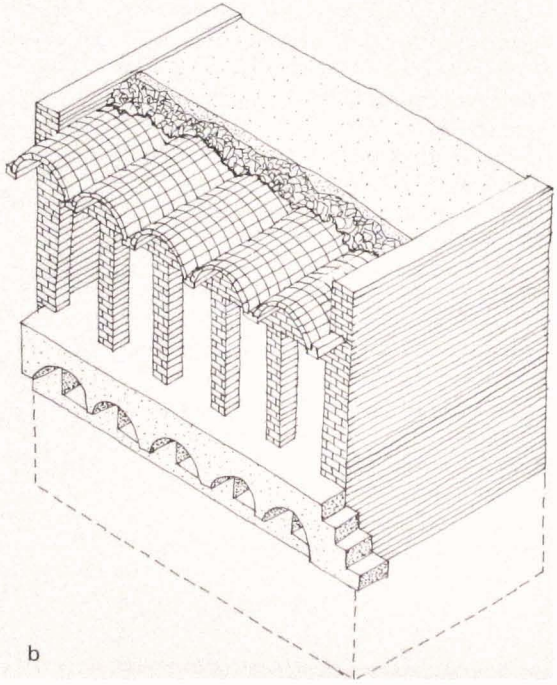

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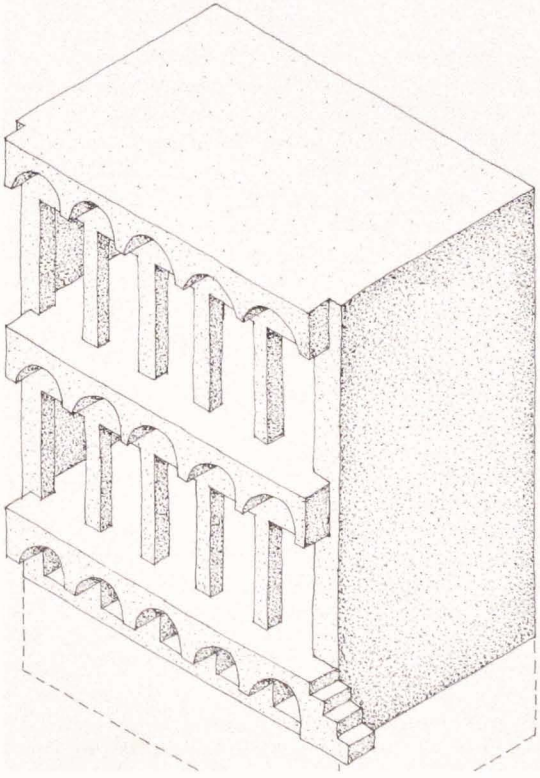


The popularity of this structure in recent times appears to be the result of the introduction of new types of imported technology: paints or varnishes that can protect the wood from attacks by insects. Before these finishes were available, such insect problems made the use of wood impractical. The combination of wooden beams and brick vaults demonstrates the willingness of local builders to modify "traditional" techniques to produce new forms. However, these modifications are usually so well integrated with older techniques that the resulting buildings are often assumed to be "age-old" by casual observers.

CURVED-ROOF CONSTRUCTION
TAMARISK OR REED VAULTS

Location of type illustrated
Source: John P. Shroder, Jr., personal communication, 1989

Distribution of tamarisk vaults

Curved-Roof Construction

TAMARISK OR REED VAULTS

PEOPLE
Pashtuns, Baluch
Semisedentary

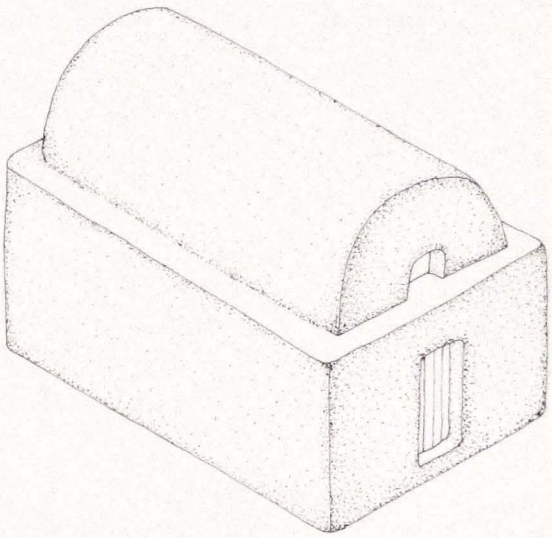
LOCATION OF ILLUSTRATED EXAMPLE
Jui-nau, Seistan (John F. Schroeder, Jr., personal communication, 1989)

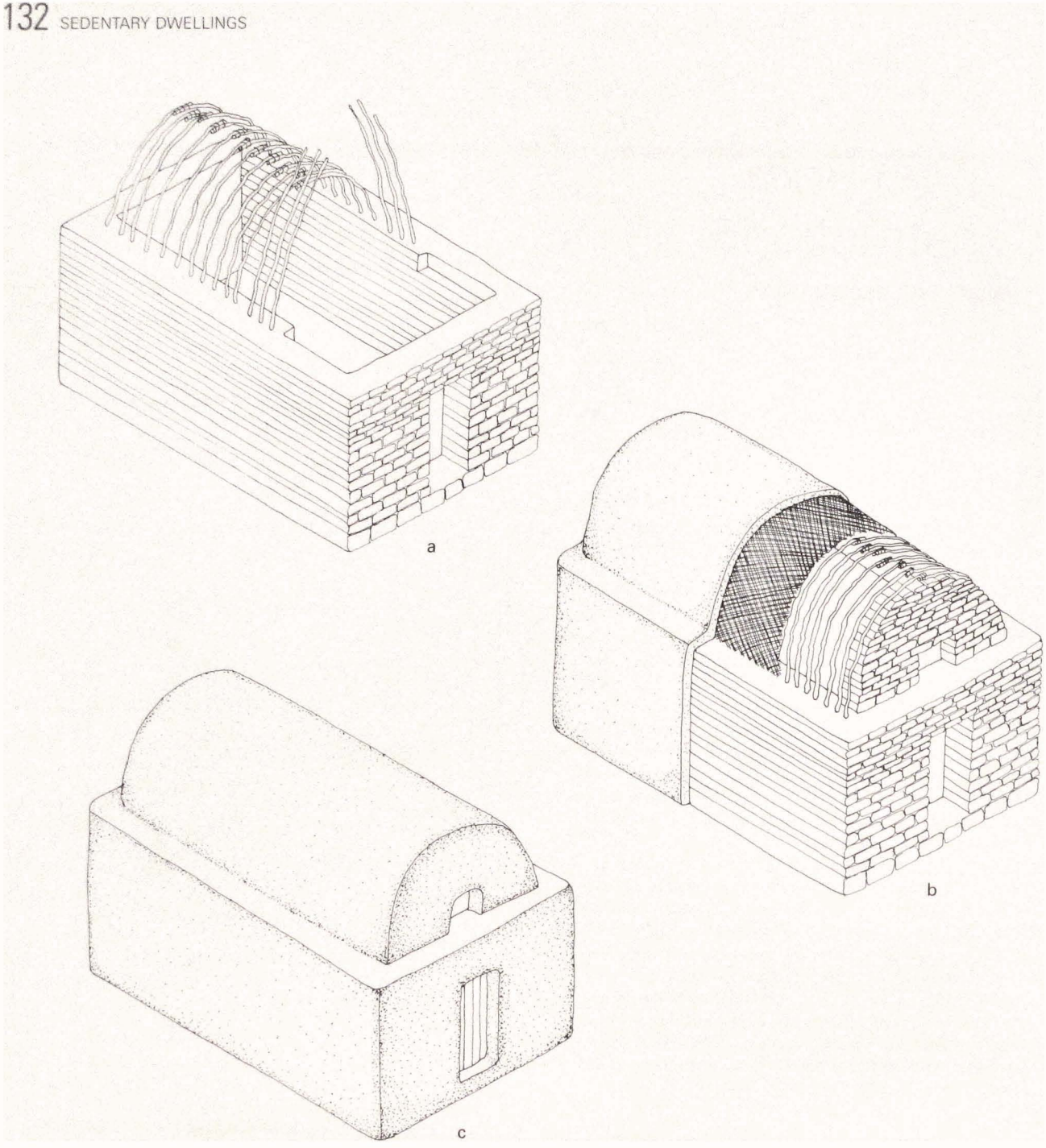
USE
Year-round

The tamarisk vault provides an unbroken roof element for long rectangular buildings (4–5 m by 8–10 m). It is found only in Seistan along the lower Helmand Valley. The walls are constructed of rough, oversized sun-dried brick and are built to a height of 200–250 cm. Mudded tamarisk boughs (or tamarisk-like *tagaz, targaz,* Haloxylon ammodendron, cf. Aitchison 1890: 203) are used to create the roof. The tamarisk boughs are closely spaced together along the whole length of the two long walls. They are then bent over and attached to create a single vault 150 cm in height. Sun-dried brick is used to wall off the narrow ends of the vault, leaving a small opening for ventilation, which is critical during the hot summers. This small aperture is bricked up during the winter. The whole tamarisk vault and brick end walls are then mudded to provide a finished surface. A wooden door is set at one of the narrow ends atop a high mud sill to prevent snakes from crawling in.

The use of mudded tamarisk permits the construction of a relatively lightweight unbroken vault of considerable length without internal walls or supports. Both brick dome and vault construction and tamarisk vault construction are found in the same villages. Tamarisk vaults are presumably less expensive but are not as long lasting as curved brick roofs.

A similar type of construction using bundles of bulrushes is found among the inhabitants of the reed marshes north of Zaranj, near Asak. Here thick bundles of reeds are set about 50 cm apart into the top of both long sides of a rectangular

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c

pakhsa wall to create a vault 100–150 cm in height (see Photo 34). We have no information on how it is finished, but it is presumably covered with a woven flattened reed mat and sealed with a mud finish.

The use of similar structural forms with different materials is the result of environmental variation in Seistan. Reeds are common in the shallow lake regions north of Zaranj, but in the lower Helmand Valley tamarisk predominates.

34. A building of bundled reed vaulting embedded in *pakhsa* walls under construction in Seistan, north of Zaranj.


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
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FAIZABAD
KOKCHA RIVER
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SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
KUNDUZ R.
BAGHLAN
PUL-I-KHUMRI
MAIMANA
BALKHAB R.
SAMANGAN R.
DOSHI
NURISTAN
IRAN
SALANG
CHARIKAR
MURGHAB RIVER
QALA-I-NAO
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KONAR R.
ISLAM QALA
HARIRUD
KABUL RIVER
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36
32
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0 50KM 100 200 400 600
FLAT-ROOF CONSTRUCTION
BRICK OR PAKHSA WALLS
Location of type illustrated
Distribution of kotas

Flat-Roof Construction

BRICK OR *PAKHSA* WALLS

LOCAL NAME
***Khana* (Dari, "house"), *kota* (Dari, "single-room structure")**

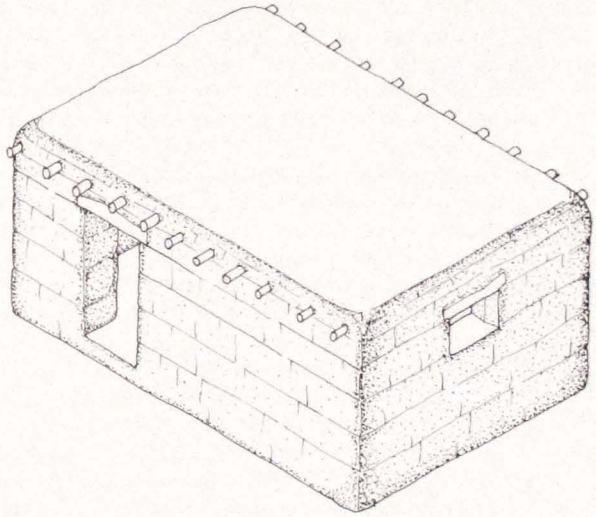
PEOPLE
Pashtuns, Tajiks, Hazaras
Sedentary

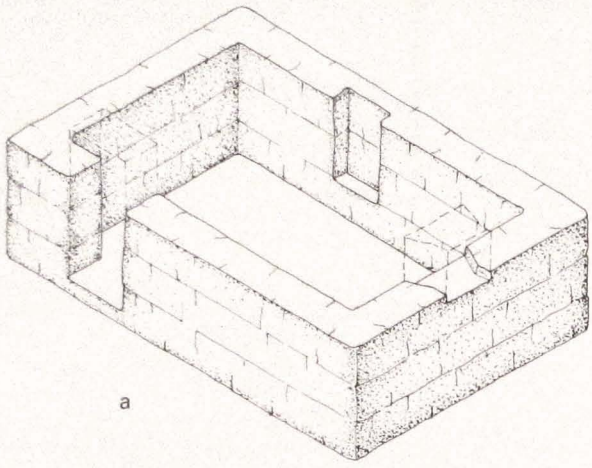
LOCATION OF ILLUSTRATED EXAMPLE
Pul-i-Khumri

USE
Year-round

Pressed mud (*pakhsa*) or sun-dried brick (*khesht-i-kham*) walls supporting a flat roof constitute one of the most common varieties of village building in Afghanistan. Standing alone or more often as part of a multiple-unit construction, it can be easily built with local materials. It predominates in the northeastern part of the country, central Afghanistan, and the Kabul Basin. In rural areas the walls are generally constructed of pressed mud, while in urban areas they are usually constructed of sun-dried brick. This is because brick is relatively more expensive and requires skilled masons to lay, while the pressed mud method uses materials freely available at the building site and is a technique that can be learned fairly quickly. The main factor that has restricted the spread of flat-roofed buildings throughout the country is the need for poplar poles to support the roof; hence, where wood is scarce, the use of domes. However, the increased use of trucks has begun to permit the spread of flat-roofed buildings even in these areas as the price of transport has fallen.

Construction of the walls often begins by digging a foundation trench about 50 cm deep that is then filled with stone. Although not absolutely necessary, such a foundation protects the wall from erosion produced by the capillary action of groundwater. The mud needed for the walls is obtained at the site by digging a pit in which the soil is mixed with water and allowed to stand overnight. The resulting mix is trampled until it becomes malleable and then thrown forcefully into place, using melon-sized lumps to create a horizontal wall of material in tiers, each approximately 50 cm in height. Each tier is allowed to dry before the next is added. This procedure continues until the desired height of 230–300 cm is achieved. When the last course





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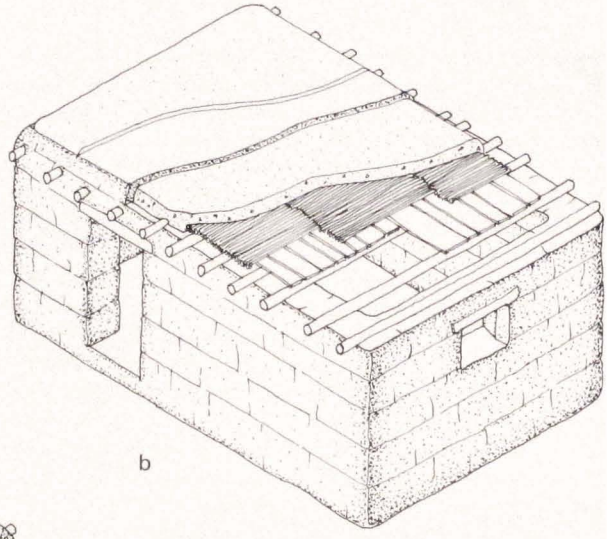

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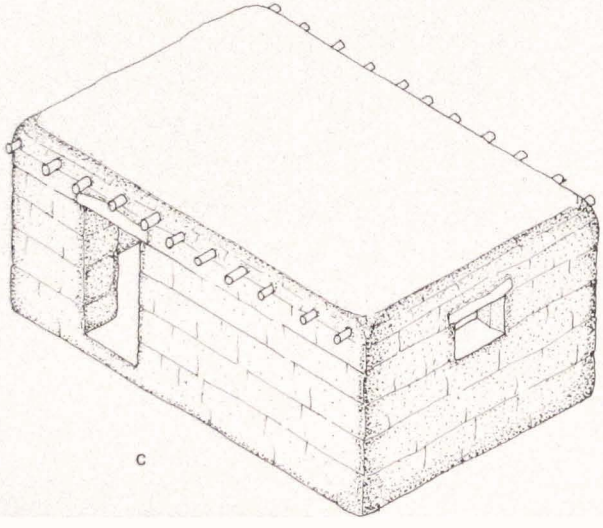


c

Table 2 Adobe House Temperatures (C) for a Summer Day

	Low (2 AM)	High (2 PM)
Roof surface	21.1°	60°
Outside temperature	18.3°	40.6°
Inside temperature	23.8°	26.7°

of *pakhsa* is complete, each of the load-bearing walls is topped with a poplar pole (*ketyaba*) running its entire length which will evenly distribute the weight of the roof joists. The roof joists are also poplar, averaging 20 cm in diameter, and span the space between the walls at 25–40 cm intervals depending on the length of the span. Because poplar poles have a slight taper, they must be set so that thicker and thinner ends alternate to keep an overall evenness. These roof joists are secured by nailing them to the poles previously set into the top of the walls. The roof itself is about 20 cm thick and is constructed by placing laths of split poplar (or sometimes brush) at right angles to the roof joists, covering these with layers of reeds, and then sealing the roof with two or three different layers of clay coatings. The roof surface can be damaged by standing water, so melting snow must be removed by means of wooden shovels. The roof is also provided with a slight slope that channels any rain to scuppers which overhang the roofline so that dripping water will not damage the walls (Azizi 1980 : 47–51, 56–59).

A key design problem in any traditional architecture is the challenge of coping with the variation in the sun's radiation on a seasonal and daily basis. In the low-latitude tropics, where it is hot and humid year-round, buildings are built to have the least possible thermal mass and are oriented in a way that maximizes heat dissipation. They employ large apertures and permeable walls to increase air circulation and often sit on stilts, providing an extra surface to radiate heat away from the building. In areas of higher latitude or elevation, the reverse conditions apply. The buildings are designed with fewer and smaller apertures and massive walls that insulate the interior spaces against marked temperature changes. Under the semiarid conditions found in Afghanistan, people must cope with both heat and cold. This is done by taking advantage of the inherent heat storage capacity of *pakhsa,* stone, or brick walls and by orienting the building in a way that will maximize heat gain (insolation) in the winter and minimize it in summer.

The massive walls and the heavy flat roofs all act to moderate temperature fluctuations inside the structure. They trap solar heat during the day, but because the walls are so thick this heat does not penetrate into the interior, keeping the house cool. At night the walls radiate heat, and even though the outside temperature drops, the house stays warm. In a study of a similar type of adobe house in the American southwest, Fitch and Branch (1960 : 139) produced the results shown in Table 2 for a hot summer day.

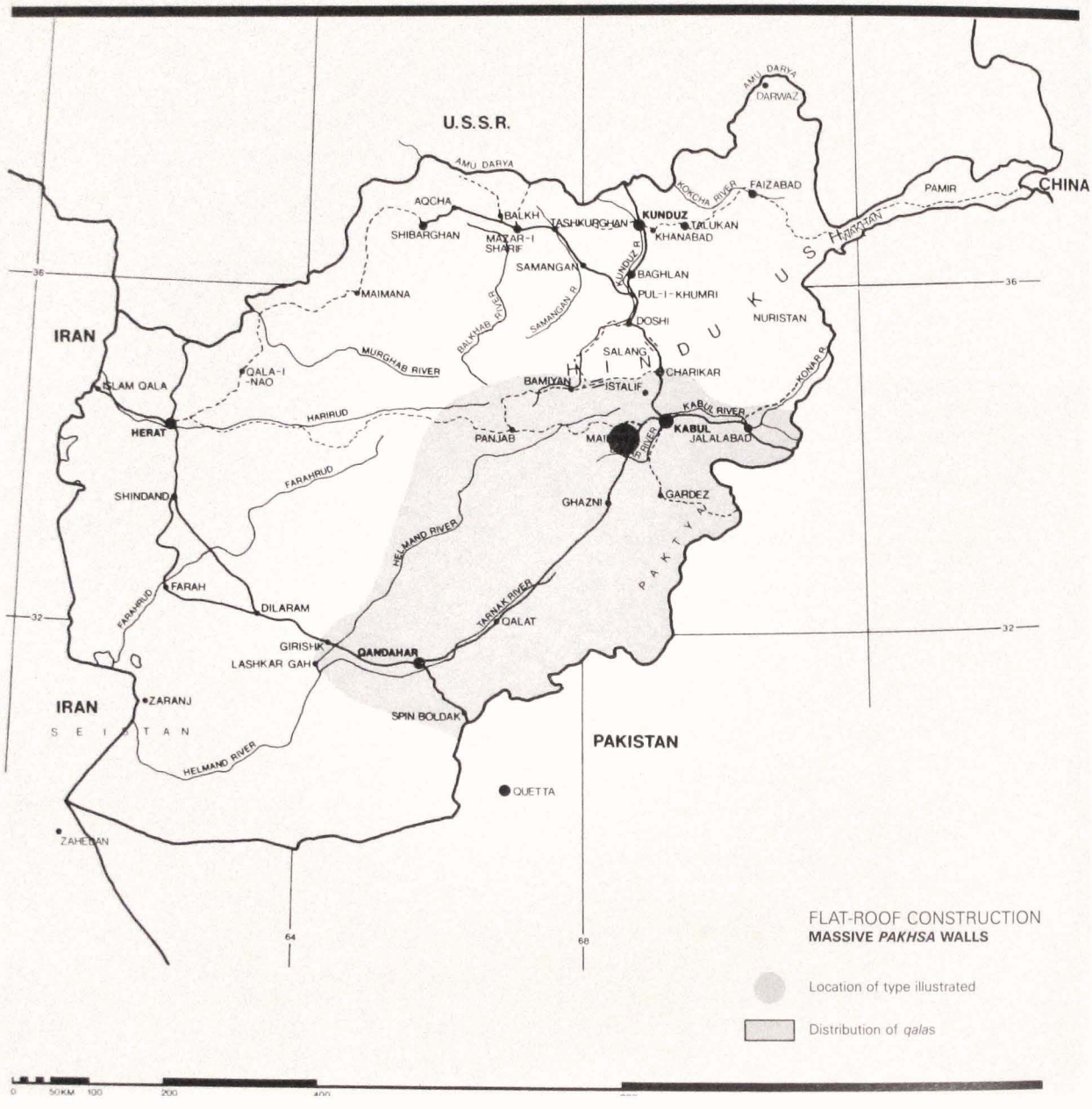
In terms of dealing with hot weather, curved roofs would serve just as well as or better than flat roofs, for the curved roof has a larger surface area to radiate heat gained during the day, but the flat roof has an advantage when the structure must also cope with cold weather. In Afghanistan, structures found in regions with cold winters, particularly in the mountains, are invariably flat-roofed. This is because the flat roof, with its poplar pole beams, wood or brush lathing, and layers of clay roof finish, is a much better insulator than a curved roof that consists of a single layer of bricks with a mudded exterior. Moreover, if the structure must be heated during the winter, the high ceilings found in curved-roof buildings are a disadvantage, since the hot air collects above the living space.

The other important way of maintaining a temperature equi-

35. An example of one of the most ubiquitous building types in Afghanistan: a flat-roofed house with *pakhsa* wall construction near Pul-i-Khumri. Such single-room flat-roofed structures as in the foreground are known as *kotas*.

librium within a structure is by orienting it to get the maximum amount of solar energy during the winter and the minimum in the summer. To obtain these conditions, Felix Marboutin proposed that the principal façades of buildings should face south, with southeastern and southwestern exposures next best (1931). However it is not enough to consider only seasonal variation in temperature and solar radiation; one must also look at the change in temperature for each exposure throughout the day. Using this approach Victor and Aladar Olgyay (1963) calculated the amount of heat each exposure received during each season on a daily basis. The best exposures were those that collected heat when the outside environment was cool and lost it when it was hot. For example, during a summer morning the ground is cool, the air is cool, and the building is cool, so if the earth receives approximately 3,000 BTU/hour/square meter in energy from the sun on a horizontal surface, the extra heat is welcome after a cool night. At noon, when the ground is warm, the air is warm, and the building warm, the same 3,000 BTU may begin to overheat the interior. In the late afternoon, the ground is hot, the air is hot, and the building is hot, so the same 3,000 BTU from the sun would make the interior feel much overheated. Therefore, while the amount of solar energy remains relatively the same in all three situations, the eastern exposure in the morning provides a benefit, while a western exposure in the afternoon is a liability.

Olgyay and Olgyay went on to determine that the optimum solar orientation is not the same everywhere in the world, but changes depending on the type of structure, degree of latitude, and total amount of insolation during both underheated and overheated periods. As an example they chose Phoenix, Arizona, where the optimal orientation for a rectangular structure whose long side contains the major apertures was found to be 25° east of south. Now, as it turns out, Afghanistan bears many similarities to Arizona in climate (clear skies, low precipitation, seasonal temperature variation) and latitude (Kabul 34°30′ north latitude, Phoenix 33°27′ north latitude). The orientation of apertures in the study villages (see below) demonstrates a keen appreciation of passive solar exploitation, with a great predominance of apertures located on southern or southeastern exposures and an avoidance of western and northern exposures. This is particularly marked in mountain villages where severe winters are common. Finally it should be noted that it is sometimes easier to cope with seasonal temperature changes by temporarily leaving a dwelling than by modifying it. In many Afghan villages the residents move out of their house in the spring and summer and erect a hut (*lacheq, chapari, kapa,* etc.) nearby. Such structures, with their permeable walls, permit easier ventilation than the typical *kota*. They also allow residents to escape infestations of insects which often hatch inside the house during the hot season.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SPIN BOLDAK
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ZAHEDAN
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FLAT-ROOF CONSTRUCTION
MASSIVE *PAKHSA* WALLS
Location of type illustrated
Distribution of *qala*s
0 50KM 100 200 400

Flat-Roof Construction

MASSIVE *PAKHSA* WALLS

LOCAL NAME
Qala

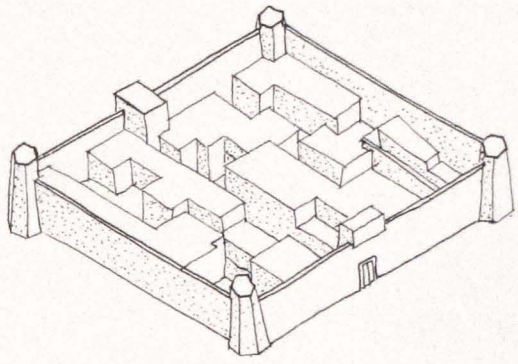
PEOPLE
Pashtuns, Hazaras
Sedentary

LOCATION OF ILLUSTRATED EXAMPLE
Qala-i-Deh Afghanan, Maidan Valley

USE
Year-round

The traditional fortified farm compound, or *qala,* employs massive *pakhsa* walls and has several obvious characteristics: it stands relatively alone on flat terrain; its compound enclosure is comprised of a square or oblong plan with walls in the range of 40–80 m per side, 6–8 m high, and 1–1.5 m thick; it also has defense towers (*bourges*) rising approximately 1⅓ times the height of the walls at the corners and an entrance with a guest room above it. *Qala*s must be distinguished from simpler walled villages, common in northern Afghanistan, where each household's outer wall is joined together to create a common barrier to the outside. These walled villages have much more irregular shapes that change through time as households rebuild or abandon buildings, no regular plan for the unit as a whole, and no defensive towers.

The plan of the *qala* is laid out on the site; then a trench is dug and filled with stone as a foundation for the pressed mud (*pakhsa*) walls. The outer walls at their base may measure 100–150 cm in thickness depending on the height of the walls. The height was originally determined by defense requirements. Today, in more traveled parts of Afghanistan, the privacy factor and the availability of water and clay for construction purposes are the prime considerations. The quantity of water required for this construction is enormous, as is amply demonstrated by comparisons of *qala* size and height in desert areas with those in well-watered valleys, the latter generally having thicker and higher walls. *Qala*s in mountainous central Afghanistan are generally smaller in plan and have lower walls because the amount of available clay is limited.



36. Overview of *qala* fortified farm compounds in the Bamiyan Valley with defense towers at the corners of their massive walls. In the background is the niche for one of the largest carved Buddhas in the world, 53 m in height.

Drawing from the area surrounding the *qala,* on-site clay is mounded, straw and water are added, and the mix is trampled by animals or people describing a circle until it becomes a malleable substance and permits hand forming into a mass approximating the size of a melon. An assistant passes the clay mass to the mason, who throws it forcefully into place. This procedure is repeated, and there develops a horizontal layering of material in tiers of approximately 50 cm in height. As each succeeding tier is laid, it is made narrower than the preceding one, thus resulting in a wall with a distinctively positive batter on the exterior. Each tier is permitted to dry before the next is added, and the resultant horizontal lines are a particular characteristic of the wall, as are the vertical shrinkage cracks within each layer. To prevent these shrinkage cracks from continuing up to the next tier, large flat stones are placed on the cracks before the next tier is laid in well-built walls. This method continues to the desired height, employing a rope and sling device to raise the clay when it is beyond accurate throwing distance.

The important perimeter walls are most vulnerable to deterioration caused by natural forces. Groundwater may leach up through capillary action and weaken the stability of the clay at the base. This action can be averted by building these massive walls on stone foundations set in trenches. Precipitation in the form of snow is significant. Water from the melting snow at the top of the walls will erode both the top and a path down. Preventive measures include placing flat stones near the top overhanging the wall to act as a drip, while a rounded peak of clay on the top of the stone sheds the water. Snow blown against the base of the exterior and subsequently melting as the clay becomes warm from the intense sun is another threat. Finally, the almost constant wind blowing dust and sand across the flat valley floor is a much more gradual but ever-present threat to the walls' integrity.

Interior walls of the *qala* are usually constructed with sun-dried brick (*khesht-i-kham*), although this is not easily visible in the finished wall because the brick is covered with a final parging of clay reinforced with straw (*kahgil*). In the tenant farmer *qala* there is a dividing wall between landlord and tenants which is constructed in the same method as the exterior wall.

The roof construction of the enclosed rooms is supported by dressed poplar poles that easily span the modest spaces. They are sometimes cantilevered to provide veranda or balcony shade. A system of laths made up of boards or branches is placed across the poles and covered with reeds, followed by a clay and straw layer up to 15 cm thick and a thinner layer of a denser mix that acts as an effective, though short-lived, seal to the weather. The roofs have a slight pitch, and scuppers are provided by a hollowed poplar pole extending beyond the roof line, to prevent melting snow or rain from dissolving the walls as it drains. Large amounts of snow are removed by diligent dwellers with brooms and shovels before it damages the clay roof surface. The tightness of the roof surface is maintained only by regular resurfacing.

Some individual variations are seen in older *qala*s in the number and shape of towers (round, square, polygonal), the decorative scallop along the top of the wall, and the embrasures often seen in both towers and walls. Additional decoration is seen in the repeated imprint of a carved wooden block in the wet clay. However, the massiveness of the walls, the towers, and the formality of the courtyard enclosure all speak to design influenced by necessity, whether for safety, privacy, or microclimatic control.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FLAT-ROOF CONSTRUCTION
MASSIVE STONE WALLS
Location of type illustrated

Flat-Roof Construction

MASSIVE STONE WALLS

PEOPLE
Tajiks
Sedentary

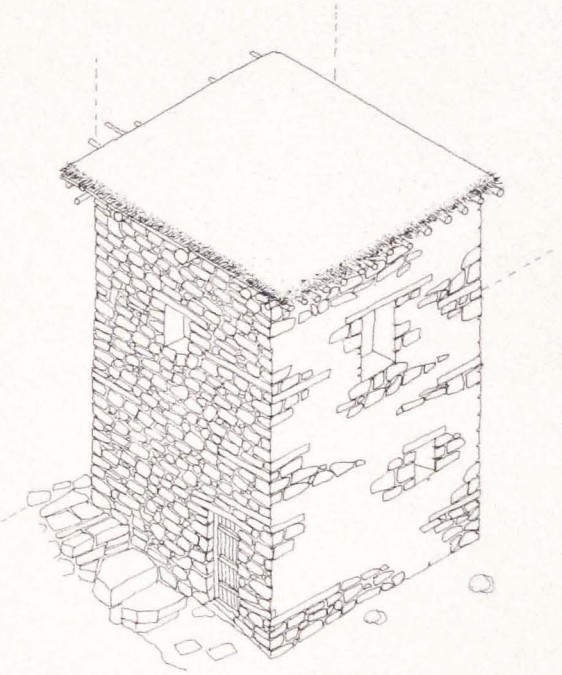
LOCATION OF ILLUSTRATED EXAMPLE
Taqma, Salang Mountains

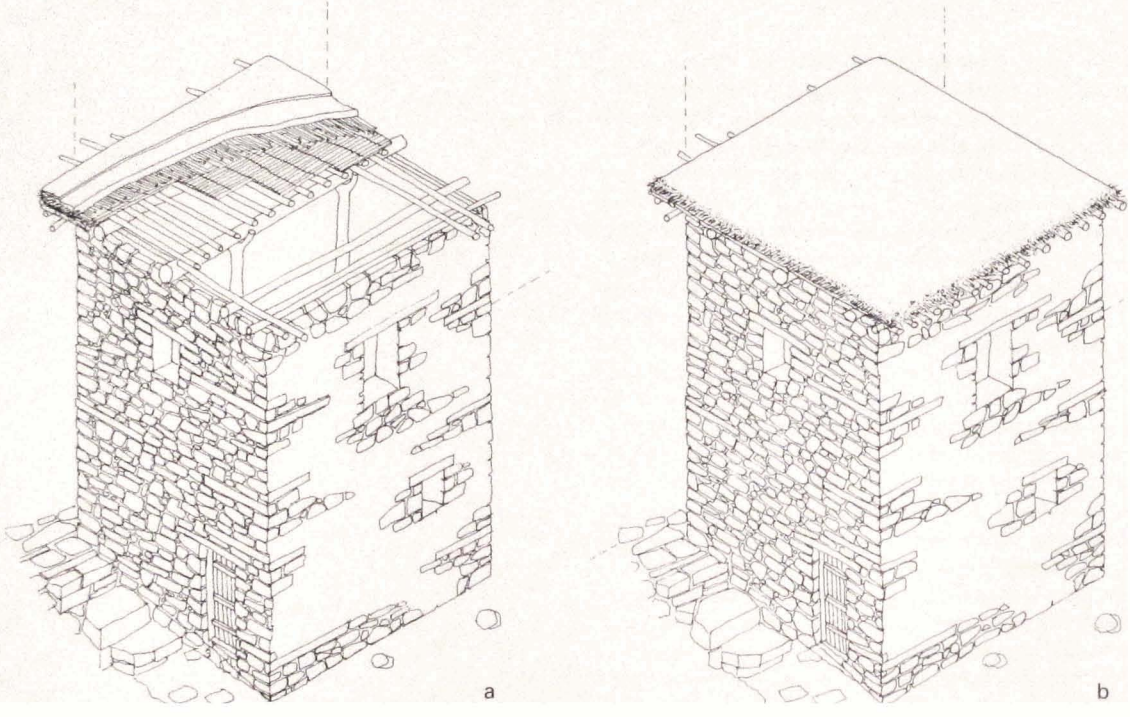
USE
Year-round

Massive stone construction is found in the high mountain regions of Afghanistan, where stone is the most abundant building material and where severe winters demand buildings with very thick walls to insulate their residents from the cold. Such structures form enclosed spaces with relatively few apertures.

The walls consist of on-site stratified stone and rubble laid in an uncoursed random pattern. They may be 60–80 cm thick depending on their height. The stones are laid dry or with a simple clay mortar. Occasionally the exterior but almost always the interior surface is parged with clay as a windbreak. To effect interlocking at the corners, stone quoins or long pieces of wood are used. Long pieces of wood may also be seen in the length of the walls when there are insufficient larger stones to effect lateral stability. Quoins are extremely important when the stone walls are used in multistoried constructions in which the walls must taper slightly in thickness as they rise to support two or three floors. Windows were originally few and quite small so that they could be created without lintels. In areas where wood for lintels and glass for windows has become more available, windows have grown in size and cantilevered balconies have been built, although far fewer than the number found in the more moderate climate of Istalif, where *senj* construction predominates.

The roof and floors are supported by poplar beams spanning the space between the stone walls and resting on poles recessed in the top of the walls. Then poplar pole joists are set about 30–40 cm on center. Additional structural support, when needed, is provided by post and beam construction using mul-

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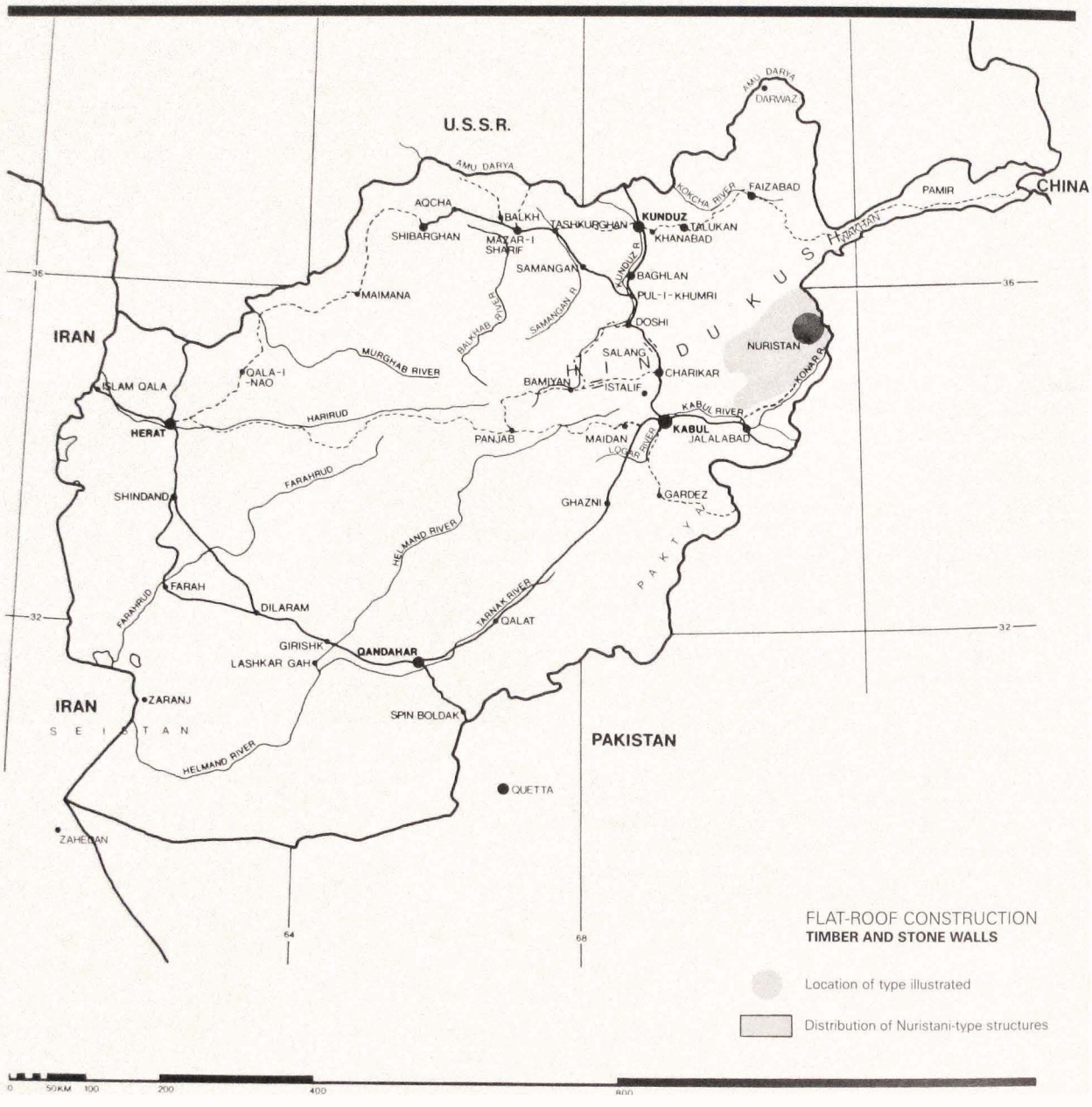
berry or walnut tree trunks as columns. The space between the poplar poles is spanned by brush laid at right angles to the beams, or by wooden boards in more elaborate structures. These are topped with layers of reed and sealed with layers of clay. The roof is provided with a slight slope that channels water to the roof edge or to scuppers which overhang the walls. Nevertheless the roof is vulnerable to melting snow, which is removed by means of wooden shovels. The roof must be carefully maintained by resurfacing on a regular basis.

A variation in the design of massive stone houses is found in the northeastern province of Badakhshan, particularly in the Pamir Mountains. Here one-story houses are constructed of stones with no windows, for the living quarters are surrounded by animal barns for more insulation. The stone walls are also plastered inside and out with clay. An unusual design element here is the use of a single lantern skylight construction set in the flat roof over the main living space. It is constructed by means of square timber frames diminishing in size rotated through 45° as they are stacked one atop the other to form a coffer (see similar construction in the smoke holes of Nuristani houses). This permits both light to enter the residence section of the house and smoke to escape (Kussmal 1965; Senarclens de Grany 1972; Patzel and Senarclens de Grany 1978).

37. Village of flat-roof construction with massive stone walls in the Salang Mountains near Taqma.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PAKISTAN
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FLAT-ROOF CONSTRUCTION
TIMBER AND STONE WALLS
Location of type illustrated
Distribution of Nuristani-type structures
0
50 KM
100
200
400
800

Flat-Roof Construction

TIMBER AND STONE WALLS

LOCAL NAME
***Amo* (Kamviri, "house," "room")**

PEOPLE
Nuristanis, Pashais
Transhumant herders and farmers

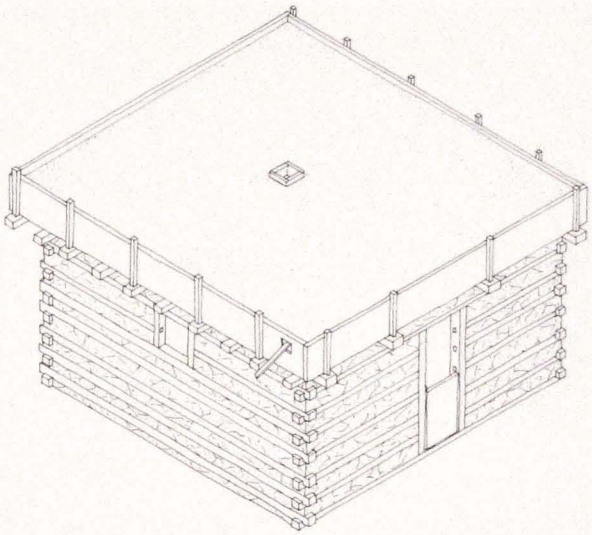
LOCATION OF ILLUSTRATED EXAMPLE
Sasco

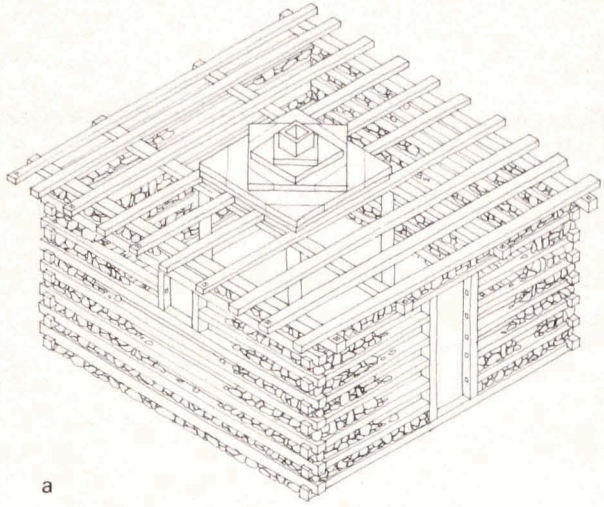
USE
Year-round

Buildings of timber and stone with elaborate post and beam construction employing no nails are found among the Nuristani peoples northeast of Kabul in the upper reaches of the Konar River Valley and its tributaries. A similar tradition, using a higher ratio of stone to wood, is found among the neighboring Pashai people who inhabit the lower Konar River tributaries and the valleys of the Alingar and Alishang rivers (tributaries of the Kabul River). With their extensive use of timber, elaborate carvings, and spectacular sites literally clinging to the sides of steep mountains, they represent a tradition quite unlike any other in Afghanistan.

Typically the Nuristani house is constructed with two stories 540 cm from foundation to roof. The upper story provides living space for the family, and the lower is used for storage. The key design element is a square floor plan laid out around four columns on each floor. The columns themselves are set a fathom apart (i.e., the distance described by outstretched arms, or about 180 cm) with another fathom between each column and the outer wall. This produces a room of about 30 square meters in plan. In valleys where a veranda is added to the front of the house, it will be 2 fathoms in width (360 cm). These individual units are often constructed so that they share common walls to create large dwellings housing two, three, even five separate families (Edelberg 1984).

The walls are constructed of alternating layers of squared timber and stone. The space between the timber is filled with stone and then packed with clay to produce an even, weathertight surface. The timbers are notched and crosslapped so that they interlock at the corners. In a more elaborate version the





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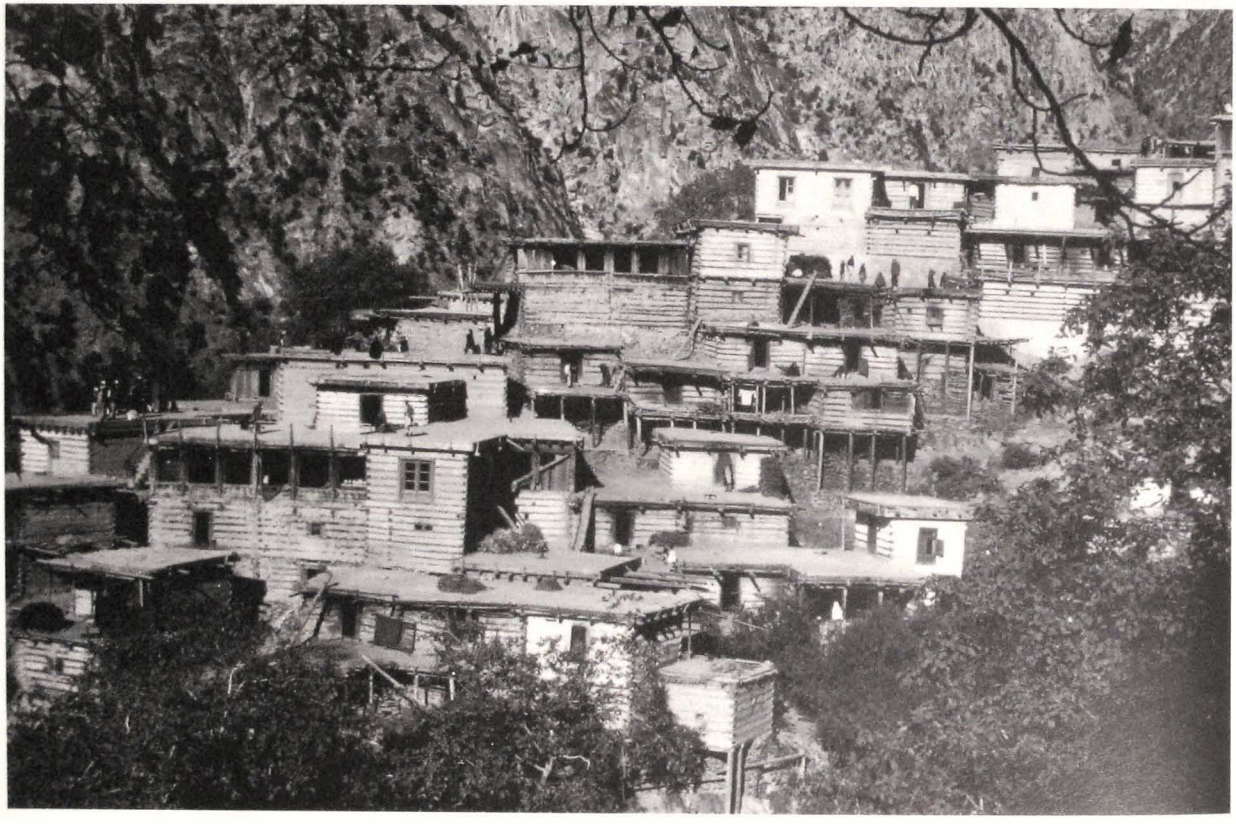
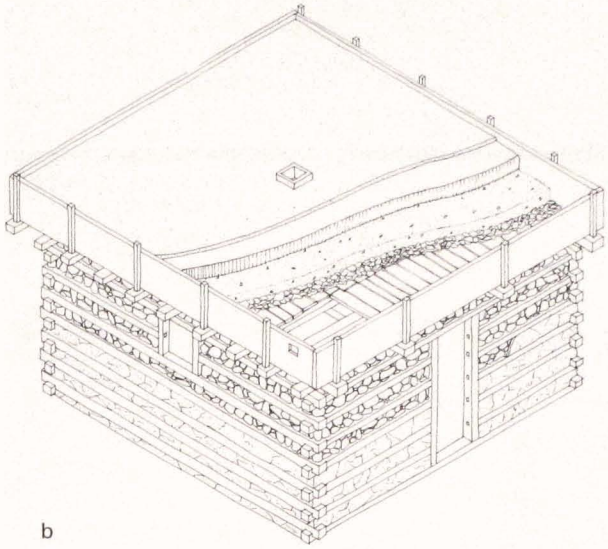
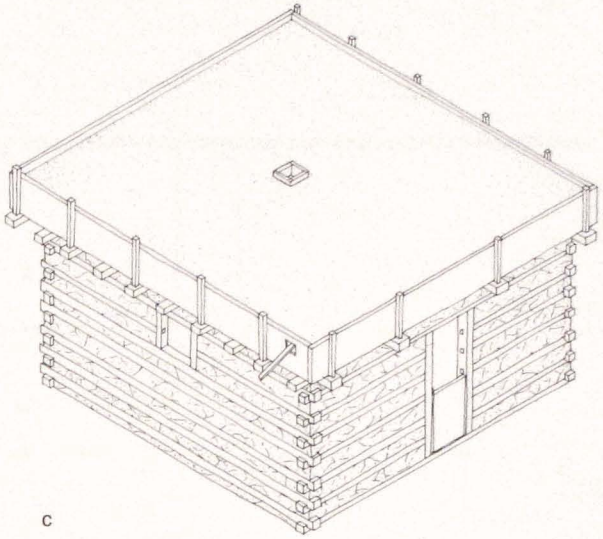
38. Perched just below the top of a mountain in Nuristan, the village of Sasco is an example of timber and stone construction with houses built atop and stepped back from their neighbors.





b

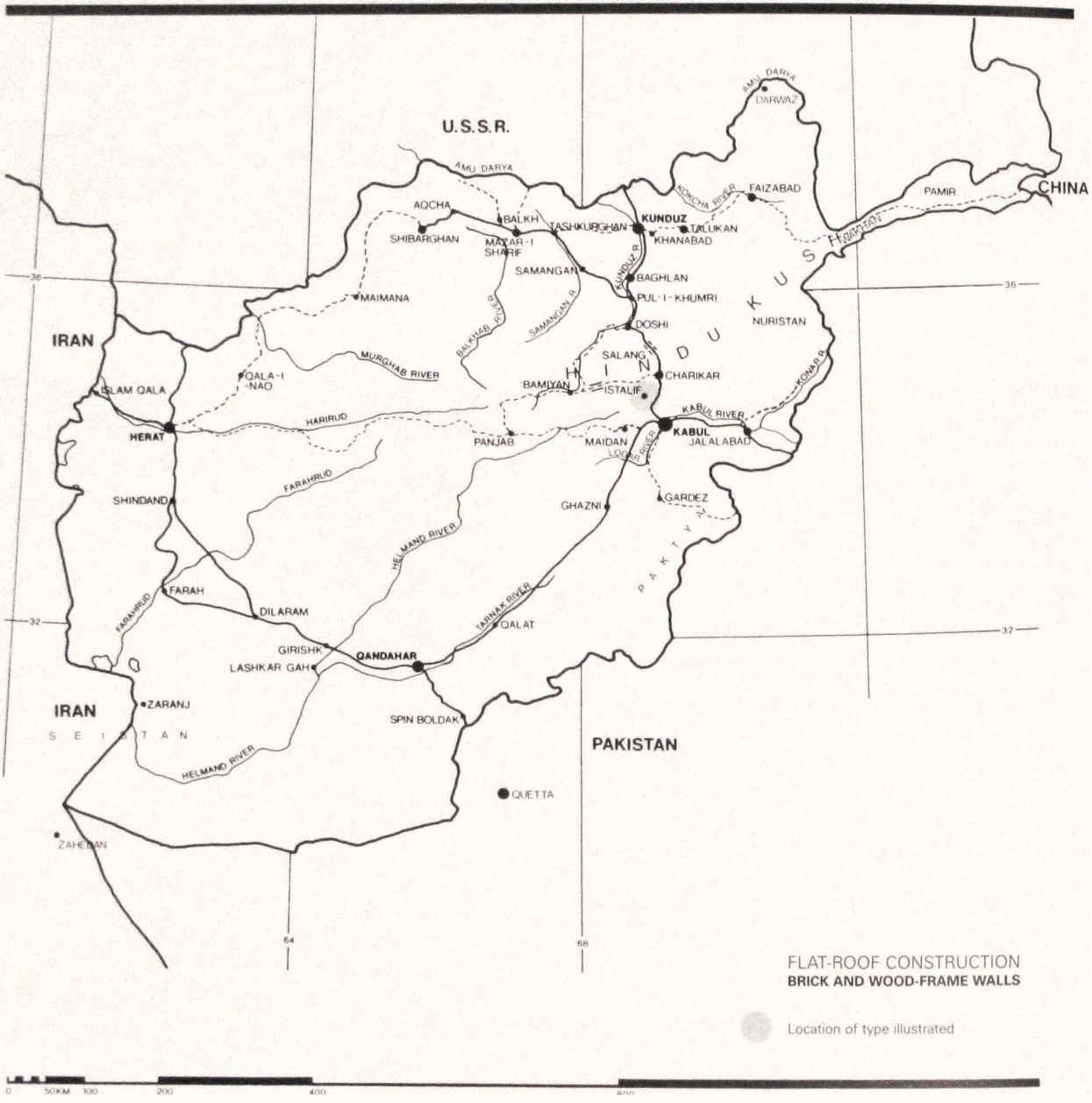


c

building wall is also reinforced by three or four pairs of vertical poles set against the face of each wall. Each pair of poles is held together by running them through three wooden yokes that pass through the wall. This further locks the alternating tiers of timber and stone together.

The roof (or floor in multistoried buildings) is supported by post and beam construction. The four center posts, often elaborately carved, are set into the floor by means of a pair of lintels of mortise and tenon construction. The two center beams are laid at right angles to the door and attached, also by means of a mortise and tenon joint, to the tops of the columns. If a veranda is to be constructed, these beams are extended beyond the line of the house wall for an additional 3.6 m to support the porch roof. Two other beams of equal length are placed on the tops of the lateral walls. These four beams support about ten joists set parallel to the door at right angles to the beams. (In other parts of Nuristan the beams are laid parallel to the door and the joists at right angles to it, mostly in areas where verandas are not employed.) Rough laths or wooden planks then span the spaces between the joists. However, to create a smokehole, the square opening formed by the four central columns is spanned by square timber frames, diminishing in size and rotated through 45° as they are stacked one upon the other to create a cofferlike form. The built-up material that comprises the roof is laid upon wooden boards in succeeding layers of wood shavings, crushed stone, and pressed clay all held in place on the roof edges by wooden facia planks which are secured by vertical struts mortised into the protruding roof beams and joists. Despite their thickness the roofs have problems with water leakage.

The Pashai buildings are not as regular in plan as those in Nuristan. While they also employ layers of wood and stone, in Pashai construction the stone layer is often three to four times as large as the wood layer because the wood frame is used simply as a crib to hold the stone in place. A series of heavy wooden yokes about 100–150 cm in length are cut with an open slot which holds a pair of long poles that run the length of the walls. These secure the top and bottom of each layer of heavy stone fill (Wutt 1981 : 73–91).


U.S.S.R.
AMU DARYA
DARWAZ
AQCHA
BALKH
TASHKURGHAN
KUNDUZ
TALUKAN
KHANABAD
KOKCHA RIVER
FAIZABAD
PAMIR
CHINA
SHIBARGHAN
MAZAR-I SHARIF
SAMANGAN
KUNDUZ R.
BAGHLAN
PUL-I-KHUMRI
MAIMANA
BALKHAB RIVER
SAMANGAN R.
DOSHI
NURISTAN
HINDU KUSH
HARIRUD
IRAN
MURGHAB RIVER
SALANG
CHARIKAR
QALA-I-NAO
BAMIYAN
ISTALIF
KONAR R.
ISLAM QALA
KABUL RIVER
HERAT
PANJAB
MAIDAN
KABUL
JALALABAD
LOGAR RIVER
FARAHRUD
SHINDAND
GHAZNI
GARDEZ
HELMAND RIVER
PAKTYA
FARAH
FARAHRUD
DILARAM
TARNAK RIVER
QALAT
GIRISHK
QANDAHAR
LASHKAR GAH
IRAN
ZARANJ
SEISTAN
SPIN BOLDAK
PAKISTAN
HELMAND RIVER
QUETTA
ZAHEDAN
36
32
64
68
FLAT-ROOF CONSTRUCTION
BRICK AND WOOD-FRAME WALLS
Location of type illustrated
0 50KM 100 200 400 800

Flat-Roof Construction

BRICK AND WOOD-FRAME WALLS

LOCAL NAME
***Senj* (Dari)**

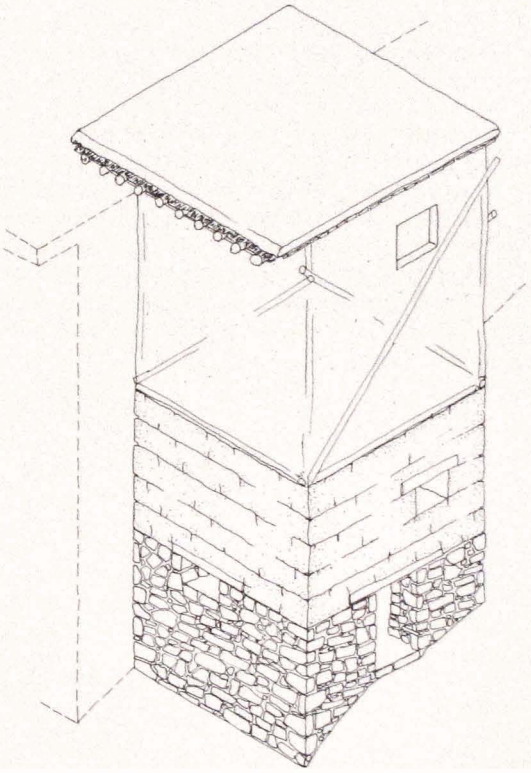
PEOPLE
Tajiks
Sedentary

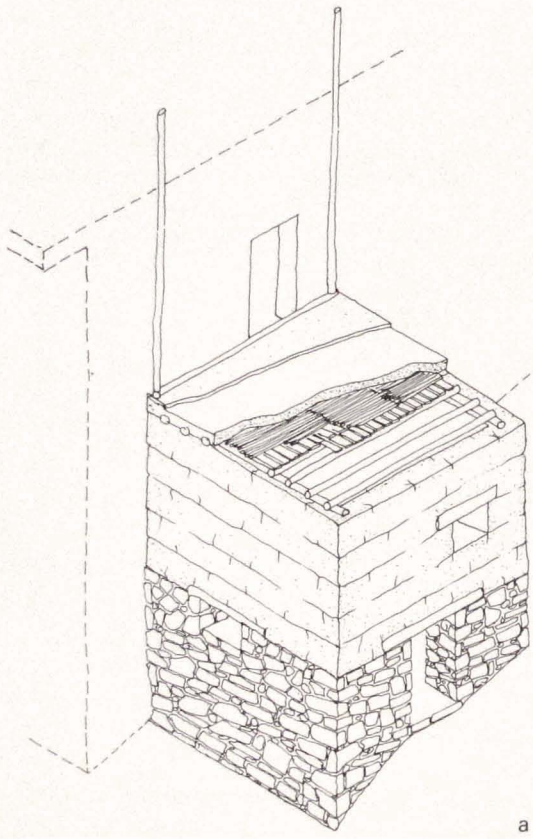
LOCATION OF ILLUSTRATED EXAMPLE
Istalif

USE
Year-round

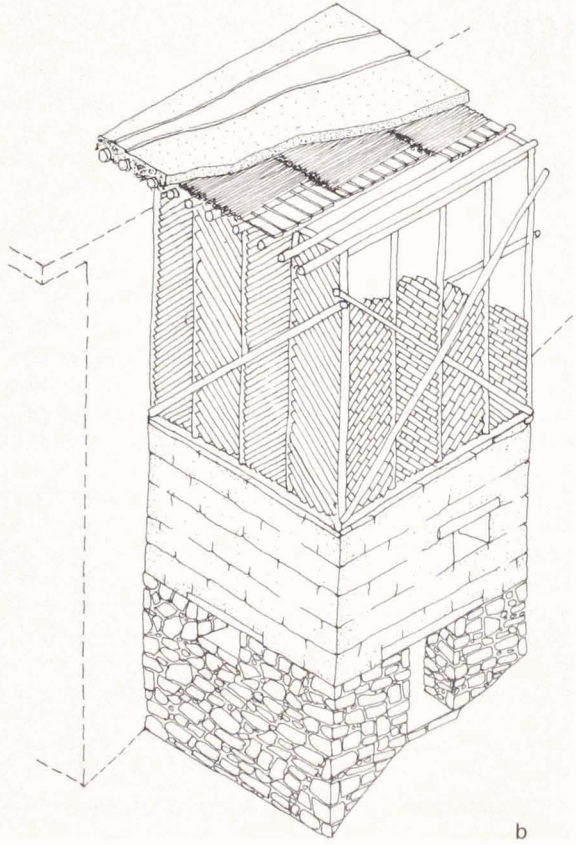
Wood-frame walls filled with sun-dried bricks are known as *senj* construction. It is used primarily for producing lightweight upper stories or projecting balconies. Constructed of poplar poles, the wooden frame can be used to create square or rectangular modules. When attached to the floor and ceiling beams it forms an integrated unit with a flexibility that probably provides more earthquake resistance than other types of construction. Its distribution correlates very highly with areas of high seismicity (see Reference Map 10).

In mountainous rural areas, *senj* technique is often employed for upper story construction in buildings having massive stone first floor walls and *pakhsa* second story walls, while in more urban areas like Kabul brick walls are normally used for the first floor. In *senj* construction the frame for each wall consists of an upper horizontal poplar pole (*sarsenj*) and a lower one (*zeirsenj*), each between 15 and 20 cm in diameter, joined by mortise and tenon joints to vertical poles (*mana*) between 10 and 15 cm in diameter set about 1 m apart. Diagonal poles (*baira*) are nailed at the exterior corners to stabilize the frame. Most of the framing is done on the ground by a carpenter who then erects the walls and links them together. Sun-dried brick laid in a diagonal running bond is then used to fill the spaces between the vertical poles, alternating directions from bay to bay to provide lateral stability for the wall. The interior and exterior faces of the wall are then plastered with a mixture of mud



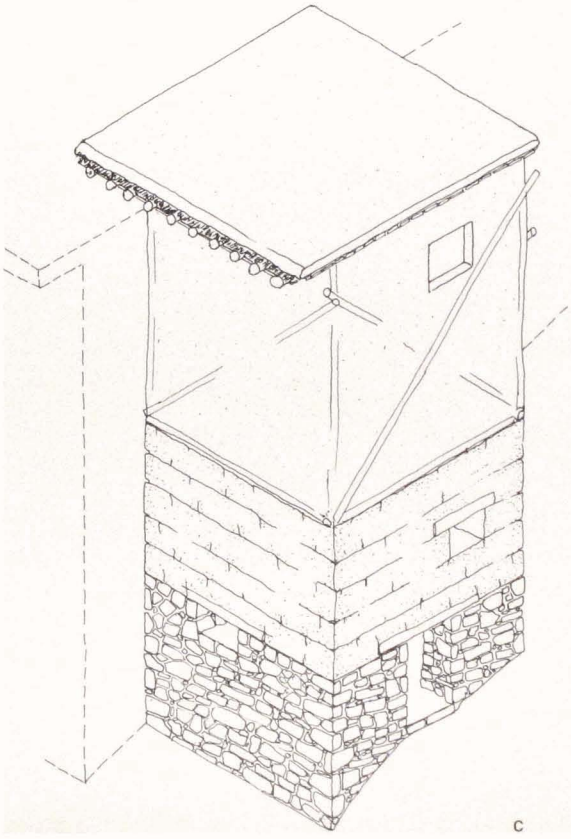


a



b

39. A village of multistoried houses south of Charikar employing composite construction including *senj*, a technique which uses a wood frame with brick infill to create strong but lightweight walls. It can be identified by its characteristic exterior diagonal bracing.



c

and straw (*kahgil*). The roof and floor are both constructed in a similar manner. Poplar joists averaging 20 cm in diameter span the space between the walls at 25–40 cm intervals, depending on the span, and are nailed into position. The poplar poles have a slight taper and must be set so that thicker and thinner ends alternate to maintain overall evenness. The roof system is constructed by placing boards or brush at right angles to the joists, covering them with layers of reeds, and then creating the final roof surface with different layers of mud. The final finish must slope gently to drain the water from rain or melting snow toward a scupper to prevent such water from eroding the walls below (Azizi 1980:54–60).

PART THREE

BUILDINGS IN CONTEXT

FOUR TYPICAL VILLAGES
IN THE KABUL RIVER BASIN

Deh Afghanan

Kolalan

Taqma

Sasco

In Afghanistan domestic buildings rarely appear in isolation, but are normally part of a village complex in which individual units are integrated into a larger whole. Domestic architecture thus sets the physical parameters for community as well as family organization. This is a preeminently cultural process in which people create an environment that becomes their everyday world. Describing the structural components of general building types is therefore only a first step in understanding a domestic architectural tradition because design and construction are not limited to technical considerations for providing shelter alone. Many other factors, climatic, geographic, economic, and cultural, also come into play. The construction materials available, spatial relationships among families within the community, definitions of work-space and family-space, public versus private areas, and the spatial relationship of the community to the outside world all must somehow be harmoniously combined.

To address these larger issues a detailed investigation of four villages, all within the Kabul River drainage system, was conducted by a team of architecture students and faculty from Kabul University in 1974 under the direction of Albert Szabo. In order to obtain as comparative a sample as possible, each village investigated was representative of a different architectural tradition. Although all were within a single large geographical region, each village was adapted to different available materials and types of building sites. The villages were mapped in their entirety and a cluster within each was chosen for a more detailed examination. This allowed the distribution of space among families within a cluster to be recorded and provided examples of how individual families apportioned their own space, including seasonal variations in use. Confronted with a wide range of constants and variables, we hoped that a comparative assessment would reveal both the limitations and the possibilities within each type as well as explore the potential application of these findings for future development in Afghanistan. At the time of the study we of course never expected that the data might prove more valuable for reconstructing these villages, now damaged or destroyed by years of warfare.

DEH AFGHANAN

The village Deh Afghanan occupies a broad area in the relatively flat Maidan Valley in Wardak province. Spaces between the *qalas* (fortified farm compounds) are generous, and spaces within them are equally so, with a courtyard provided for each cluster of individual units. The *qalas* are located along a main road with a stream running by, providing power for the mill and water

for an intricate network of *juis*, or irrigation ditches. The predominant building material is mud, laid in place in wide tiers (*pakhsa*) to form high, thick walls. Wood is the secondary material. (See Photo 40.)

KOLALAN

Kolalan, a subvillage of Istalif in Parwan province, is located on a gentle slope on the east side of the Koh Daman Valley 1,900 m in altitude. It was settled at least six hundred years ago and is one of thirteen subvillages or districts, eight of which are identified by virtue of their cottage industries. Kolalan is particularly famous for its blue pottery; before the war it produced 500,000 pieces a year from its twenty-one kilns. A unique characteristic of housing in this village is the dual use of indoor space for living and industry. The predominant building material is mud, mostly sun-dried brick, with stone and wood in addition. (See Photo 43.)

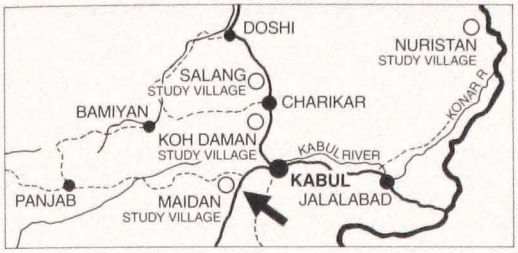
TAQMA

The village of Taqma in the Salang Mountains of Parwan province is located at about 2,000 m in altitude on a precipitous slope selected by the villagers for reasons of defense and also for the preservation of the limited arable land. It is, in part, a dormitory village in the sense that many of the men spend one to six months working in Kabul, most serving as laborers. Many also find work along the route into Kabul. The individual rooms are not large and often serve several purposes. The predominant building material is stone, with mud and wood in addition. (See Photo 46.)

SASCO

Sasco, located in the mountains of Nuristan, Konar province, eastern Afghanistan, is the most remote of the four study villages. It is located at an altitude of around 2,000 m on the southern face of a mountain, and can be reached from Kabul only after two days' travel by bus, then jeep, and finally on foot. The mountainside rises very abruptly from the valley floor and tapers only slightly as it nears the top. It is along the edge of the steep incline that the village is built, one dwelling unit above the other stepping back to provide communal roof space as the mountain recedes. The gentler slopes above serve as pasture, and farms are cultivated in the valley. Access to the individual dwelling units is usually gained by use of a carefully notched tree trunk resembling a solid wood stair. This is drawn up from the ground for security purposes if necessary. The predominant building material is timber, used to form both wall and roof structures with stone and mud in addition. (See Photo 51.)

M-1
Context
Line frame indicates M-2 enlargement



Deh Afghanan

A *QALA* VILLAGE IN THE MAIDAN VALLEY

VILLAGE
Deh Afghanan

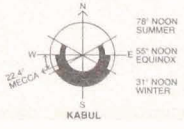
DWELLING TYPE
Qala

SYMBOLS

	Agriculture		River
B	Bazaar		Road
	Buildings		School
	Cemetery	$S_{\sigma^{\prime}}$	Boys'
	Green area	S_{φ}	Girls'
M	Mill	Z	Shrine
M	Mosque		Trees
	Path	W	Water point

DISTANCE FROM STUDY AREA

Kabul	40 km	50 min. auto
Nearest village	20 km	30 min. auto
Medical aid	40 km	50 min. auto
High school	15 km	30 min. bike
Government office	8 km	10 min. auto
Police	8 km	10 min. auto



The village Deh Afghanan is located in the Maidan Valley about 40 km southwest of Kabul. It has a Pashtun population, and its economy is almost exclusively agricultural with some animal husbandry. The village itself consists of a series of scattered *qala*s surrounded by irrigated fields (M-1, M-2). Each *qala* is a self-contained unit, and there is no true center to the village, except where some shops have been set up at the intersection of a series of meandering dirt roads and a bridge over the river. Even this small bazaar appears to be an outgrowth of the *qala* nearest the bridge crossing the river. A single *qala* compound can house a large number of people. The two study *qala*s alone had a population of 191 people divided into forty-two families, as shown in Table 3. Both architecturally and socially it is the individual *qala* that is the basic unit of organization.

HISTORICAL EVOLUTION OF THE *QALA*

The dwelling type known as the *qala* originated as a fortified farm compound with thick, massive outer walls in square or oblong plan averaging 40–80 m per side of 6–8 m in height. At each corner is a defense tower rising approximately 1⅓ times the height of the walls. In larger *qala*s longer walls require additional towers (*bourge*), equally spaced along their length, to reinforce the walls and provide additional surveillance. For example near Kabul *qala*s with eight and twelve towers have been observed. Multistoried dwelling and storage spaces are constructed against the outer walls with the doors and windows facing a central compound. The *qala* design is most closely associated with the Pashtuns of eastern and southern Afghanistan, although it can be found among other ethnic groups such as the Hazaras

M-2
Site
Line frame indicates the two study *qala*s

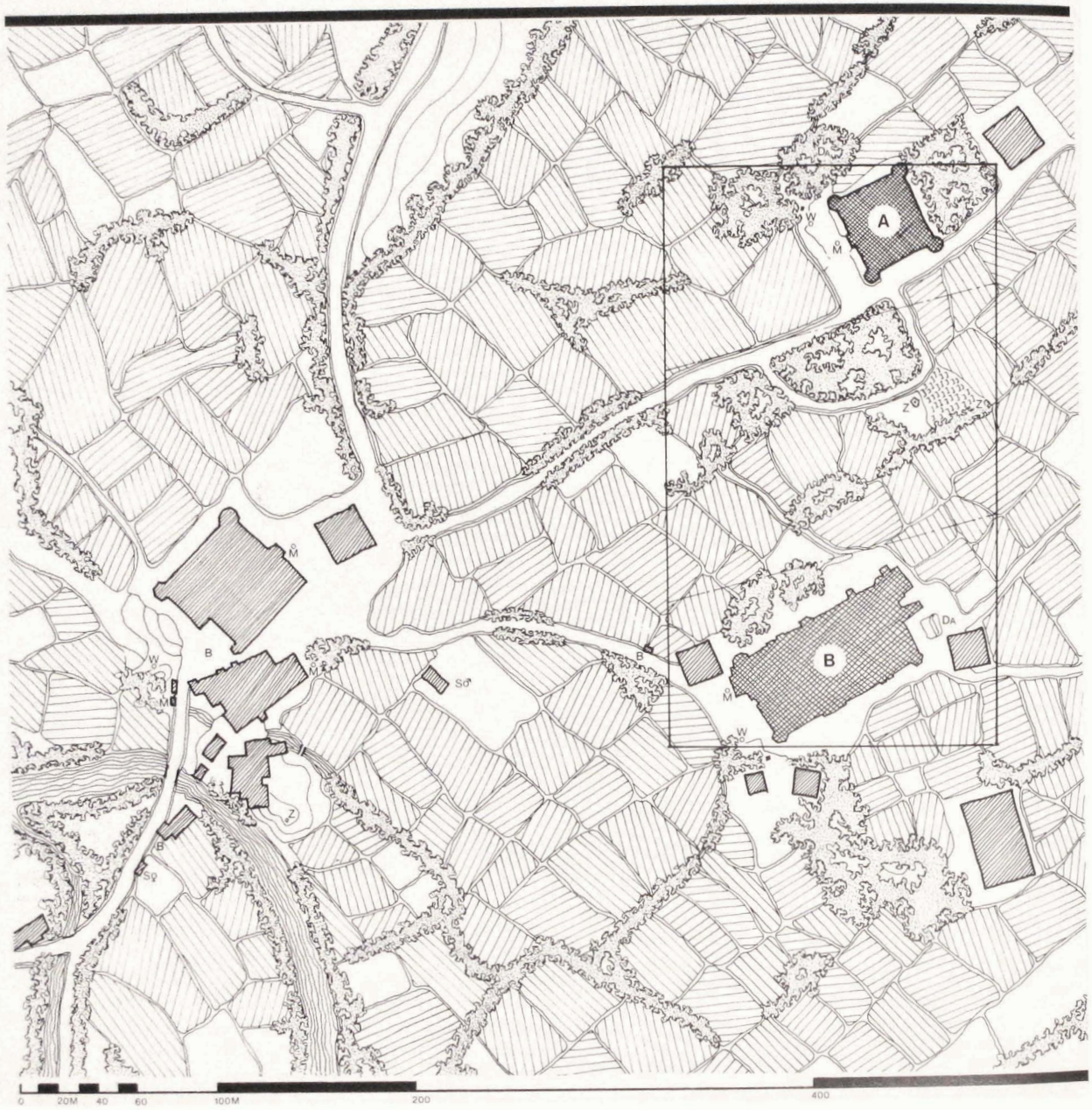


Table 3 Deh Afghanan

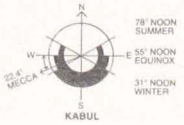
Total population	191
Number of cluster units	19
Number of families	42
Average family size	4.55

People per Family	Number of Families	Total Number of People
2	2 (5%)	4
3	6 (14%)	18
4	18 (43%)	72
5	6 (14%)	30
6	5 (12%)	30
7	3 (7%)	21
8	2 (5%)	16
Totals	42 (100%)	191

SYMBOLS

	Agriculture		River
D_A	Animal waste		Road
B	Bazaar		School
	Buildings	$S_{♂}$	Boys'
	Cemetery	$S_{♀}$	Girls'
M_L	Mill	Z	Shrine
M_O	Mosque		Trees
	Path	W_O	Water point
	Study *qala*s		

Available materials: clay, reed, stone, water, wood
Sustenance: 90% agriculture, 10% animal husbandry

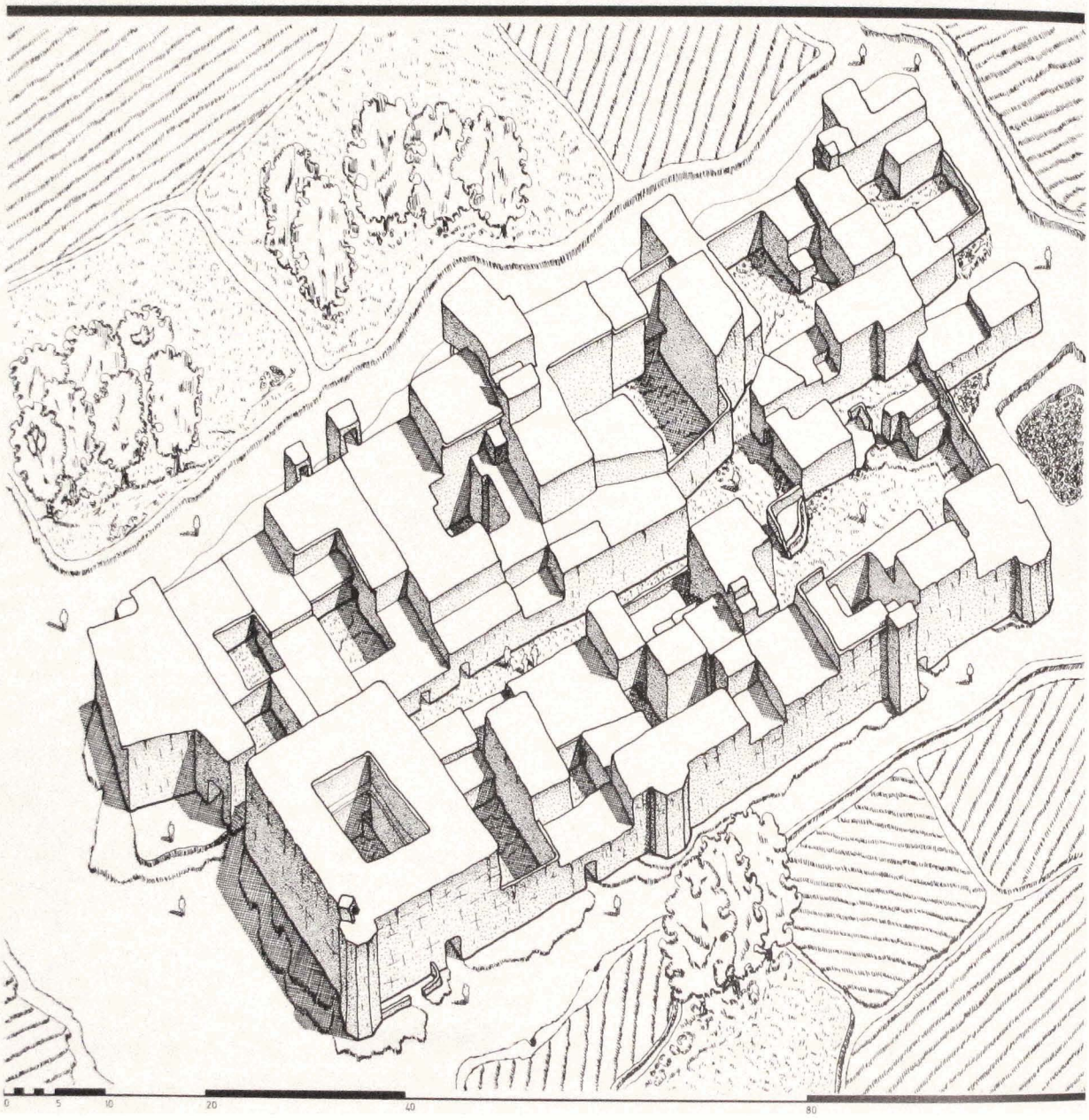


in central Afghanistan and among Pashtuns who have emigrated to areas north of the Hindu Kush.

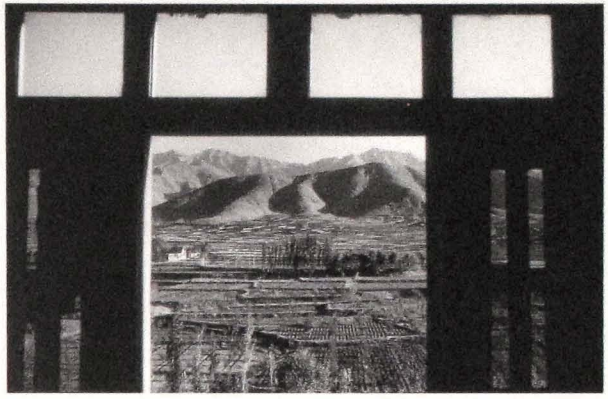
Each *qala* is a self-contained unit providing shelter and protection for an extended family, their farm animals, and the provisions necessary for survival. Proximity to a source of water is a determinant in site selection, and a water point is frequently central to the *qala* court, although more commonly found immediately outside the single entry gate. The *qala* is thus a small walled village which reflects in microcosm the form of such traditional walled Afghan towns as Kabul, Qandahar, or Herat, providing shelter and security for its inhabitants.

Since the beginning of the twentieth century the *qala* has retained its fortress role only in more remote and vulnerable areas of Afghanistan. Elsewhere it has gradually evolved into a simple farm compound. In examples we have seen which were constructed after World War II, fortification elements are only vestigial and sometimes omitted entirely. The corner watchtowers, if constructed at all, generally serve as storage space for grain and winter fuel (M-17). In many cases the more affluent *qala* owner transformed the tower into a guest room with a magnificent view of the surrounding valley and mountains. The large glazed (or unglazed) openings found in such towers are, of course, a direct contradiction to the original function of the tower, which was to provide stations for surveillance with heavy impenetrable walls and apertures designed solely for strategic placement of rifles. In contemporary construction the outside wall is sometimes lower than the one- or two-story housing within, and the walls themselves are often less massive than those constructed in earlier times.

M-3
Axonometric drawing of *qala* B



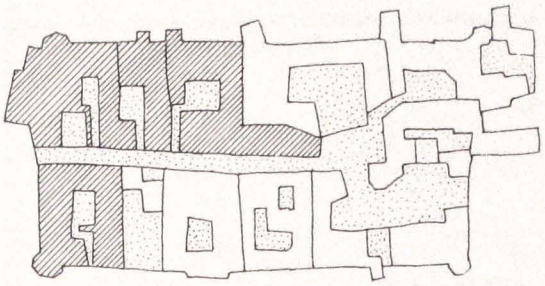
41. View of the Maidan Valley from the guest room over *qala* entrance.



40. The entrance to *qala* A in the village of Deh Afghanan in the Maidan Valley.

M-4

Space use, level 1, *qala* B



SYMBOLS

$A_{\overset{C}{O}}$	Animal space of family C
C	Courtyard
F	Family room
K	Kitchen
$\overset{O}{M}$	Mosque
$\overset{U}{M}$	Mullah
S	Storage
T	Toilet
V	Veranda
W	Washing

	Subscripts
P	Personal
S	Summer
W	Winter
X	Abandoned

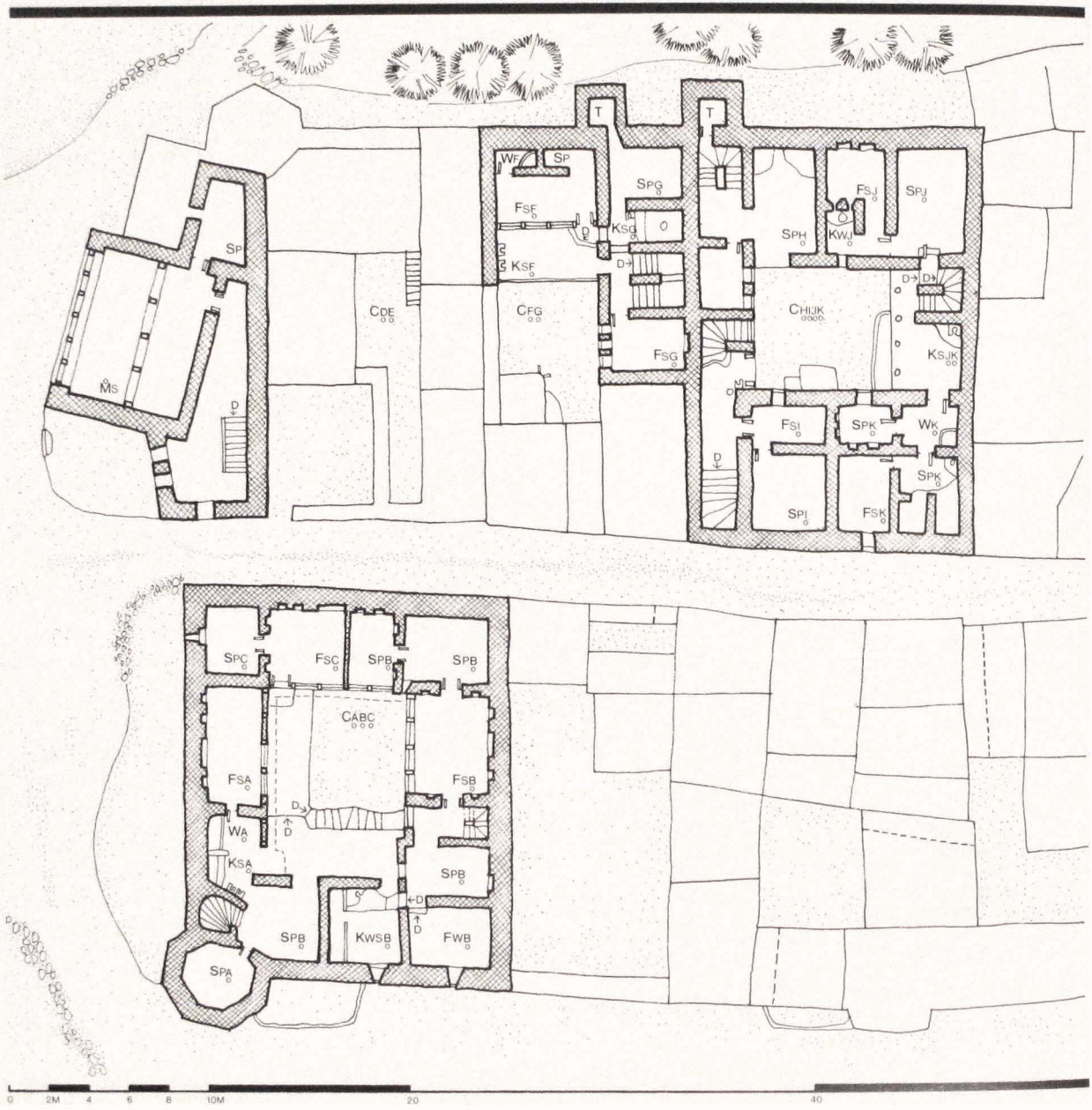
CONTEMPORARY USE IN DEH AFGHANAN

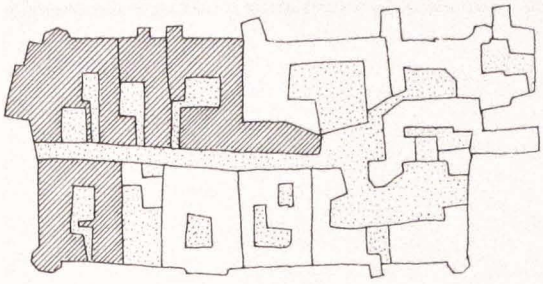
Contemporary *qala*s can be divided into prestige and tenant categories, both of which are present in Deh Afghanan. The prestige *qala* (A) is an elaborate construction, designed and executed to meet an ideal cultural standard of what a *qala* should be (M-15). The farm compound *qala* (B), has a more utilitarian design in which function takes precedence over form and cost is a critical variable (M-3). For example in *qala* B the face of the side walls are broken by numerous toilet shafts and private entryways, whereas in *qala* A the side walls are unbroken.

The prestige *qala* is constructed by the owner and members of the owner's family, often using hired laborers skilled in *pakhsa* construction (for details of this pressed mud construction, see p. 141). A prestige *qala* demands superior workmanship in the initial construction and requires continuous painstaking maintenance. Its occupants are generally direct descendants of the builder, with only a minority of the units occupied by tenants. Such prestige *qala*s are a manifestation of Pashtun cultural tradition, which places heavy emphasis on achieved status and political competition in all aspects of life. The status of one's family, one's tribe, and their position in the community are all reflected in the *qala*. For example, although they no longer serve an effective military purpose, high walls and watchtowers with embrasures for rifles are still retained as design elements

M-5

Space use, level 2, *qala* B





SYMBOLS

C	Courtyard
D	Down
F_{A}^{O}	Family room of family A
K	Kitchen
$\overset{O}{M}$	Mosque
S	Storage
T	Toilet
W	Washing

Subscripts

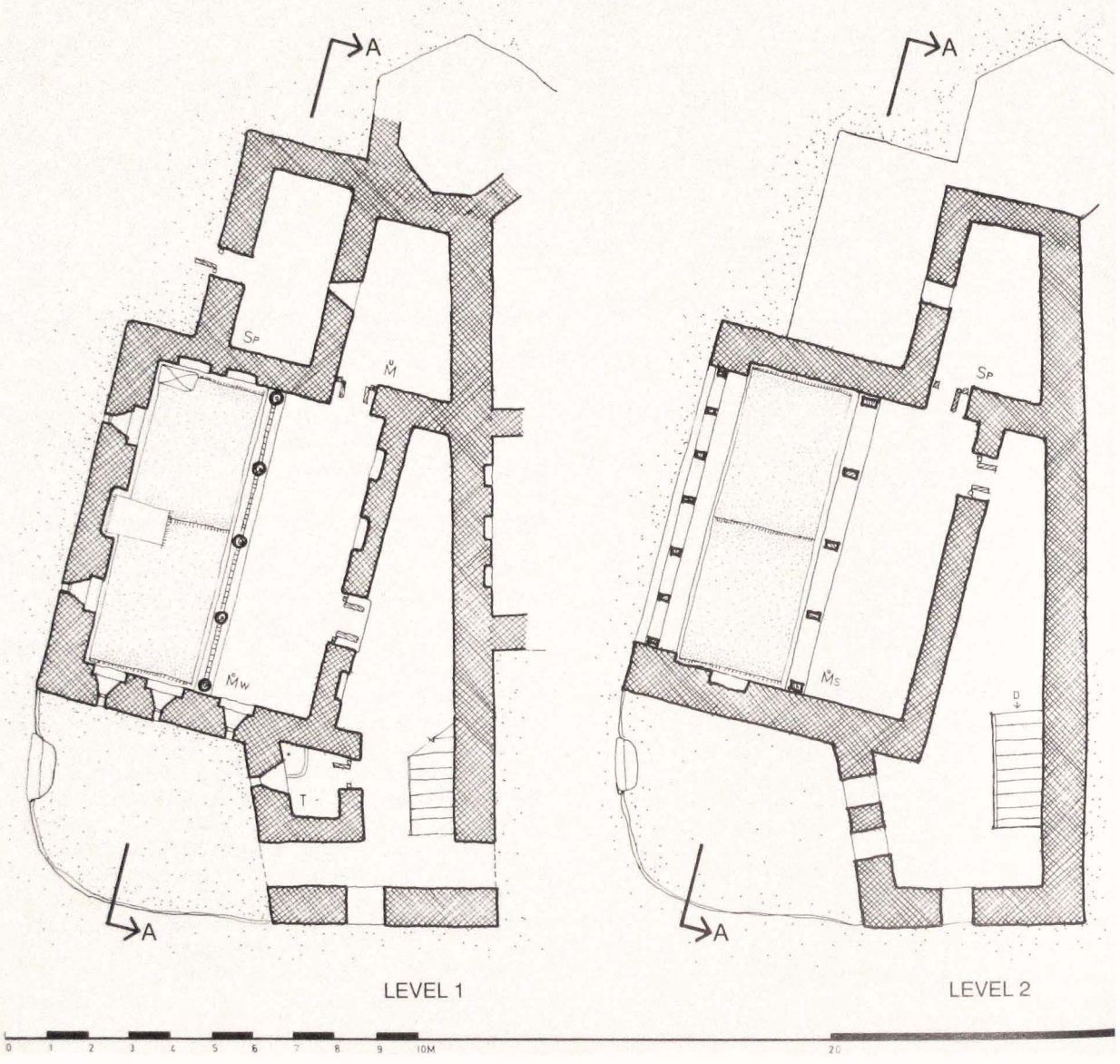
P	Personal
S	Summer
W	Winter

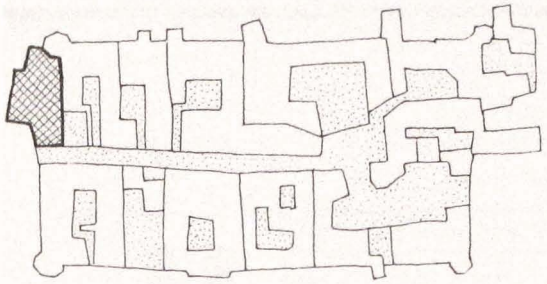
in spite of their expense. Such a practice glorifies tradition for tradition's sake, and it is precisely this feature that makes the prestige *qala* such an effective symbol of social status. Dominating the landscape around it, and designed to last for many generations, it provides evidence of a social history in which the status of extended families is visible for all to see. A new *qala* constructed by a family rising in wealth and political power is a palpable indicator of growing prestige, while the erosion of a once elegant *qala* is a sure sign that a family knew better times in generations past.

The tenant *qala* is designed to house the families of farmers employed by a landowner on a sharecropping basis, and its inhabitants are not necessarily related to one another. Although similar in design to the prestige *qala,* the tenant *qala* is generally larger in size and houses more families. At the time of the survey for example the tenant *qala* B housed twenty-nine families while the prestige *qala* A contained only thirteen. The tenant *qala* also lacks ornamentation and guest rooms, and is often subject to extrusive growth beyond its outer walls when interior space is insufficient. This juxtaposition of several disparate elements often results in lesser-quality workmanship, a detached kind of maintenance, and a general sense of impermanence on the part of the tenants. This has a decided impact on the longevity of the *qala* itself which, under the more desirable conditions, can have a life of several hundred years. However, these

M-6

Mosque, levels 1 and 2, *qala* B





SYMBOLS

$\overset{O}{M}$	Mosque
$\overset{U}{M}$	Mullah
S	Storage
T	Toilet

Subscripts

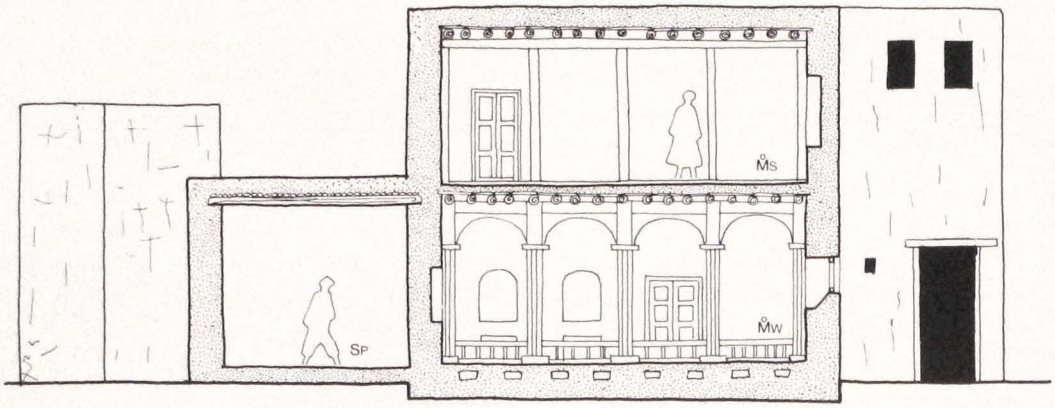
P	Personal
S	Summer
W	Winter

negative factors are often mitigated in situations where land owners share their own *qala*s with tenants. In such cases prestige ornamentation may be better developed and maintained in the owner-occupied part of the *qala,* which is often divided from the tenant units by a privacy wall and separate entrance.

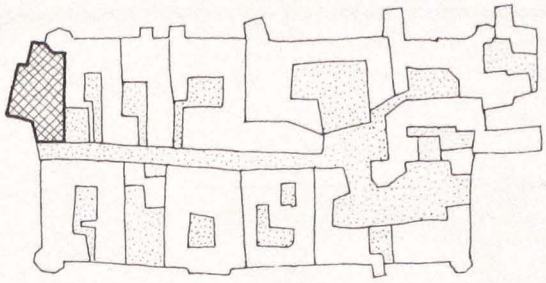
SOCIAL ORGANIZATION

More than other building types in Afghanistan, the *qala* is in a constant state of evolution through time and reflects the changing demands of households which live within it. The prestige *qala* was initially designed to house only a few families in large houses around spacious courtyards, but these spaces became progressively more subdivided over time as sons established new households within the *qala* compound (Photo 42). (Daughters normally moved to their husbands' residences upon marriage.) A new household was allotted a portion of the space within the *qala* to construct living quarters and, particularly with the establishment of a new kitchen, became residentially autonomous. However, even after his sons married and established new households, the father remained the owner of the land and the *qala* until his death. The *qala* and the land were then divided among his sons, but brothers often continued to work it in common, in part because property divisions resulted in ownership of long strips of land rather than compact units. Unity among brothers was always difficult to sustain because each household had its own interests, and eventually the *qala* itself ceased to be a single economic unit.

M-7
Section of mosque, *qala* B



SECTION AA



SYMBOLS

$\overset{o}{M}$	Mosque
S	Storage

Subscripts

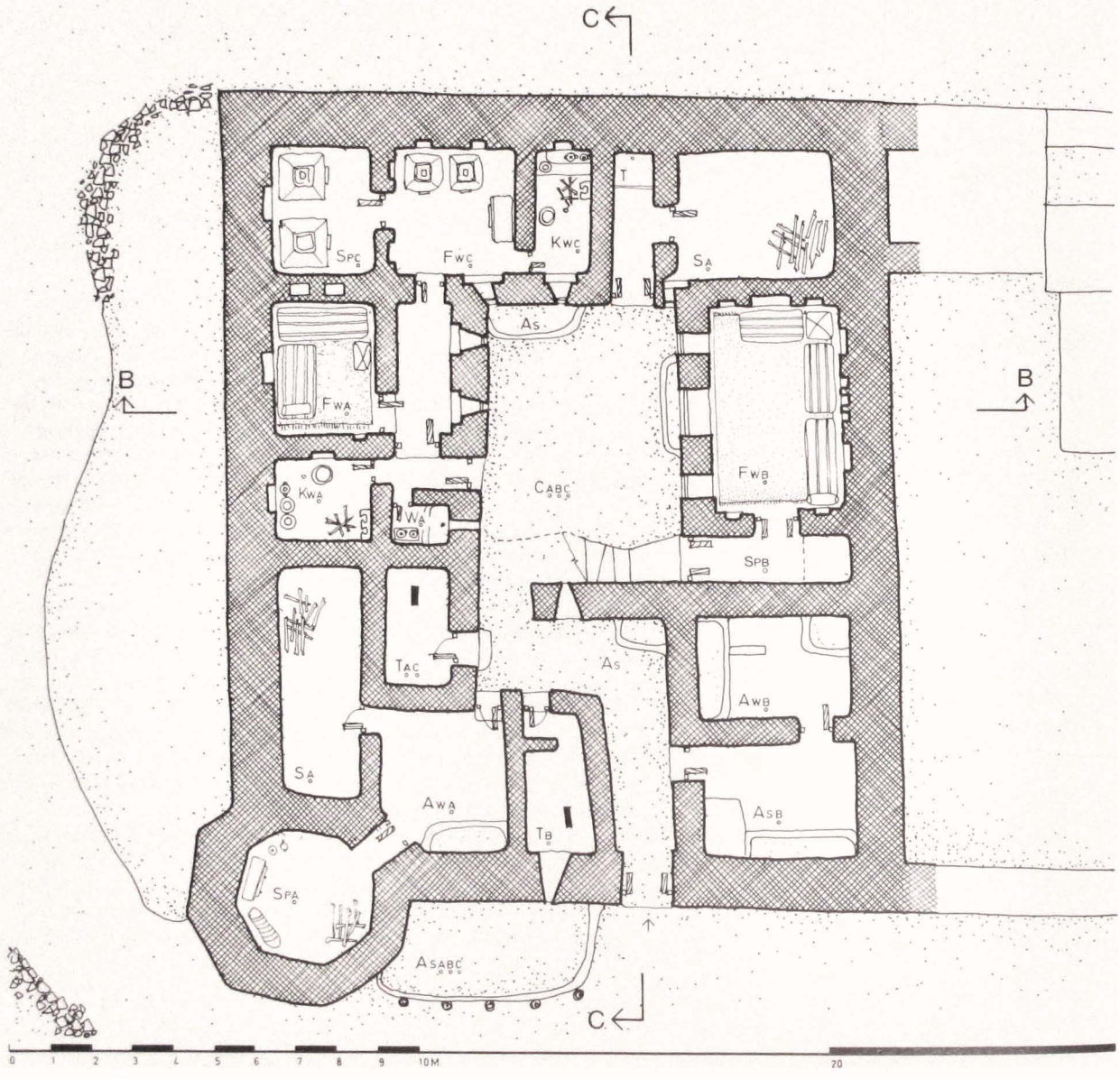
P	Personal
S	Summer
W	Winter

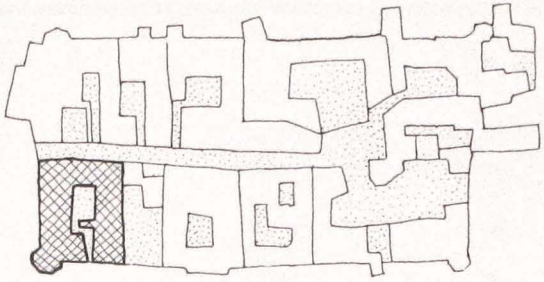
The social evolution of households is reflected in the architectural changes within the *qala*. As the extended family formed new households through accretion, the central court was reduced eventually to a small circulation path or square. The growth was vertical as well as horizontal, and it was not uncommon for various family members to have "duplex apartments" with roof spaces for women and men, for family sleeping during the hot seasons, and for drying produce. When this vertical and horizontal expansion had used all available space, the families were faced with the options of further compaction, expansion beyond the *qala* limits, or relocation. However, this was not purely a question of available residential space. The number of families in a *qala* (or the number of *qala*s in the valley) could not exceed the productive capacity of the available farmland. When resources proved insufficient, people were forced to sell or rent their share of the land and emigrate. Thus *qala*s usually reached a stable optimum point of subdivision within a generation or two of their construction and then remained in that form because further subdivision (although theoretically possible) became economically impractical.

It should be mentioned that growth by accretion does not mean an anarchic approach to the provision of dwelling spaces for one's family. In those cases we have had an opportunity to investigate personally, and in subsequent discussions and study of works of earlier investigators, it has been evident that certain

M-8

Dwelling units, level 1, *qala* B





SYMBOLS

$A_{\substack{C \\ O}}$	Animal space of family C
C	Courtyard
F	Family room
K	Kitchen
S	Storage
T	Toilet
W	Washing

Subscripts

P	Personal
S	Summer
W	Winter

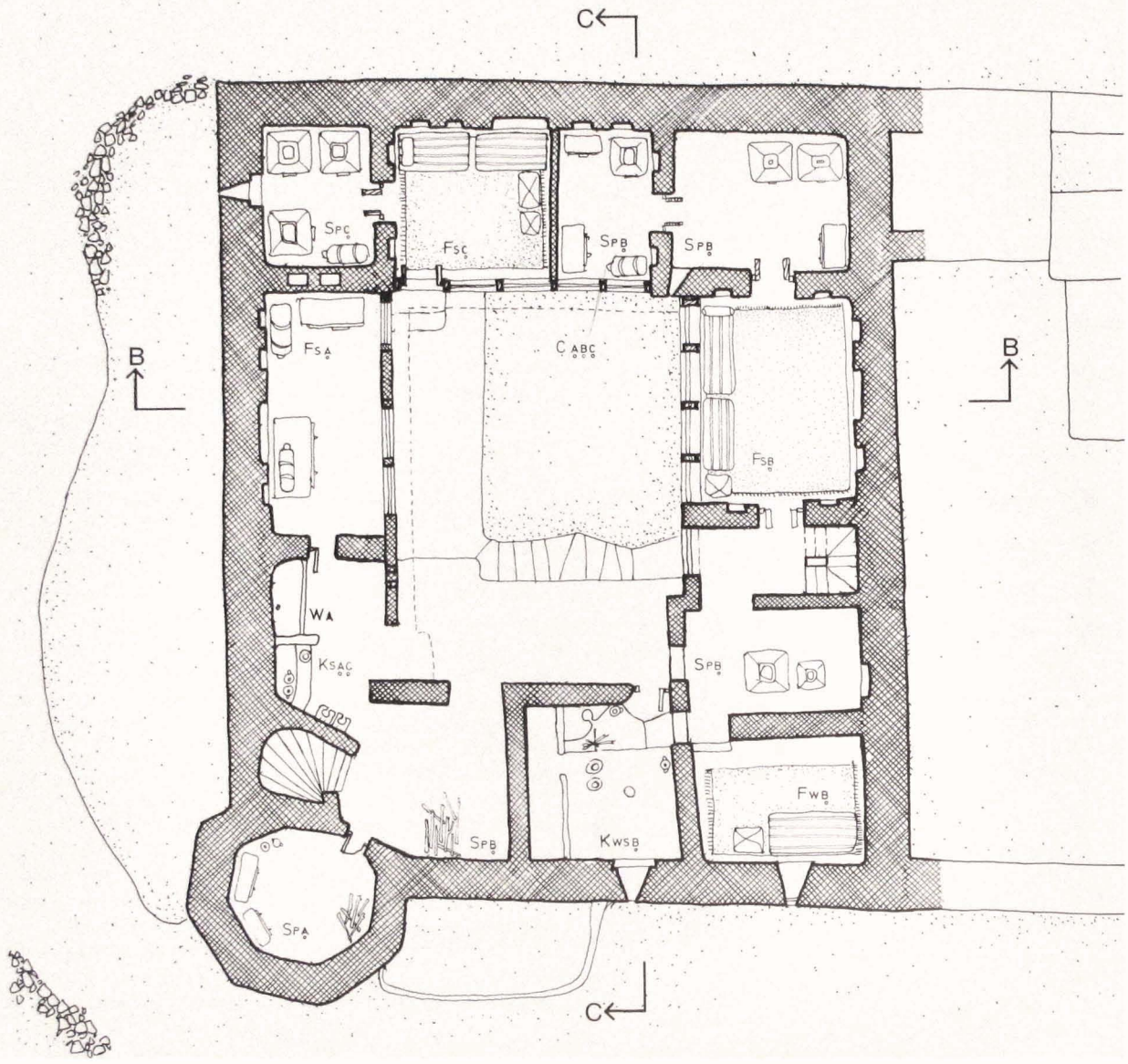
principles of design are observed and respected. Each family's space is continuous, for example, and when *qala*s subdivide, the preservation of common space tends to follow kinship lines. Close relatives share entryways and courtyard space with each other, while privacy walls may split more distantly related kin from one another. In the tenant-farmer *qala* there is normally a dividing wall between landlord and tenants. Rules of subdivision appear to be more strictly enforced in a prestige *qala* than in a tenant *qala*. Although both *qala*s A and B were reputed to be between 150 and 200 years old, *qala* A maintained much cleaner lines, and its internal buildings were of a more regular design than those of *qala* B. This is particularly apparent in the growth of buildings outside the original walls of the tenant *qala* and its use of cluster entryways cut into the *qala* wall itself.

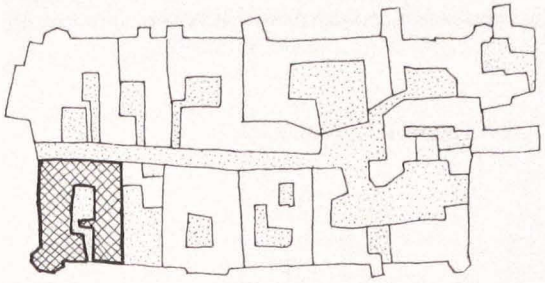
INTERIOR COMPONENTS, CIRCULATION, AND CLUSTER SPACE

Although from the outside the *qala*s of Deh Afghanan appear to be single units, internally they are divided into clusters that share common entryways and courtyard space. The rooms surrounding the courtyard serve a variety of purposes: residential, storage space, barns, kitchens, and waste disposal. The amount and variety of space held by each family may vary markedly, particularly in the tenant *qala* when owners and tenant farmers both occupy the complex. To illustrate the placement and use of space we will examine some of the clusters in *qala* B.

M-9

Dwelling units, level 2, *qala* B





SYMBOLS

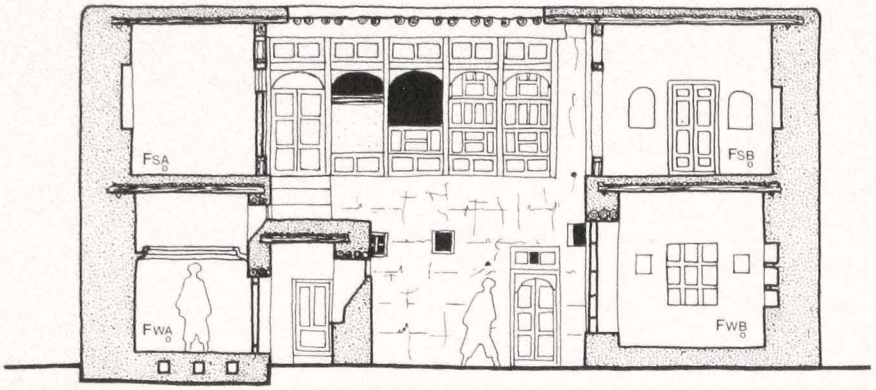
C	Courtyard
F	Family room
K	Kitchen
S_{A}^{O}	Storage of family A
T	Toilet
W	Washing

Subscripts

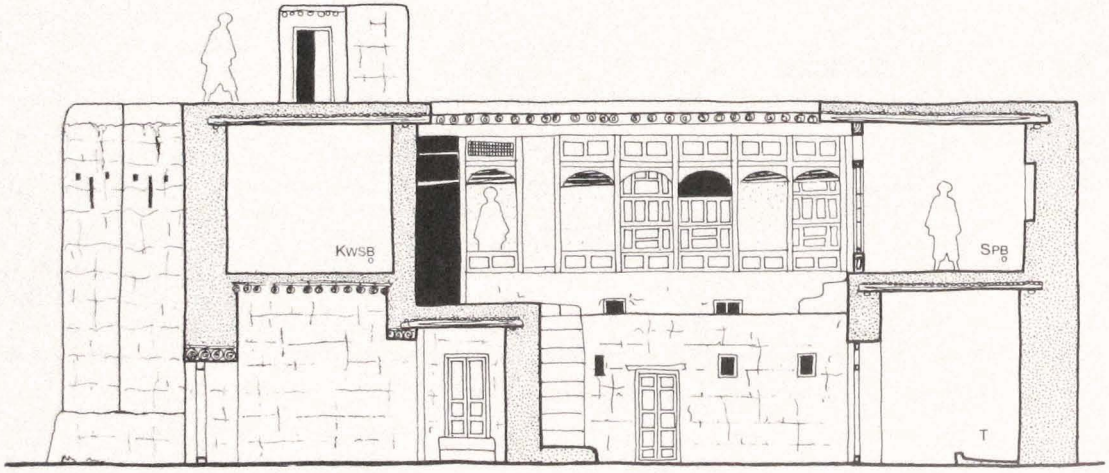
P	Personal
S	Summer
W	Winter

The axonometric drawing (M-3) of *qala* B provides an overview of the unit as a whole. The *qala* is divided into two major segments by a straight alleyway running from the main entrance about three-quarters of the *qala*'s length. Line of sight is then blocked by a wall set perpendicular to the alley, and the accessway then breaks into a series of meandering paths. Although one is now inside the *qala* complex, the main alleyway is bounded by unbroken walls with virtually no windows. The only hints of occupation are the doorways that lead to *qala* clusters (M-4). The entryway to each cluster replicates the entry to the *qala* as a whole: a smaller straight alleyway with the line of sight blocked by a wall. The entry to the *qala* is thus designed to insulate the inhabitants from casual contact with the outside world, while the entryways to the courtyards provide privacy from other *qala* residents. It is not possible to identify residence clusters easily from the outside, and even upon entering a cluster one does not immediately come upon the inhabitants. In a land where all strangers are perceived to be potential threats, truly public space is always marked off from family space in a very deliberate manner designed to provide as few visual clues as possible.

M-10
Sections, *qala* B

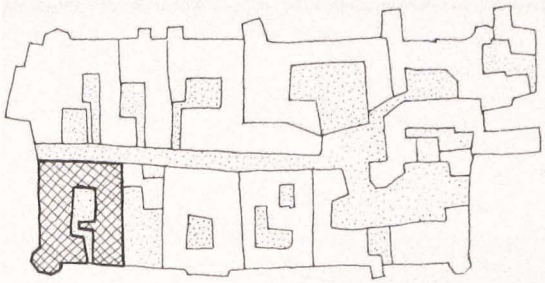


SECTION BB



SECTION CC

0 1 2 3 4 5 6 7 8 9 10M 20



SYMBOLS

F_{A_O}	Family room of family A
K	Kitchen
S	Storage
T	Toilet

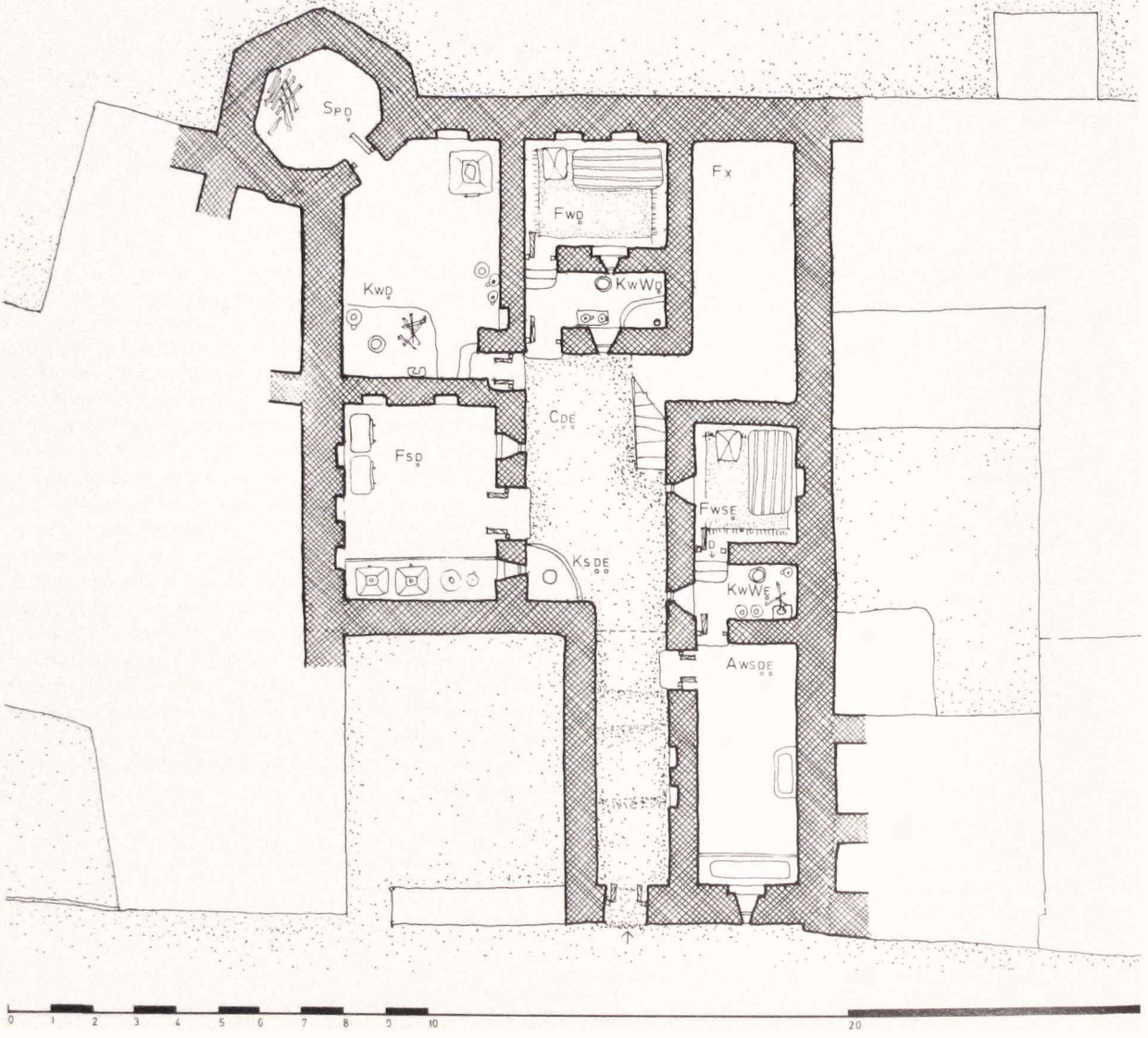
Subscripts

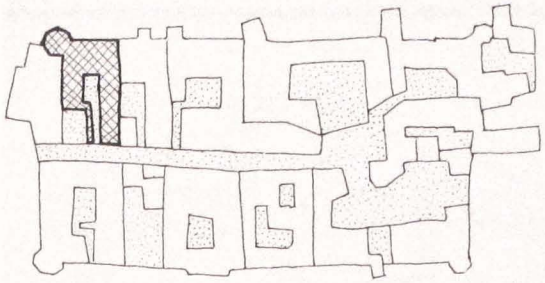
P	Personal
S	Summer
W	Winter

Qala B is inhabited by twenty-nine families organized into fourteen residential clusters. A cluster is defined as those families who share a common entryway and courtyard. The four clusters (M-4, M-5, M-8–14) we examined in detail all displayed the same hierarchy in placement of types of space. Residence units were at the center, surrounded by personal storage space and kitchens, storage for fodder and wood, with animal barns and toilets at the extremities. Of course much of this can be explained in mechanical terms: the animals must be taken in and out every day for grazing, and toilets are easier to clean if the waste can be directed to the outside. But the choice of placement also serves a symbolic function. The entryways are lined with barns rather than residences so that strangers first encounter livestock, not people. Moving from the outside, one pierces a number of symbolic boundaries, beginning with the massive walls of the *qala* itself, followed by blank alleys and entryways, before entering any of the residence clusters. Even upon entering a cluster, the line of sight is blocked and adjacent rooms have nonresidential functions. Only after one enters the residential courtyard itself does the *qala* complex take on a human dimension.

M-11

Dwelling units, level 1, *qala* B





SYMBOLS

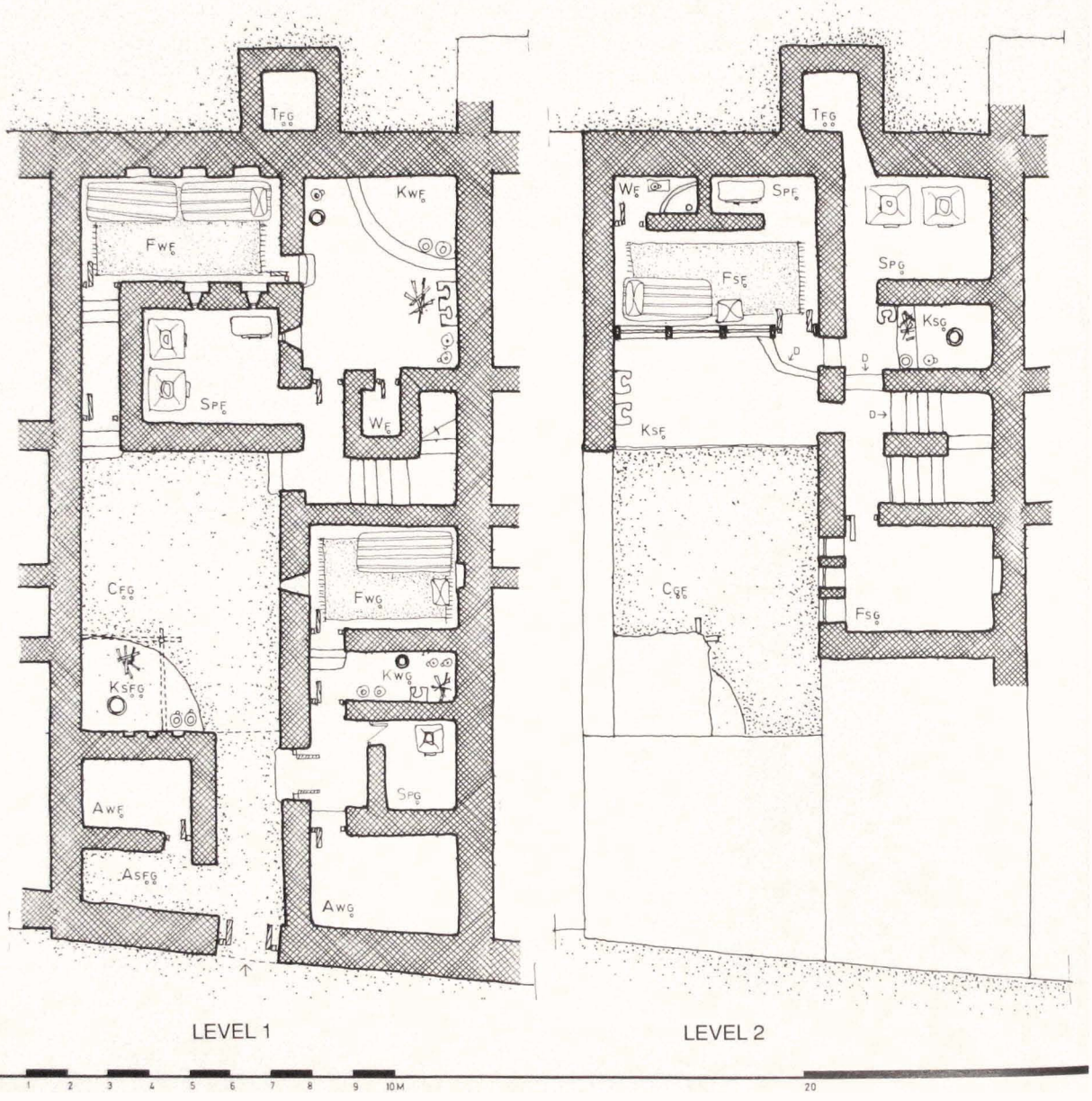
A	Animal space
C	Courtyard
F_{D}	Family room of family D
K	Kitchen
S	Storage
W	Washing

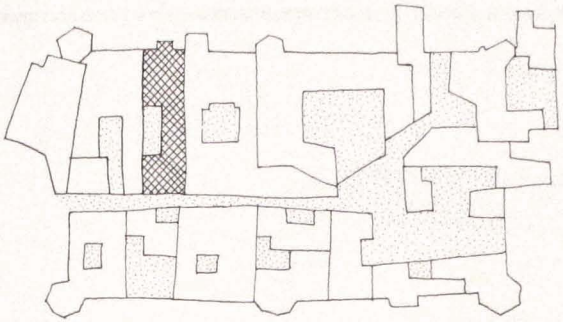
Subscripts	
P	Personal
S	Summer
W	Winter
X	Abandoned

PUBLIC SPACES: GUEST ROOM AND MOSQUE

While the architectural design of a *qala* physically and symbolically excludes outsiders, at the same time Pashtun cultural values place a premium on graciously receiving and protecting guests. This role of hospitality among Pashtuns in Afghanistan cannot be overstated, yet this tradition must be reconciled with the belief that guests also constitute a threat because they may be strangers. The family, and particularly the women, must be protected from intrusions by this outside world of strangers. The solution to this dilemma is overtly expressed by the presence of a specially designed guest room in virtually every prestige *qala*. The location and orientation of the guest room is over the single entry of the *qala,* with apertures facing outward, directly opposite the line of entry through the *qala* doors below (M-16, M-18). This keeps the family compounds out of sight but offers no hardship for the guests, as the room usually has southerly orientation, benefits from summer breezes, and has a meditative view of the countryside and easy access to the mosque, which is also near the entrance. The guest room is used for meetings of the elders, councils, visitors, and guests, who may even be accorded the ancient privilege of sanctuary. In villages where individual families lack a formal guest room, there is usually provision for an ad hoc guest house, and one person in the community is designated official host to any visitors. Often the *qala* mosque is used in this capacity. In those

M-12
Dwelling units, *qala* B





SYMBOLS

A	Animal space
C	Courtyard
F_{O}^{F}	Family room of family F
K	Kitchen
S	Storage
T	Toilet
W	Washing

Subscripts

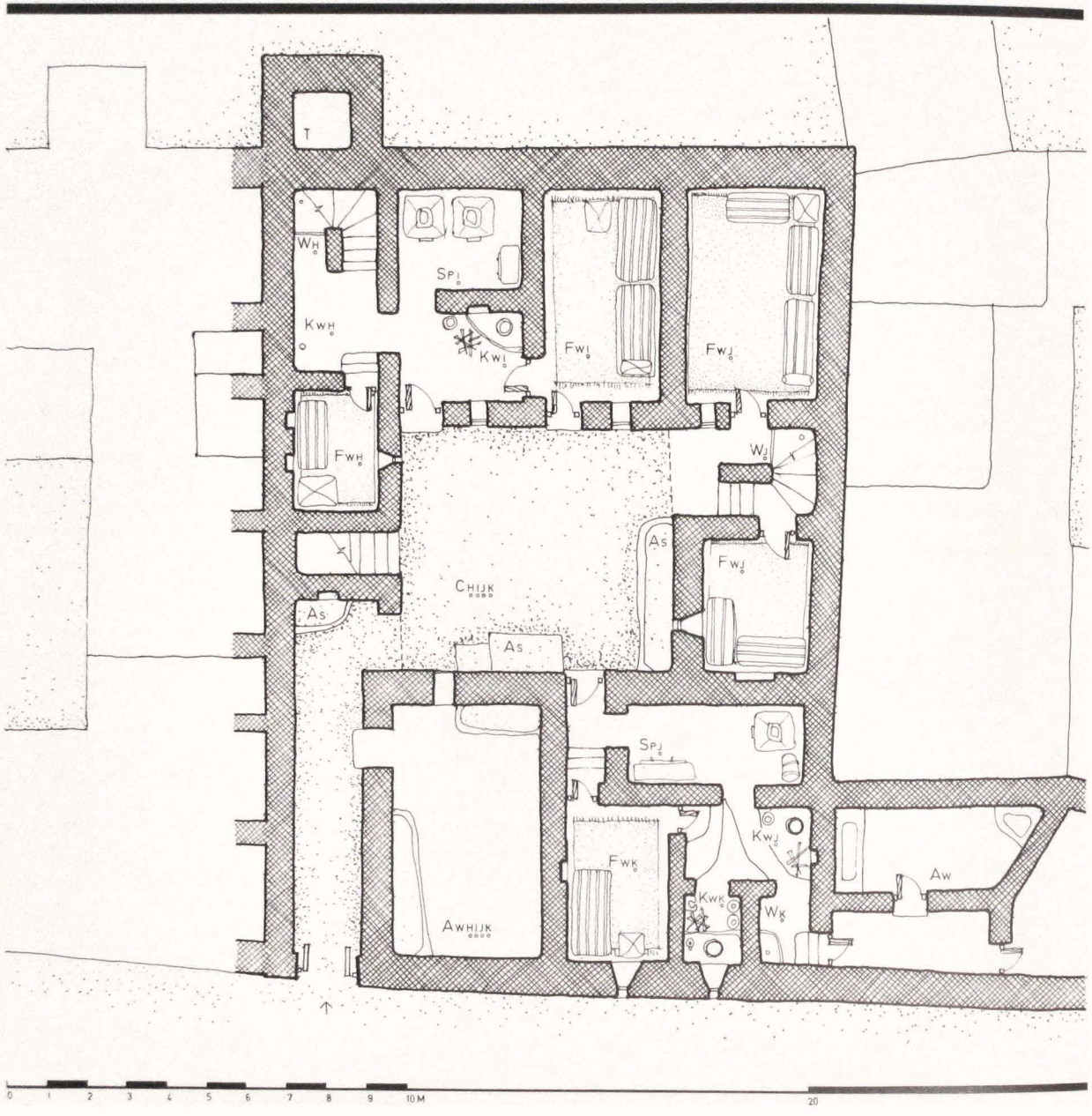
P	Personal
S	Summer
W	Winter

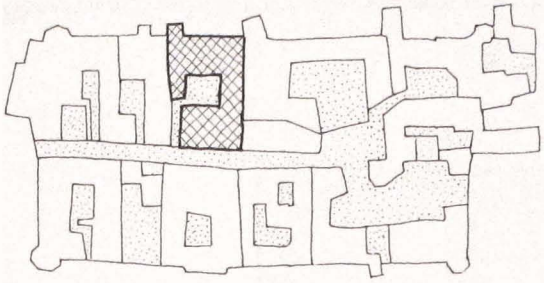
cases where no space is specifically assigned to guests, the family room may be used, but only after the women have had an opportunity to withdraw.

A mosque is usually incorporated into the living quarters of the *qala.* It may be similar to a family room, distinguished only by the presence of the *mehrab,* a niche on the west wall facing Mecca, as is often the case in the small *qala,* or it may be a larger gathering place of two floors as is shown in both *qala*s A and B (M-6, M-7, M-16). The lower, more sheltered, room is assigned for winter use. It almost always has the advantage of a heated floor made possible by a system not unlike the Roman hypocaust called a *tawa-khana.* (Note the drawing in M-16, first floor plan, that shows two chimney flues in the south wall carrying hot air from a fire hole shown in section AA at ground level below two small windows.) A below-grade fireplace, fed from the outside, has its hot exhaust channeled under the mosque floor before it reaches the opposite wall, where a flue or flues carry it up and out. The use of multiple flues spreads the heat over a larger surface, thus making the wall an additional source of radiant heat. The summer mosque on the upper floor has large apertures in the west wall facing Mecca and benefits from the summer breezes for relief during the hot season.

M-13

Dwelling units, level 1, *qala* B





SYMBOLS

A	Animal space
C	Courtyard
F_{H}	Family room of family H
K	Kitchen
S	Storage
T	Toilet
W	Washing

Subscripts

P	Personal
S	Summer
W	Winter

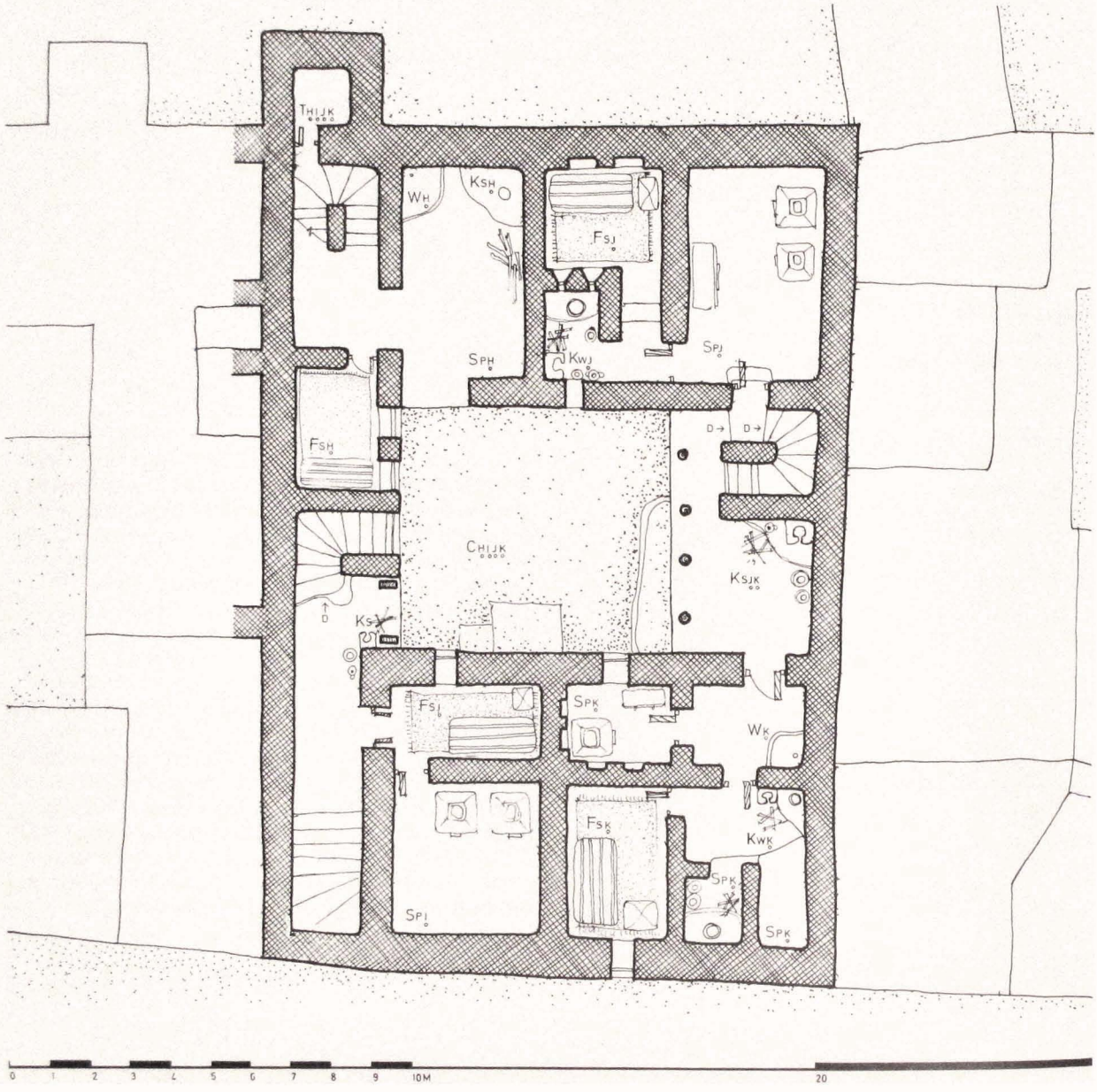
SEASONAL USE PATTERNS

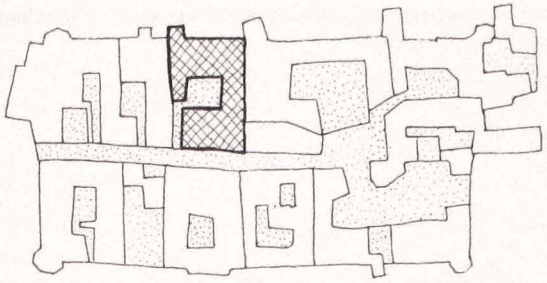
No matter how dense the population, the primary responses to climatic variations are immediate and consistent. The construction of the *qala* responds to the need to conserve heat in the winter and dissipate it in the summer. In the case of Deh Afghanan the seasonal relocations take place within the walls of the *qala.* In areas at higher elevations like the Hazarajat the summer relocation is to a portable dwelling, usually a *chapari,* sometimes directly outside the *qala,* sometimes several kilometers away to take advantage of pasture for the animals.

The first floor rooms in a *qala* compound are primarily for winter use. They are compact and have very thick walls to serve as base for the massive *qala* enclosures and also act as insulation against heat loss. They have few and small apertures. In certain parts of Afghanistan the family room (used for gathering, dining, and sleeping) may take advantage of the heat from the kitchen *tandor* (below-floor oven) by means of a serpentine duct system, *tawa-khana,* which channels the heat from the kitchen beneath the family room floor and up the chimney in the opposite wall. (These floor ducts are illustrated in Drawing M-10, section BB, fed by the *tandor* in the winter kitchen of family A to heat the floor of the winter family room in Drawing M-8; note also the flues in the opposite wall.) A washroom is sometimes

M-14

Dwelling units, level 2, *qala* B





SYMBOLS

C	Courtyard
F_{H}	Family room of family H
K	Kitchen
S	Storage
T	Toilet
W	Washing

Subscripts

P	Personal
S	Summer
W	Winter

located between kitchen and family room, and in some cases a water reservoir is also heated. Not infrequently additional warmth is gained by proximity of the animal stable to the family room.

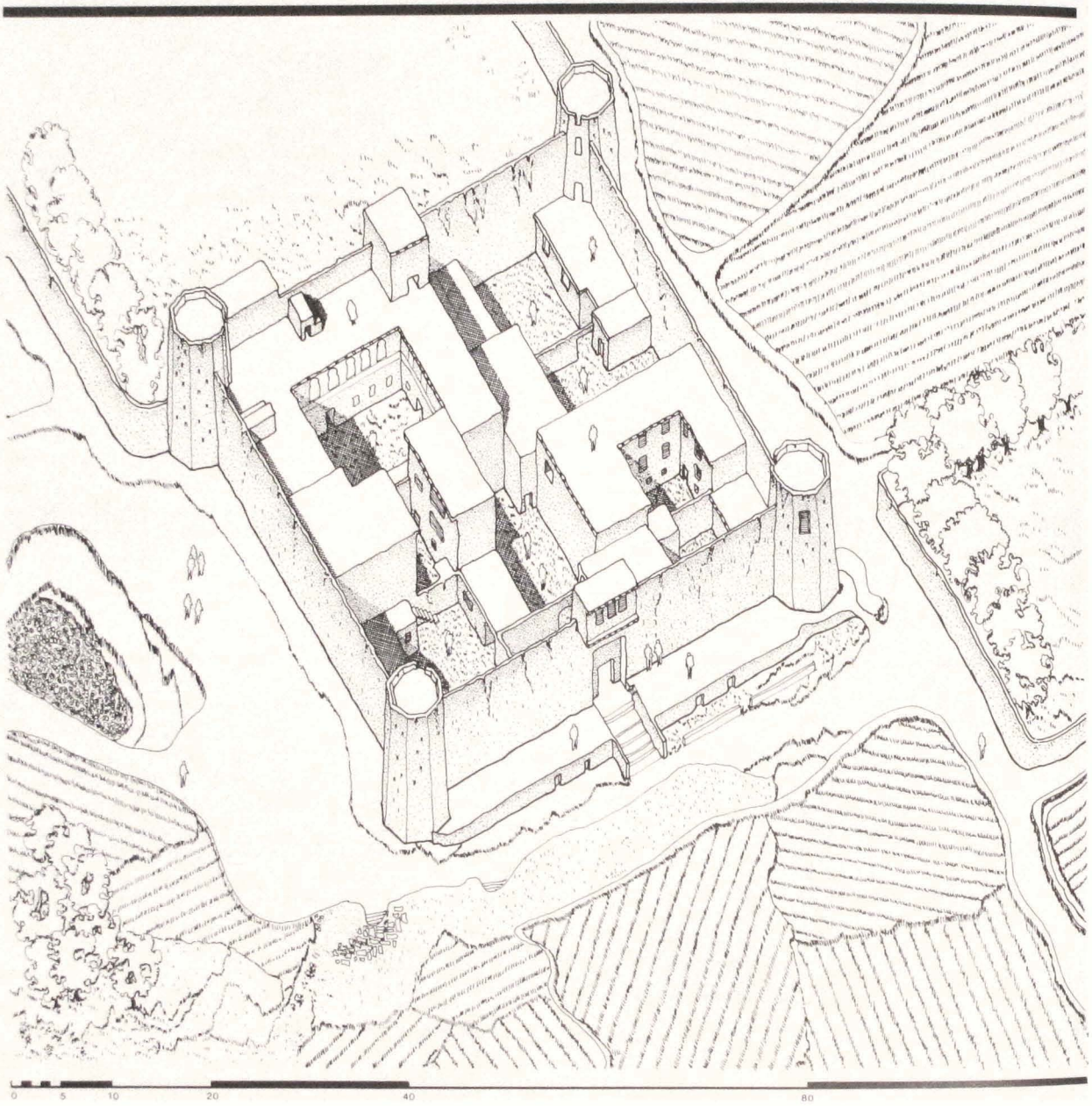
During the warmer summer months the families move to the second level, where verandas, larger and more frequent apertures, and summer kitchens are located. Air circulation is better, and the crowded quarters of the winter months are temporarily deserted in favor of the more spacious and airy second level and roofs.

ORIENTATION AND DESIGN

The use of massive *pakhsa* walls and the orientation of the structure have a critical impact on how well (or poorly) individual units within the *qala* respond to changing seasonal conditions of heat and cold. As we noted earlier, the optimum orientation for a rectangular structure at this latitude is 25° east of south (Olgyay and Olgyay 1963 : 59), within a few degrees of the orientation of both *qala*s A and B. This means that for the rectangular *qala* B the small end is facing southwest, the least desirable orientation. Within each household cluster all apertures front on courtyards and none (except for the mosque and guest rooms) face outward. While this has a defensive purpose and maintains privacy, the use of small courtyards surrounded by high walls also

M-15

Axonometric drawing of *qala* A



42. Household compound and courtyard in the interior of *qala* A.

M-16

Plans and sections of entry and guest room, *qala* A

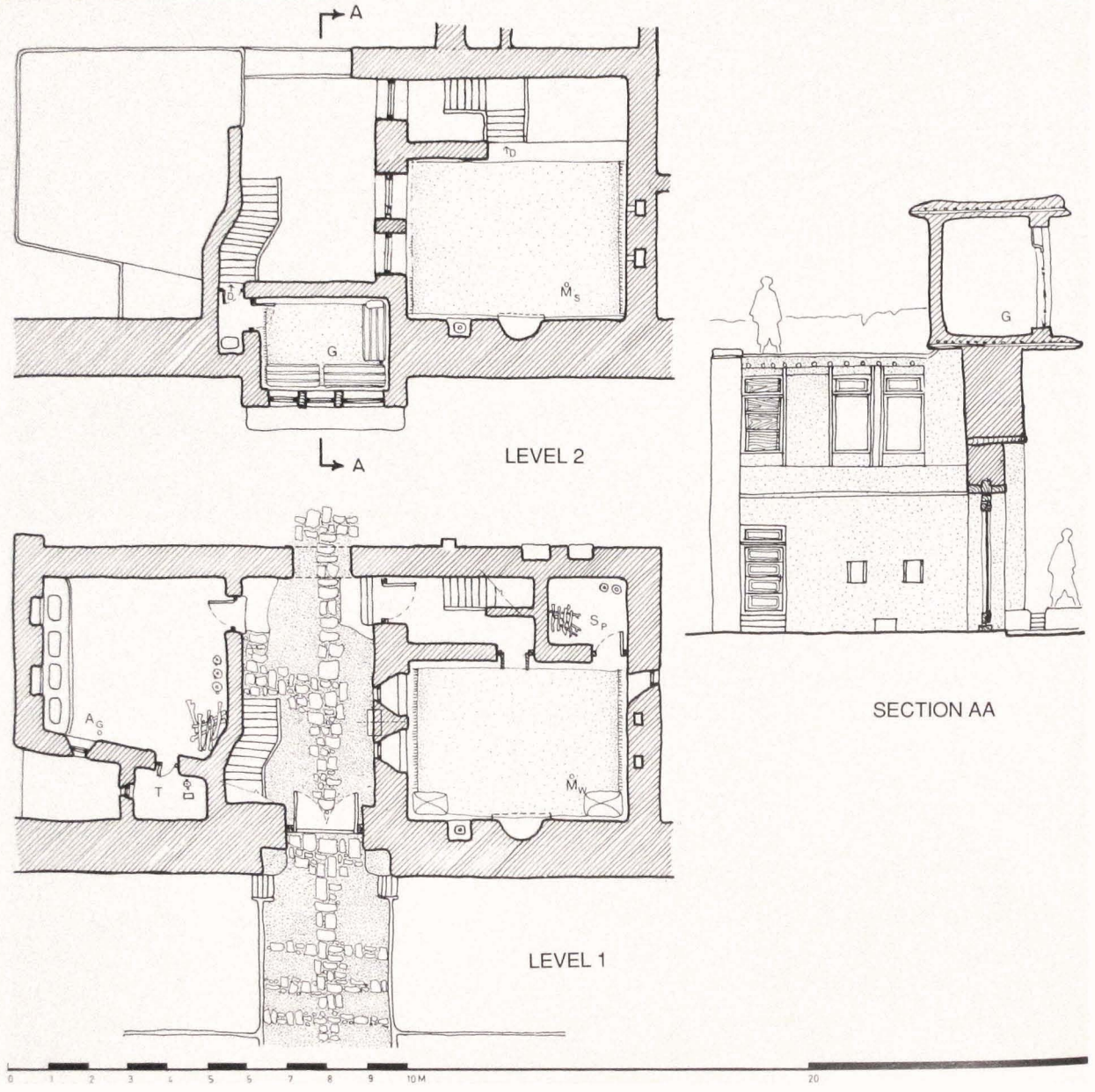


Table 4 Apertures in *Qala*s A and B

Northwest	43	23%
Northeast	32	17%
Southeast	60	33%
Southwest	50	27%
Total	185	100%

SYMBOLS

$A_{\overset{G}{O}}$ Animal space of family G

G Guest room

$\overset{O}{M}$ Mosque

S Storage

T Toilet

Subscripts

P Personal

S Summer

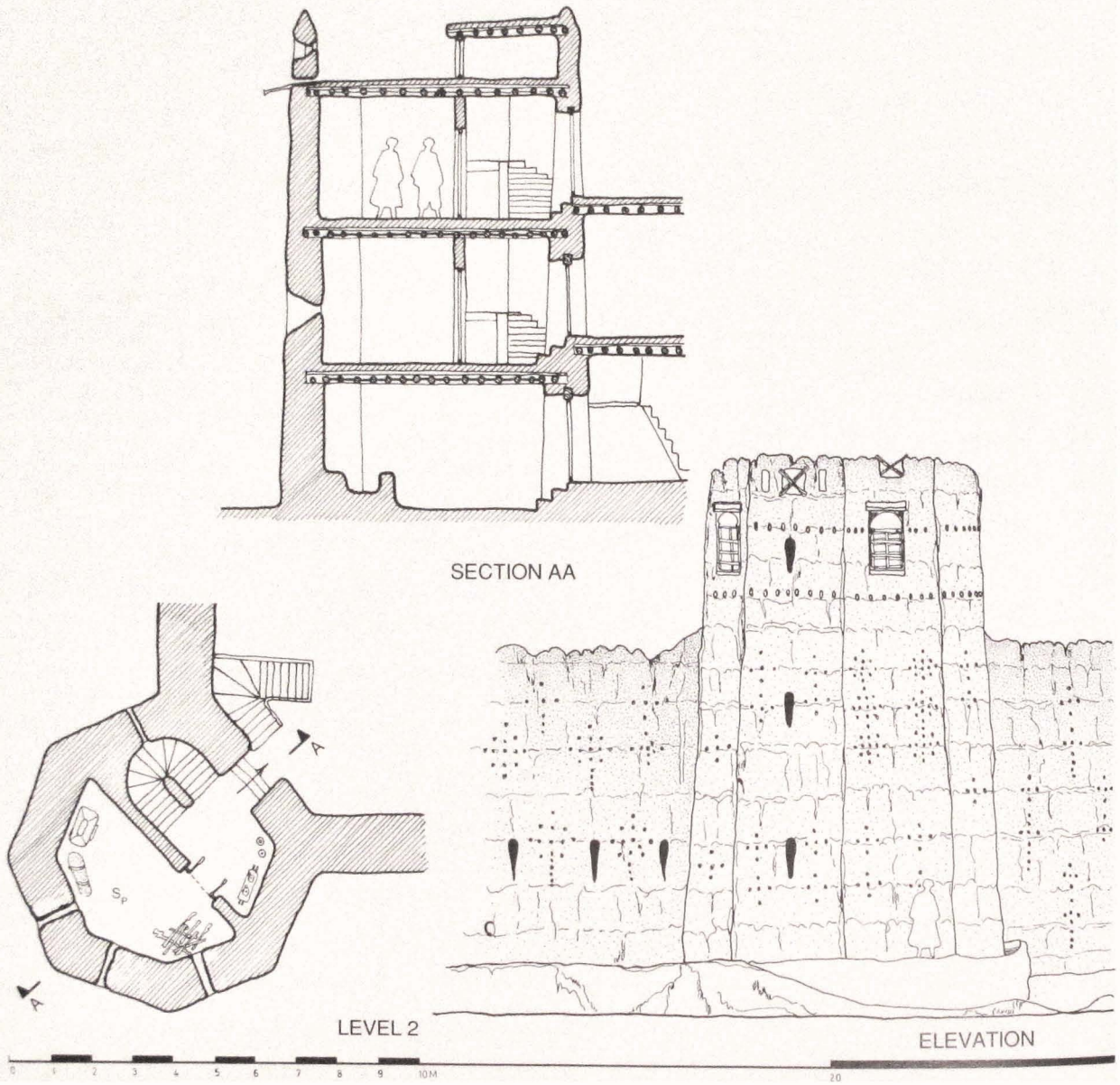
W Winter

serves to preserve the nighttime coolness of the interior during the hot summers. Most of the windows are on the second level in rooms that are used in the summer, while rooms used in the winter on the first level are smaller in both number and size. The weighted distribution of apertures (1=small window, 2=door or medium window; see Table 4) is more random in the *qala* than in any of the other study villages, in part because the massive walls are the dominant structural element and shade most of the windows for at least part of the day.

Because the materials used in *qala* construction—mud, straw, water, and poplar poles—offer virtually unlimited plastic possibilities, it is significant that the massive outside walls of the compound invariably delineate a rectilinear form. We mention this because in mud construction a wall of constant curvature is far more efficient than a straight wall when designing for optimum performance per quantity of material invested. However, the *qala* walls are straight, so other considerations than simple efficiency of materials must be involved. Constantinos Doxiades has stated that in the evolution of architecture the circular plan tends to give way to the rectilinear (1974: 152), but while this conclusion has considerable merit as an observa-

M-17

Plan, section, and elevation of tower, *qala* A



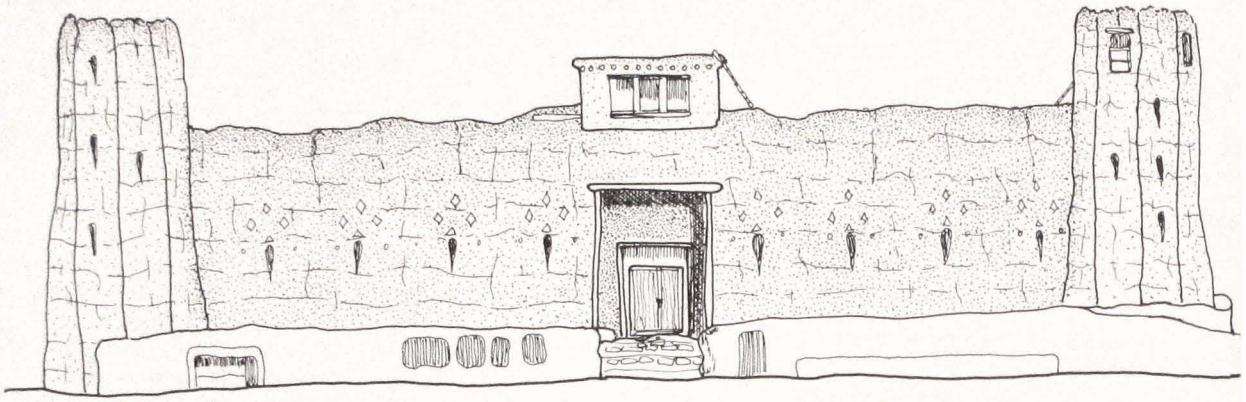
SYMBOLS

S Storage

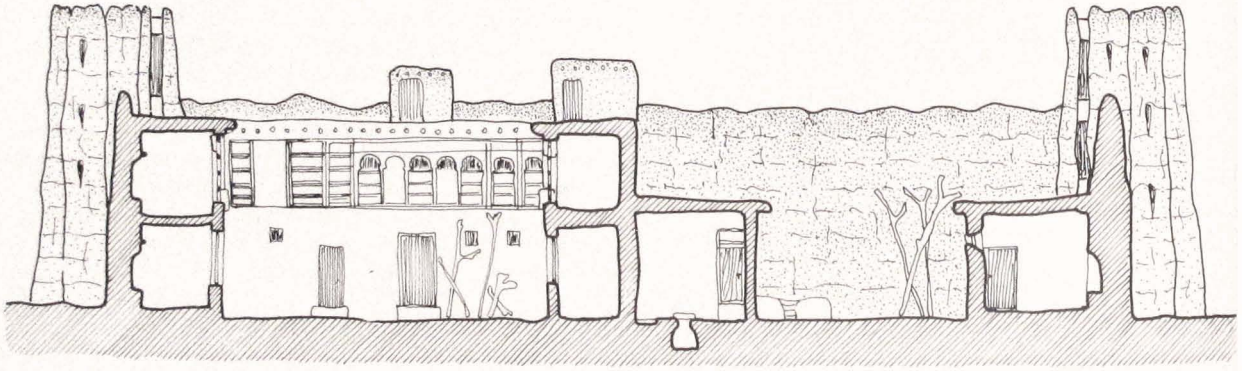
Subscripts
P Personal

tion, it does not provide an explanation of why this should occur. From our observations it appears while the efficiency of materials used in a single structure is maximized by employing curvilinear forms, such as the yurt, *chapari, lacheq,* and *kapa-i-chamshi,* it is difficult to combine such circular or curvilinear structures into multiple units, or divide the space within them, without producing awkwardly shaped spaces. The incorporation of multiple-room structures into compounds is most efficiently accomplished by employing straight sides that can be used as common walls. If we look at the number of shared walls in compound structures and the ease with which they can be subdivided, it appears that at least for Afghanistan it is the transformation of stand-alone units to multiple units that would cause the curvilinear forms to be abandoned. For example an examination of the drawings for the *qala* reveals that shared walls are absolutely essential in its construction and, over time, in its subdivision. Straight walls with towers (*bourge*) at the corners (see *qala* A, M-15) also traditionally offered a military advantage in providing wide fields of surveillance and fire for defending the structure against attack.

M-18
Elevation and section, *qala* A



ELEVATION SHOWING ENTRY



TYPICAL SECTION

0 1 2 3 4 5 10 20 40

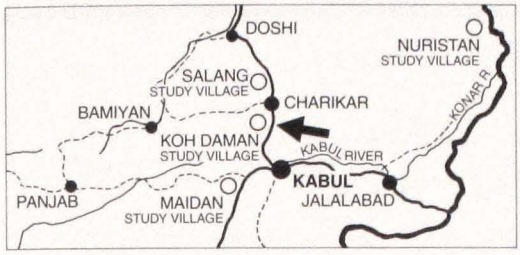
CONCLUSION

Qalas are formidable structures which are literally drawn from the earth and stand as one of the most unique and beautiful building types in Afghanistan. Unlike most other dwelling types, they are visible at great distances and possess great presence. On the broad valley floor, interrupted only by thin stands of poplar trees and flat fields of grain, the *qala*'s high, sheer walls, with corners punctuated by tall towers, clearly represent protection for residents and deterrents to attackers. The simple geometry bespeaks strength and protection, a clear lesson in legibility of form. The rectangular plan, high wall, and prominent towers warn any attackers that they are both visible and vulnerable. The impression of strength and invulnerability is increased by the positive batter of the walls and towers, a condition which heightens perspective foreshortening and creates the illusion of even greater mass. However, with all the actual and even visual strength, the very nature of *qala* construction renders it highly susceptible to erosion by natural forces. Unless it is diligently maintained, it will slowly return to its natural state in the landscape.

K-1

Context

Line frame indicates K-2 enlargement



Kolalan

AN ARTISAN VILLAGE IN THE KOH DAMAN VALLEY

VILLAGE
Istalif

SUBVILLAGE
Kolalan

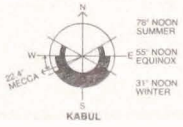
DWELLING TYPE
Flat roofs
Sun-dried brick and wood-frame walls

SYMBOLS

- Bazaar (new)
- Bazaar (old)
- Buildings
- Cemetery
- Gradient rise
- Path
- River
- Road
- Trees

DISTANCE FROM STUDY AREA

Kabul	55 km	60 min. auto
Nearest village	10 km	90 min. foot
Medical aid	14 km	20 min. auto
High school		in village
Police		in village



Kolalan is part of Istalif, a large Tajik village of about ten thousand people nestled on the slopes of the Paghman Mountains in the Koh Daman Valley 55 km northwest of Kabul. It was established more than six hundred years ago and has a long historical tradition. Babur, founder of the Moghul dynasty in India, praised Istalif's beauty and set up a royal garden there. Istalif is renowned both for its wonderful summer climate and for its crafts, in particular the production of a bright blue glazed pottery.

Istalif is set on the slope of mountain foothills and appears to sprawl randomly across them (K-1, K-2, and Photo 43). However it actually consists of thirteen subvillages, eight of which are divided along craft production lines. These crafts include goldworking, woodworking, the weaving of carpets, shawls, prayer rugs (*jai namaz*), and cotton floor coverings (*satranji*), sheepskin coat making (*posteen*), and pottery production. Each production area forms a discrete residential unit. This means that residential boundaries are coterminous with craft boundaries and that related families engaged in the same crafts live together (K-3). A unique characteristic of this village housing is the dual use of indoor space for both living and specialized craft production.

Unlike most Afghan villages, which depend mainly on agriculture, Istalif derives most of its income from craft production. Normally such a concentration of crafts is found only in urban areas, but Istalif is located near large markets and is able to serve a wide area—about 65 percent of its craft production is

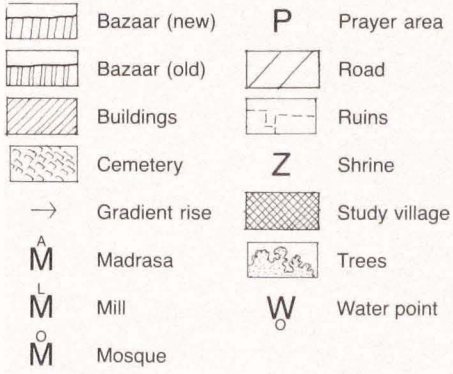
K-2
Site

Table 5 Kolalan

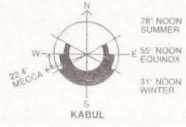
Total population	519
Number of dwelling units	48
Number of families	80
Average family size	6.5

People per Family	Number of Families	Total Number of People
4	10 (12.5%)	40
5	10 (12.5%)	50
6	22 (27.5%)	132
7	18 (22.5%)	126
8	12 (15.0%)	96
9	5 (6.25%)	45
10	3 (3.75%)	30
Totals	80 (100.00%)	519

SYMBOLS



Available materials: stone, brick, clay, wood
Sustenance: cottage industry



exported beyond the local region. In spite of its large population and emphasis on craft production, Istalif is more like an overgrown village than a small town because it lacks the diversity of trades and merchandise found in urban areas. Until the nearby paved road to Kabul made it easy to visit, Istalif had only a single small bazaar near its center. It then developed a much larger new bazaar lining the main road, in part to meet the increased demand of tourism. With the exception of wood and earth, Istalif produces few of the raw materials needed for its craft production and relies on its skills in processing to support itself. The little agriculture and animal husbandry that exists is devoted entirely to meeting personal household needs.

SOCIAL ORGANIZATION

The Istalif subvillage of Kolalan (K-4), the center of pottery production, was chosen for intensive study. It had twenty-one kilns, which produced about 500,000 pieces of pottery annually, accounting for 90 percent of household income (Photo 45). At the time of the survey in 1974 Kolalan's population consisted of eighty households, numbering 519 people, living in forty-eight residential units, as shown in Table 5. Kolalan is constructed of multistoried houses built into the side of a gently sloping hill. What is particularly noticeable from the outside is the use of common walls, courtyards, and roofs to join a number of individ-

K-3
Cottage industries

43. Aerial view of the village of Istalif in the Koh Daman Valley, north of Kabul.

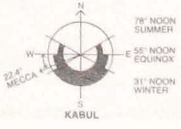
SYMBOLS

C	Carpets
G	Goldsmith
J	*Jai namaz* (prayer rugs or mats)
P	Pottery
S	*Satrangi* (cotton rugs)
L	Shawl
F	Sheepskin fur coats (*posteen*)
W	Woodworking

ual houses into large linked clusters. Many of the clusters are inhabited by single descent groups; where more than one descent group is present, they form their own residential subgroups. The villagers identified eight descent groups in Kolalan: three large (averaging 104 people) and five small (averaging 38 people). However, these linked households vary in their degree of physical integration. An examination of the interior structural layout of the study cluster shows that some units that share common walls do not share common space.

INTERIOR COMPONENTS, CIRCULATION, AND CLUSTER SPACE

Access to houses in Kolalan takes two different forms: work-related entrances directly into houses, and more formal public entrances into family quarters via courtyards. In the study cluster (K-5–7) we can see that the direct entrances into houses on the first level are designed primarily to facilitate pottery production or for stabling animals. Access to the living quarters from these first-level entries is only by means of interior staircases located in stables, storage areas, and workshops. Formal entry to the cluster by outsiders is through courtyards. The main courtyard for the cluster serves eight families directly. Families A–C have access to the main courtyard by means of stairs that lead to the roof of their neighbors, while families D–H have at



K-4
Apertures

SYMBOLS

Apertures

Gradient rise

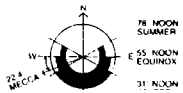
Ruins

Study cluster

Trees

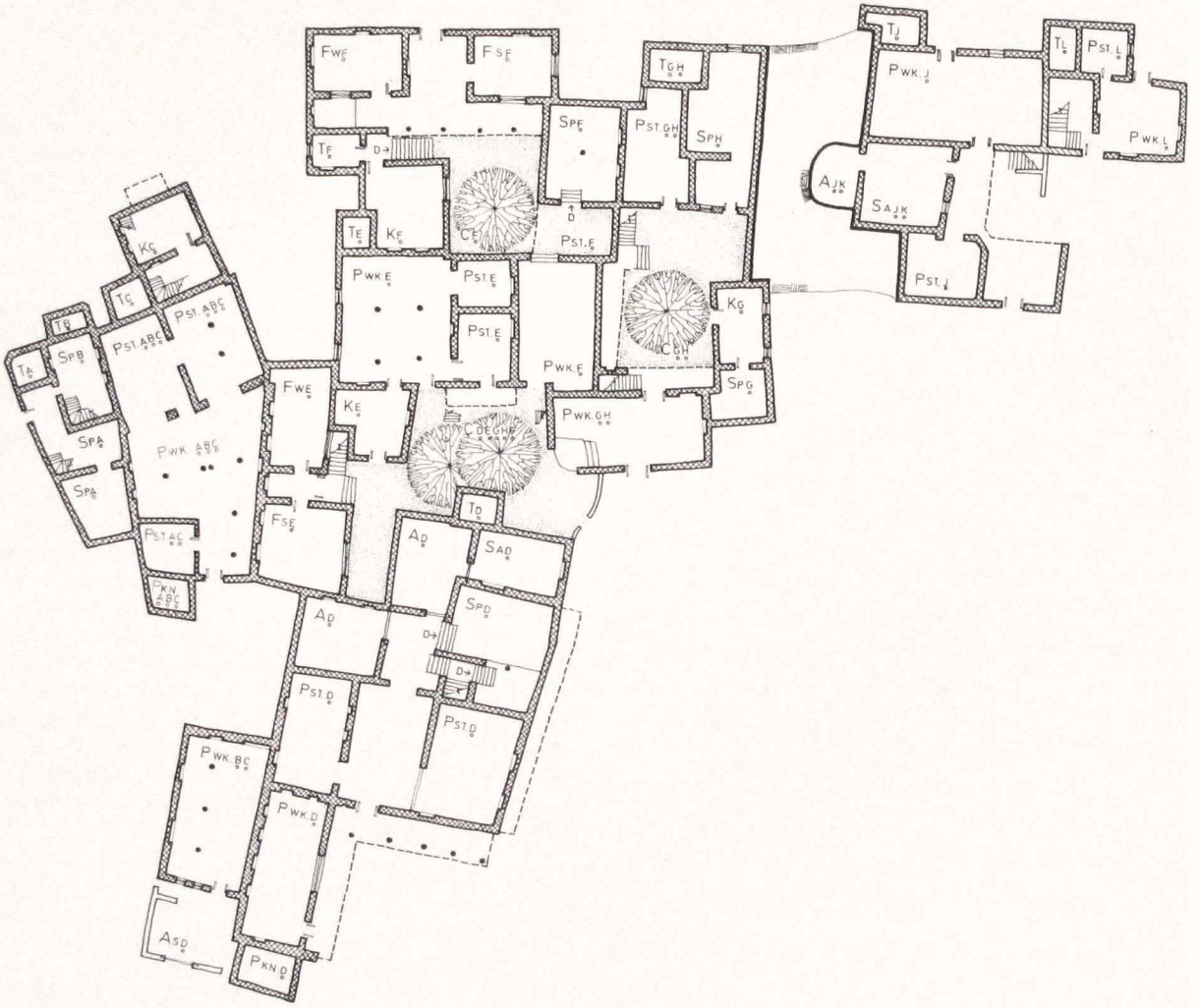
least one entryway that fronts directly on the courtyard. A series of stairways also links the main courtyard with the other interior courtyards. There are two alternate entryways for families at the extremities of the cluster. Family F, for example, has an entryway that leads directly to its own interior courtyard (K-5), while families J–L have stairways leading from the open space at the eastern end of the cluster edge.

For the residents of the cluster, circulation also takes place by extensive use of ladders and roof space. The flat roofs are designed to facilitate movement between households because people can move rapidly from one end to the other, gaining access to rooms on the second level directly or to the first level by means of stairs through courtyards. While stairways provide permanent access to different levels, villagers also employ wooden ladders to link levels. These have the advantage of creating shortcuts within and between households, but can be removed for security if necessary. This type of movement is more common in the summer, when people find it pleasant to use the roof space, than in the winter, when the cold and snow confine them to their houses.



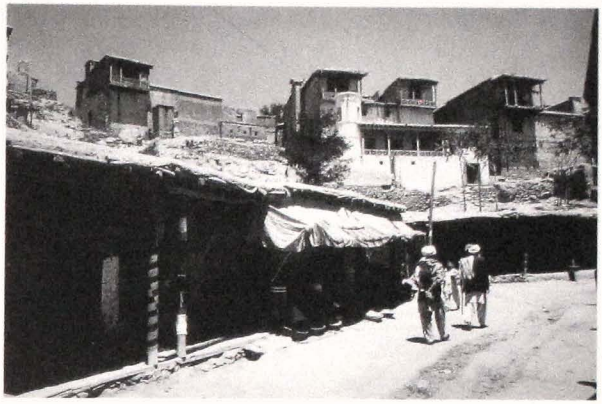
K-5

Space use, level 1



0 1 2 3 4 5 10M 20 40

44. Approach to Istalif through bazaar, showing dwellings with balconies in background.



SYMBOLS

A_{B}^{O}	Animal space of family B
C	Courtyard
F	Family room
K	Kitchen
P	Pottery room
S	Storage
T	Toilet

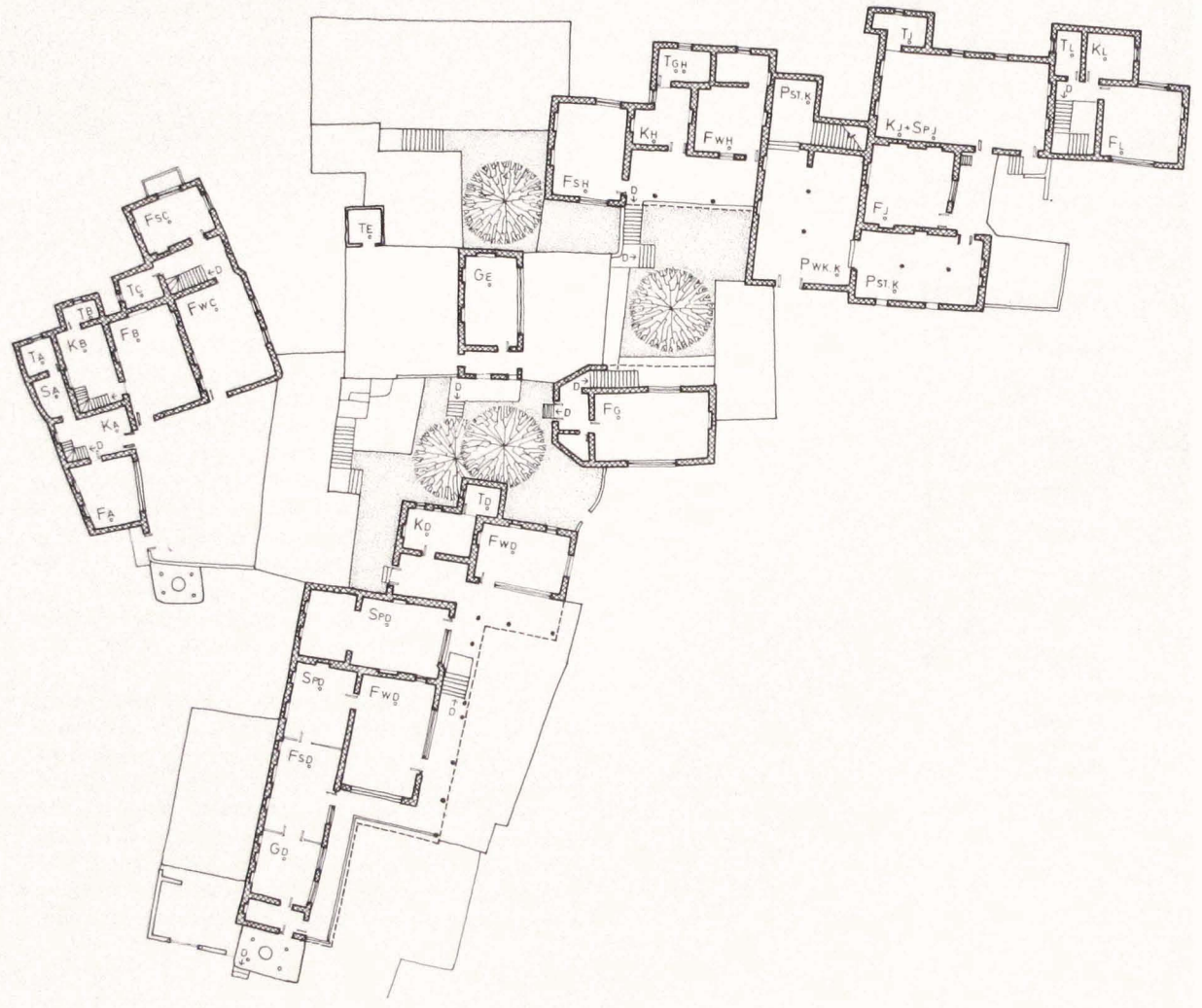
Subscripts

A	Animal food
KN	Kiln
P	Personal
S	Summer
ST	Storage
W	Winter
WK	Work room

The study cluster houses twelve families, all members of a single descent group. Unlike the *qala,* which is designed as an integrated unit, the residential clusters in Kolalan have evolved through irregular additions around courtyards. However, since each house maintains the same design priorities, the clusters themselves take on an appearance of unity. The majority of houses have two stories and access to an enclosed courtyard or open space on the perimeter of the cluster. Unlike villages where households are walled off from one another, in Kolalan residents within a cluster have visual and spatial access to each other's units. The lower level is reserved for animals, storage, pottery workshops, and sometimes kitchens, except for the minority of families that have only a single level at their disposal. The upper level contains family living and work space as well as toilets.

In many Afghan villages high outer walls are used to separate family residences from the outside world, but in Istalif this desired privacy and protection is produced by the design of the cluster itself. The walls of the first level facing the outside are constructed of solid stone or sun-dried brick, presenting a blank face, with no windows and only a few doorways that lead to work areas. Since the houses employ common walls to link them together, this produces a fortress-like effect in which the entire cluster is set apart. In contrast to the blank outer walls,

K-6
Space use, level 2



45. Glazed pottery production in the study cluster of Kolalan, a subvillage of Istalif.

SYMBOLS

F_{C}^{O}	Family room of family C	P	Pottery room
G	Guest room	S	Storage
K	Kitchen	T	Toilet

Subscripts

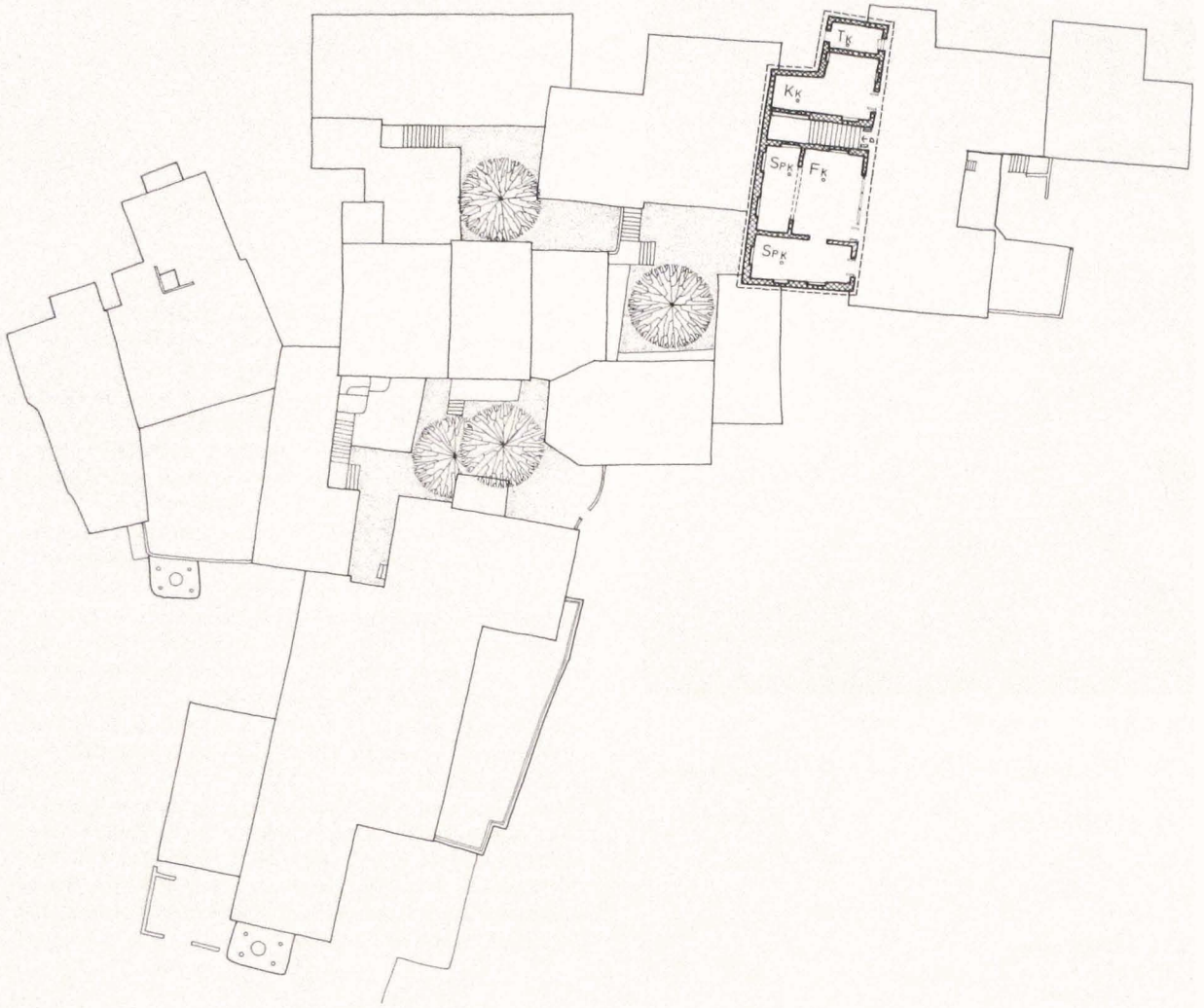
P	Personal
S	Summer
ST	Storage
W	Winter
WK	Work room

however, the inner walls of the cluster's first level, particularly those facing courtyards, have many more windows and doors. The second and third levels present a similar face, but with some windows facing the outside well above the ground. This hierarchical organization of space keeps the family at its center, using animal and work space to designate "back door" areas and the mediation of a courtyard (large or small) to provide access via the "front door" directly to residences.

There are no specially designed rooms for receiving guests on behalf of the cluster as a whole. More prosperous families may construct a guest room of their own, as D and E have done, but they are personally responsible for its upkeep. Unlike the Pashtuns, who have a strongly defined cultural tradition of hospitality, Tajiks are under little obligation to receive guests unless there is a personal relationship or a political or economic advantage to be had. Strangers without connections will be referred to the local mosque or, since there is now a growing bazaar in Istalif, to a teashop.

The unique aspect of Kolalan houses is in the integration of craft production with residential space. The study building housing families J and K (8 people) illustrates this in detail (K-8–10). The house has three floors built into the side of the hill. The first level contains animal and storage areas shared by both families and J's pottery workshop. The pottery workshop is laid out with

K-7
Space use, level 3



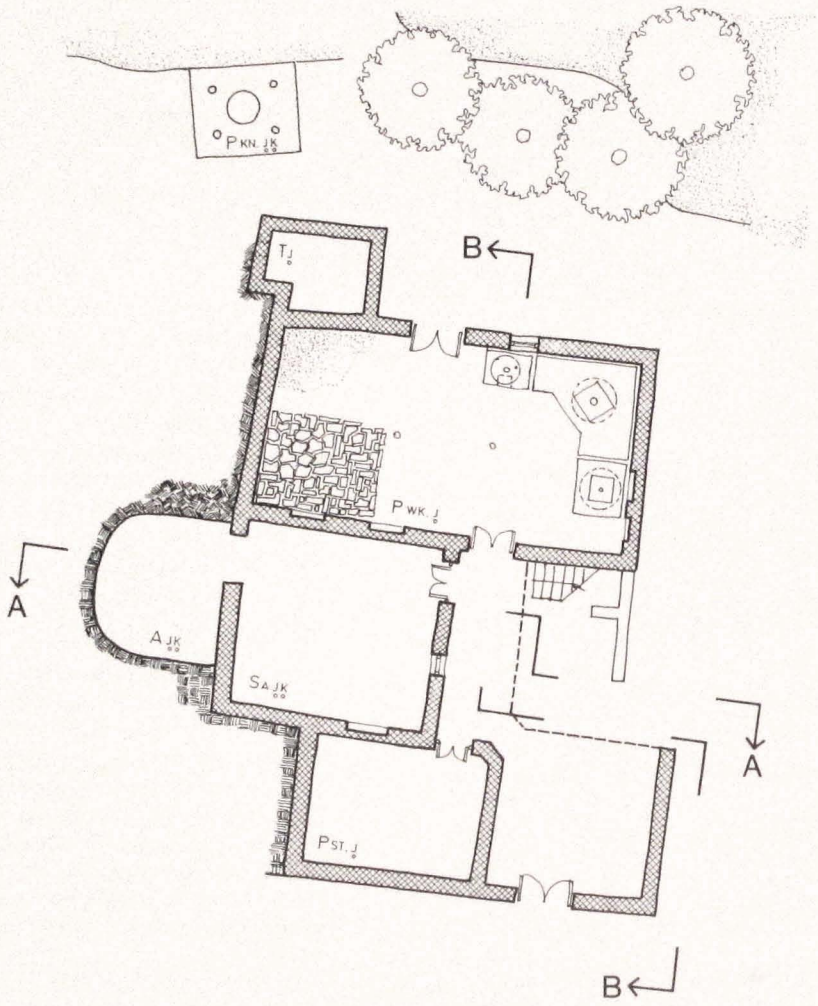
SYMBOLS

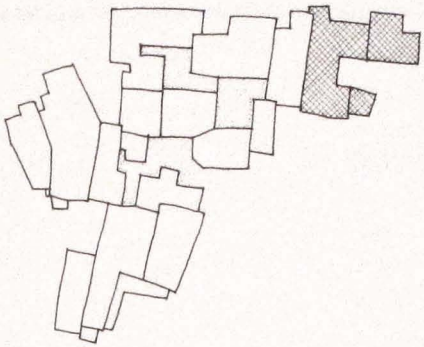
F_{K_O}	Family room of family K
K	Kitchen
S	Storage
T	Toilet
	Subscripts
P	Personal

hand mills for making pigmented glaze and two wheels for throwing the clay in one corner of the room. Opposite them the floor is set with flat stones, and it is here that the pottery clay is wedged. Thrown pots are set out to dry on the roof of the third floor or in storage rooms next to the workshop. The kiln for firing the clay is just outside the house. Family K has a similarly organized workshop on the second floor, where family J has its family room, kitchen, and toilet. The kitchen has a *tandor* (a below-grade oven for making bread), clay storage containers for grain (*kandu*), jars for water, and clay supports for cooking pots. Family K has its living quarters with the same facilities on the third floor.

There is seasonal movement of families within households that have the extra space. Winter quarters have relatively few apertures and are often insulated by their location deep inside the cluster, surrounded by storage rooms. Summer living quarters have large windows and verandas with access to the roof. Cantilevered balconies bedecked with flowers are common. Separate winter and summer kitchens are also common. Winter kitchens are designed so that the heat they generate can be used to provide additional warmth to adjacent family quarters. Summer kitchens are designed to do just the opposite, with locations that will allow the heat they generate to be dissipated quickly.

K-8
Dwelling units, level 1





SYMBOLS

$A_{\substack{J\,K\\O\,O}}$ Animal space of families J and K

P Pottery room

S Storage

T Toilet

Subscripts

A Animal food

KN Kiln

ST Storage

WK Work room

Table 6 Apertures in Kolalan

North	51	11%
South	177	36%
East	223	46%
West	35	7%
Total	486	100%

Village houses are adapted to seasonal variation by a pronounced tendency to locate apertures toward the south and east, the optimum orientation for a rectangular structure at this latitude. The weighted distribution of apertures (1=small window, 2=door or medium window, 3=double doors or large windows) is shown in Table 6 (see also K-4).

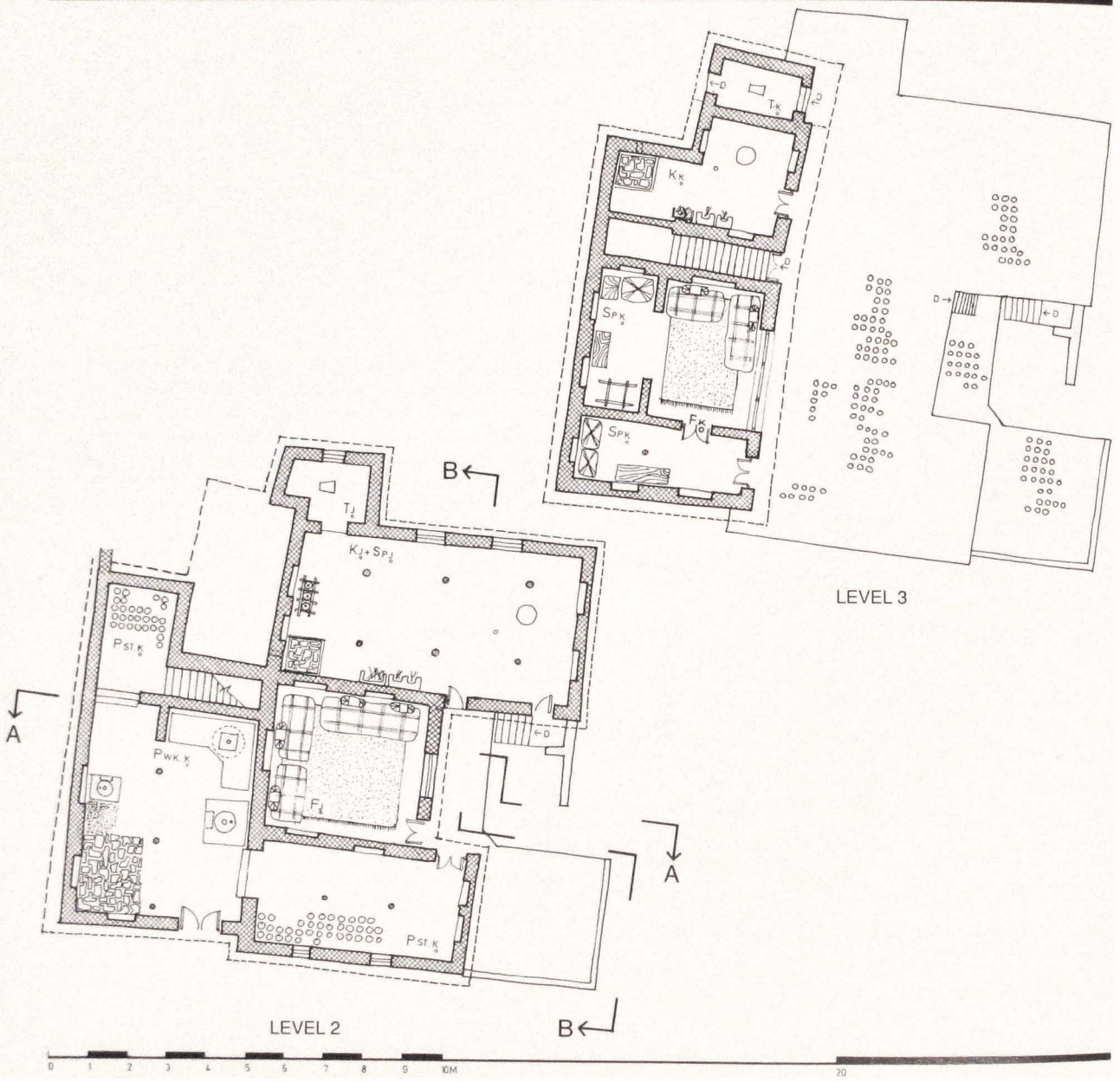
CONSTRUCTION

The houses in Kolalan contain a wide variety of materials and employ a number of construction techniques, reflecting both the availability of building resources and the need to cope with the difficulties imposed by the irregular terrain. In particular, the ground slope often forced the builders to dig into the hillside to create space. For example, the first level of the study cluster is far from even, and the many minor changes in elevation can be seen in the number of stairways leading from the courtyards to living spaces (K-5).

The foundation and walls of the first level are constructed primarily of heavy stone. This provides a solid support for the building as a whole. The second story may be sun-dried brick (*khesht-i-kham*) or tiered mud (*pakhsa*), and the third story is of wood frame (*senj*) construction filled with sun-dried bricks (see p. 153). Rooms on the second level often open onto flat roofs

K-9

Dwelling units, levels 2 and 3



SYMBOLS

F	Family room
K_O^J	Kitchen of family J
P	Pottery room
S	Storage
T	Toilet

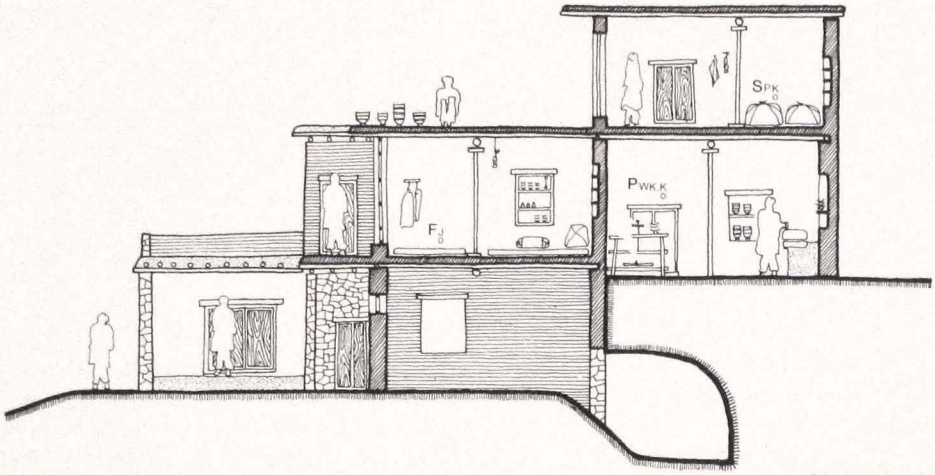
Subscripts

P	Personal
ST	Storage
WK	Work room

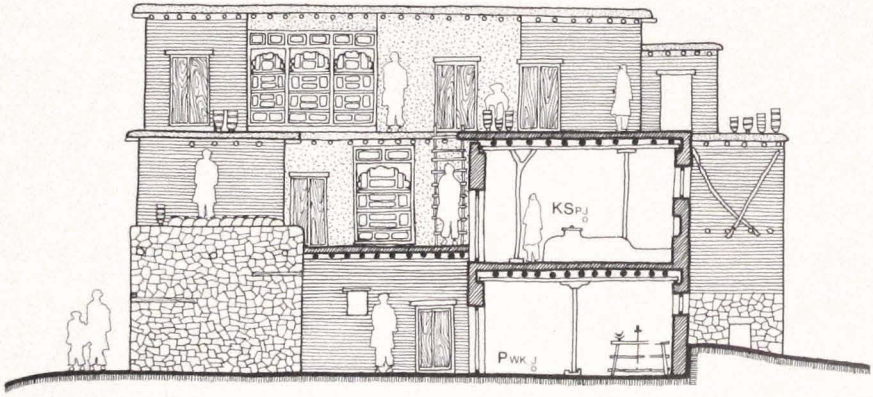
which allow communication between different households. The weight of the floors and roof is evenly distributed by poplar pole beams (*ketayba*) in the stone or *pakhsa* walls that receive them. Where the distance spanned is greater than the poles' ability to resist excess deflection, or possible failure, intermediate beams and columns are added. These columns are of mulberry or maple and often irregular in shape. Forked tree trunks are often chosen because they hold the beam firmly in place. Straight columns have a short T-bar added to the top to hold the center beam. In some cases a large rock may be seen under the base of the column. This may be employed to distribute the load on the earth floor to prevent settling or to correct deflection after settling has occurred.

The biggest change in use of construction materials in recent times has been the greater use of wood and consequent addition of more verandas and balconies. In the past villagers reported that construction was limited by the supply of wood, particularly poplar poles, available in the immediate area. *Senj* construction requires a considerable amount of wood, but without it second and third floors would require much more massive walls. With the construction of better roads and greater trade, poplar poles could be imported from other regions at a reasonable cost. Using the original foundation, renovations or new additions could be constructed much more easily. This was particularly true for the construction of balconies and verandas,

K-10
Sections



SECTION AA



SECTION BB

0 1 2 3 4 5 6 7 8 9 10M

SYMBOLS

F_{J}	Family room of family J
K	Kitchen
P	Pottery
S	Storage

Subscripts

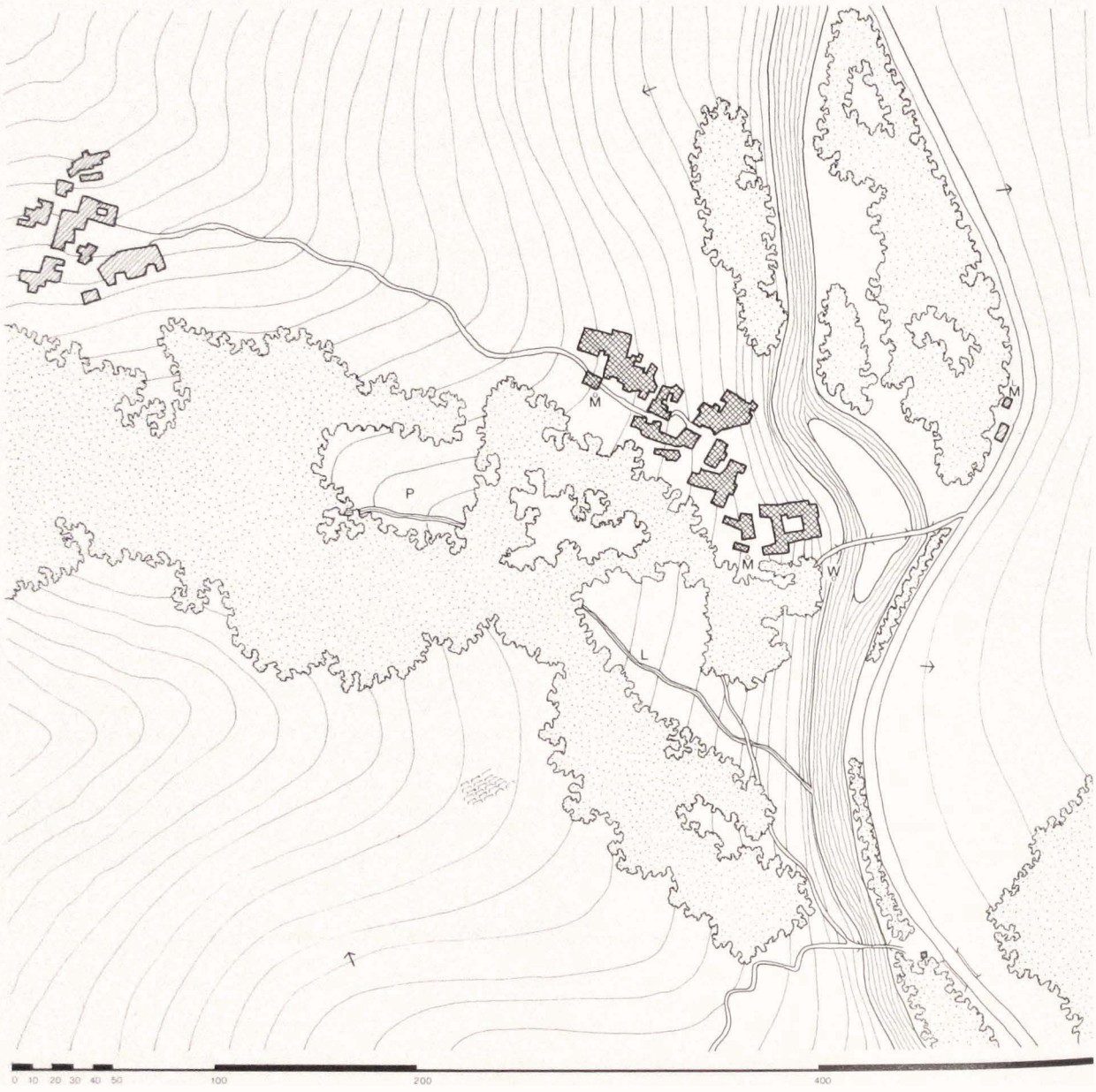
P	Personal
WK	Work room

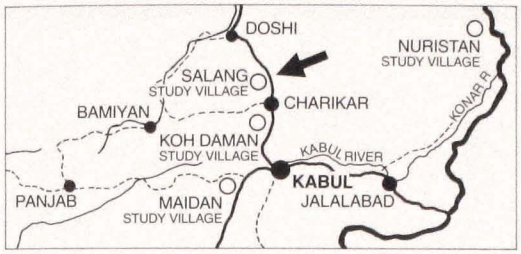
which depend on wooden support beams. At the same time there was an evolution away from using *pakhsa* for wall construction and its replacement by sun-dried brick. This was also probably connected with the greater availability of *senj* framing which is infilled with brick.

CONCLUSIONS

Kolalan is an example of how in traditional domestic architecture space for work and living are harmoniously combined within a single structure. The tasks of daily living and craft production are integrated in such a way that one flows into another. This integration is what sets villages of artisans apart from their urban counterparts, whose workshops are usually separated from their residences. Even though it has a large population, Istalif retains the character of a village through its organization of individual dwellings combined to form clusters. These clusters house a large number of people yet are still linked by meandering pathways, common spaces, and groves of trees. Only in the new bazaar along the road is this sense of insularity interrupted. To the outside observer the clusters and the subvillages they form create the impression of a space in harmony with its environment, but not dominated by it.

S-1
Site





Taqma

A DORMITORY VILLAGE IN THE SALANG MOUNTAINS

VILLAGE
Taqma

DWELLING TYPE
Flat roofs
Dry stone walls

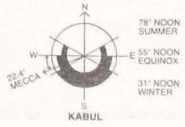
SYMBOLS

	Buildings	P	Prayer area
	Cemetery		River
→	Gradient rise		Road
L	Laundry		Study village
L M	Mill		Trees
O M	Mosque	W O	Water point
	Path		

DISTANCE FROM STUDY AREA

Kabul	85 km	90 min. auto
Nearest village	8 km	15 min. auto
Medical aid	8 km	15 min. auto
High school	8 km	15 min. auto
Government office	4 km	7 min. auto
Police	4 km	7 min. auto

Available materials: stone, wood, mud
Sustenance: agriculture, animal husbandry

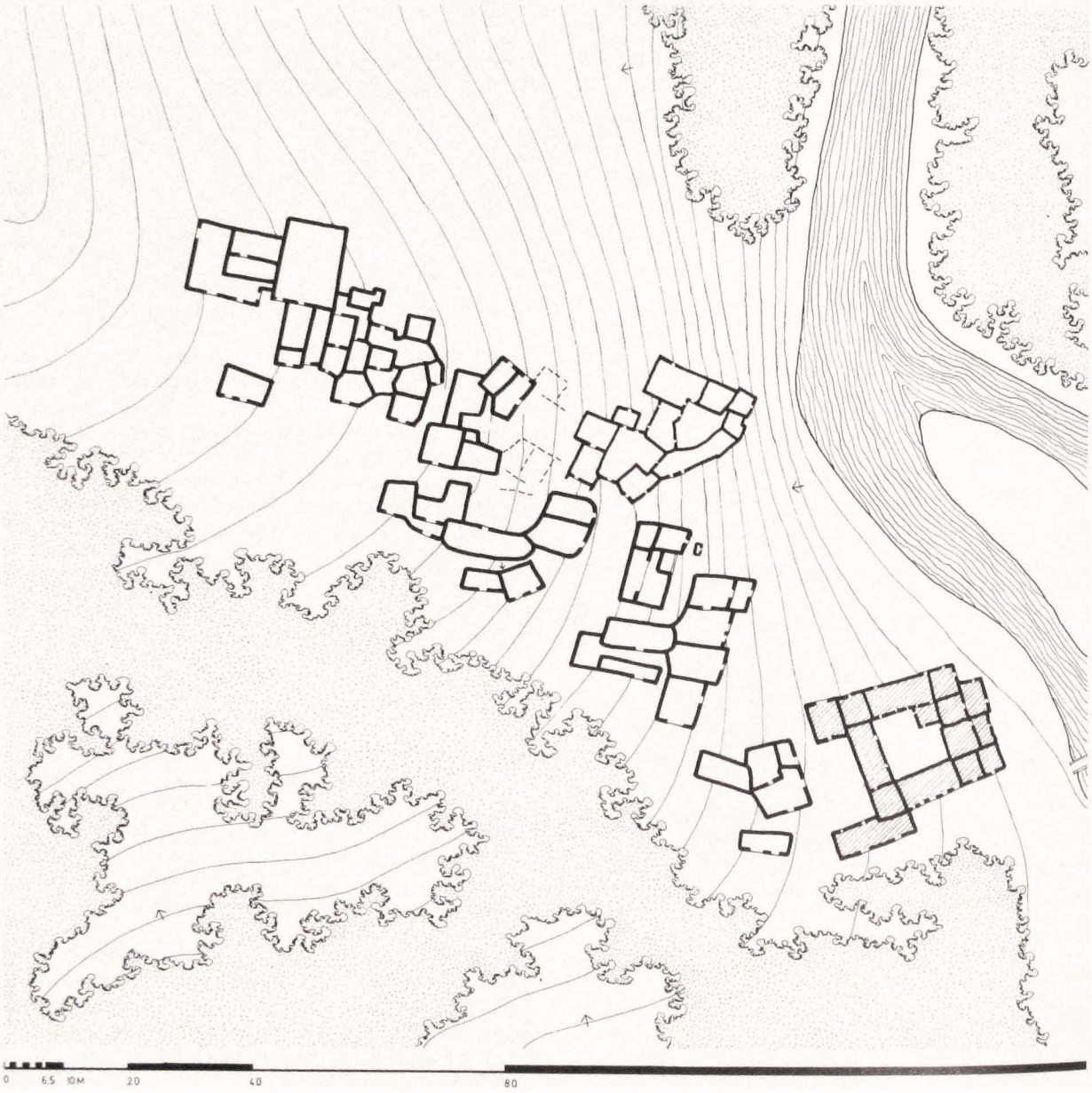


The village of Taqma in the Salang Mountains is an example of massive stone construction adapted to withstand the severe winters common at high elevations. The village was formerly difficult to reach and very poor even by traditional Afghan standards, but this isolation was broken in the 1960s with the construction of a tunnel through the Salang Pass and a paved highway linking Kabul with northern Afghanistan. The road quickly became a main artery of trade with year-round motor traffic. Because Taqma sat alongside this new highway, its inhabitants could easily travel to urban areas. They therefore abandoned dependence on subsistence agriculture for wage labor in Kabul or in the smaller towns along the road. The village was transformed into a dormitory complex in the sense that many of the men spent between one to six months working elsewhere, mostly as laborers.

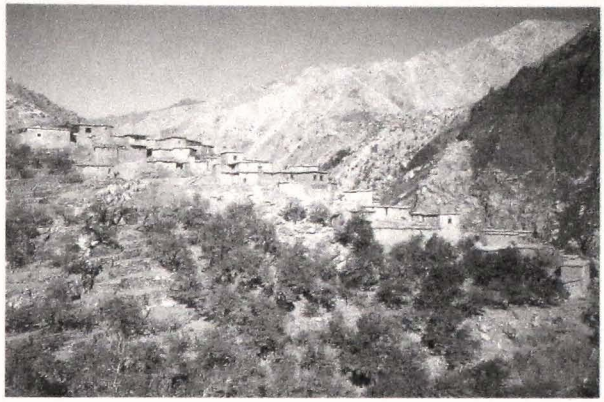
SOCIAL ORGANIZATION

Taqma is the smallest of the four study villages, with a Tajik population of 134 people divided into twenty-eight households living in seventeen dwelling units, as shown in Table 7. The villagers estimated the age of Taqma at 150 years, although it may be older. The locations of Taqma and other Salang villages on precipitous mountain slopes were originally chosen for reasons of defense, to preserve the limited arable land for their groves of trees, and to catch the maximum amount of sunlight (S-1). The land itself is rocky and does not support grain crops at high altitudes. In the past the people lived almost entirely on irrigated tree crops such as mulberries and walnuts. A British survey team in the 1830s noted that dried mulberries, often ground

S-2
Apertures

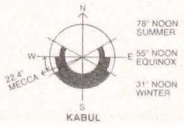


46. The study village of Taqma in the Salang Mountains looking northeast.



SYMBOLS

- Apertures
- Gradient rise
- River
- Ruins
- Study cluster
- Trees

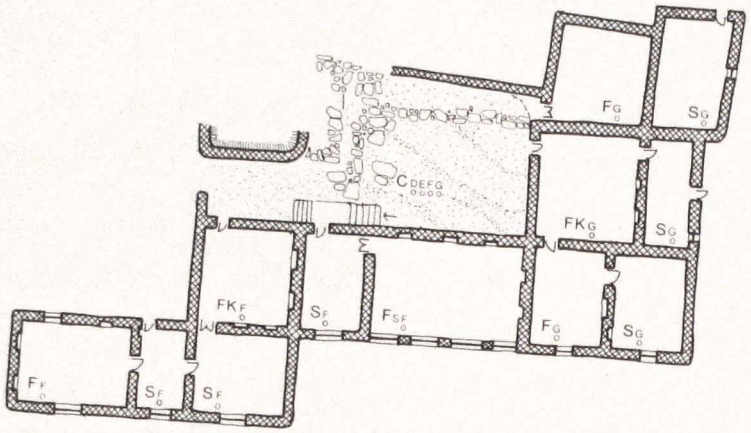


into a flour, were as important for subsistence to these mountain dwellers as were dates to Arabs in desert oases (Wood 1872 : 121).

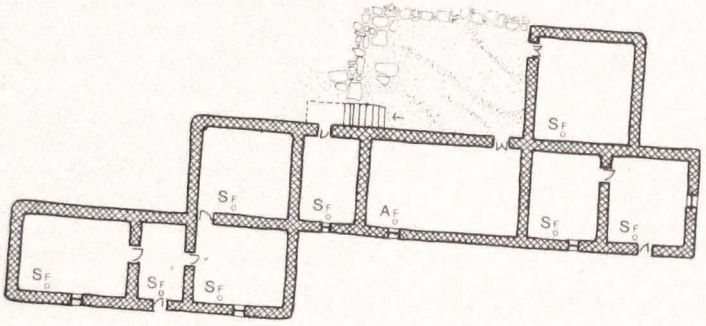
Tajiks are not organized along tribal lines, that is, they do not claim descent from a common ancestor or maintain genealogies that link them with other Tajik groups. They identify themselves by village or region of origin. It is a very widely applied ethnic label, for throughout Afghanistan most sedentary villagers or city-dwellers who speak Persian and are Sunni Muslims are designated Tajik. The village Tajiks north of Kabul are also referred to as Kohistanis, "Mountain People." These mountain villages have always had considerable autonomy because governments found them difficult to reach and they were generally so poor as to make any effort at administration a money-losing proposition.

Economically there have been many links between the mountain villages and the plains and cities below. There was always some trade over the Hindu Kush Mountains that passed through Salang, but the major caravan link was to the west via Bamiyan and the Shibar Pass. Because the agricultural productivity was low and the harsh winters created a slack season, men traditionally came to cities to find seasonal work. The opening of a new highway into Salang intensified what had been an established economic pattern of seasonal labor migration. More important, it meant that food could be cheaply transported to the area, reducing the dependence on tree crops and allowing the villagers to turn what had once been luxuries, wheat bread and tea, into staples in their diet. Although the local economy was transformed with the opening of the Salang Pass to motor traffic, there was less impact on the physical appearance of the

S-3
Space use, levels 1 and 2

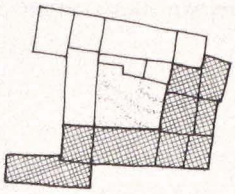


LEVEL 2



LEVEL 1

0 1 2 3 4 5 10M 20 40



SYMBOLS

A_{F} Animal space of family F
C Courtyard
F Family room
K Kitchen
S Storage

Subscripts
s Summer

Table 7 Taqma

Total population	134
Number of dwelling units	17
Number of families	28
Average family size	4.8

People per Family	Number of Families	Total Number of People
2	2 (7.1%)	4
3	7 (25.0%)	21
4	6 (21.4%)	24
5	7 (25.0%)	35
6	1 (3.6%)	6
7	2 (7.1%)	14
8	1 (3.6%)	8
10	1 (3.6%)	10
12	1 (3.6%)	12
Totals	28 (100.0%)	134

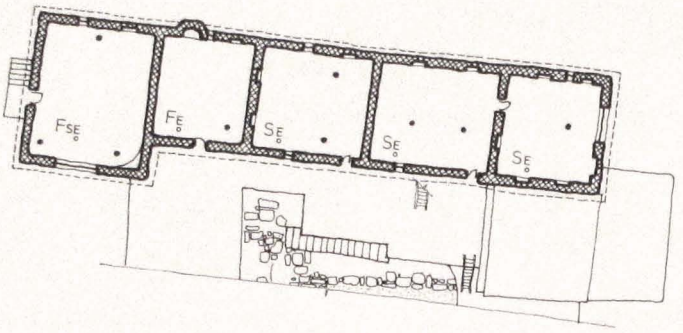
village and its architecture, even though previously unavailable building materials and craft skills could now be imported. In part this is because, at the time of the study, the road had only been open for ten years. However, the harsh winter environment in the Salang is also a constraint. The addition of balconies or verandas like those common to Istalif is probably feasible only for villages at lower altitudes.

INTERIOR COMPONENTS: CONSTRUCTION, CIRCULATION, AND CLUSTER SPACE

Taqma consists of multistoried stone houses built on a steep mountain slope. They are constructed with heavy stone walls which support multistoried buildings that house extended families (see p. 145). To effect interlocking at the corners, stone quoins or long pieces of wood are used. The use of quoins is extremely important because the stone walls must taper slightly in thickness as they rise to support two or three floors. The levels are stacked like stairs so that in the study cluster, for example, the four levels rarely have more than one story built atop another (S-6). The roof and floors are supported by poplar beams spanning the space between the stone walls and resting on poles recessed in the top of the walls. The roof must be carefully maintained by resurfacing on a regular basis and is vulnerable to melting snow, which is removed by the inhabitants with special wooden shovels.

The houses employ common walls and roof space to form a cluster around a small courtyard which is connected by a short enclosed corridor to the outside. The circulation pattern of such compounds is highly restricted, with many dead ends and few

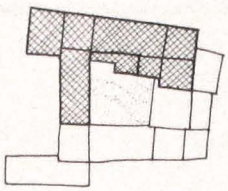
S-4
Space use, levels 3 and 4



LEVEL 4

LEVEL 3

0 1 2 3 4 5 10 20 40



47. Detailed view of Taqma residential clusters with ladders for vertical circulation.

SYMBOLS

F_{E}^{O} Family room of family E

K Kitchen

S Storage

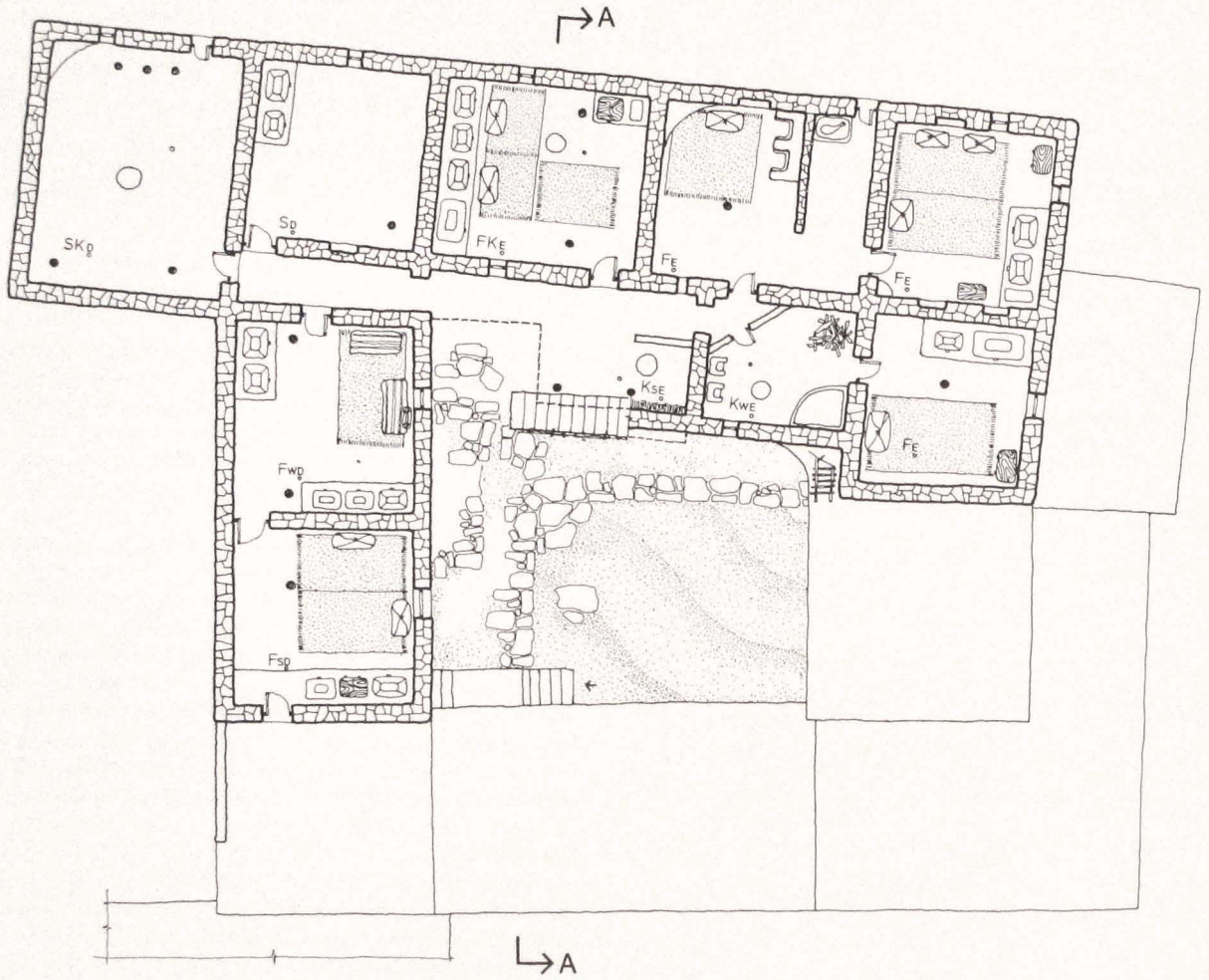
Subscripts
s Summer
w Winter

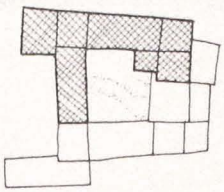
connections between levels. Unlike Kolalan in Istalif, where first-level entryways are connected with all the rooms of a household, in Taqma there are no interior stairways to connect different levels even within a single household. In addition, most of the lower outside entries on the first and second levels are dead ends which lead only to storage rooms and provide no access to adjacent living quarters. Some flexibility of movement is obtained with ladders that provide access to the roof space and allow residents to move from one level to another inside the compound. The design of the accessways and outer walls also serves a defensive purpose. The sheer stone walls with limited entries give a fortress-like appearance to the structure as a whole and make it difficult to attack. Inside the compound the narrow doorways, abrupt changes in direction, dead ends, and ladders connecting different levels make it difficult for strangers or hostile forces to move around or indeed find their way.

Clusters of houses in Taqma are small and not easy to define since not all of them have well-defined courtyards with common entryways. Because their construction employs thick stone walls that are not as plastic as mud or brick, they cannot be combined without careful planning. The study cluster (*see* S-3–6), one of the largest and most clearly delineated in the village, houses four families who share a common courtyard. It has a high ratio of storage space to living space compared with the other study villages. Because of Taqma's geographical isolation (before the opening of the Salang Highway) and heavy winter snowfalls, such extra storage capacity was undoubtedly necessary to maintain needed supplies for many months. Residents choose living

S-5

Dwelling units, level 3, families D and E





48. Village leader of Taqma.

SYMBOLS

F_{E}^{O} Family room of family E

K Kitchen

S Storage

Subscripts
s Summer
w Winter

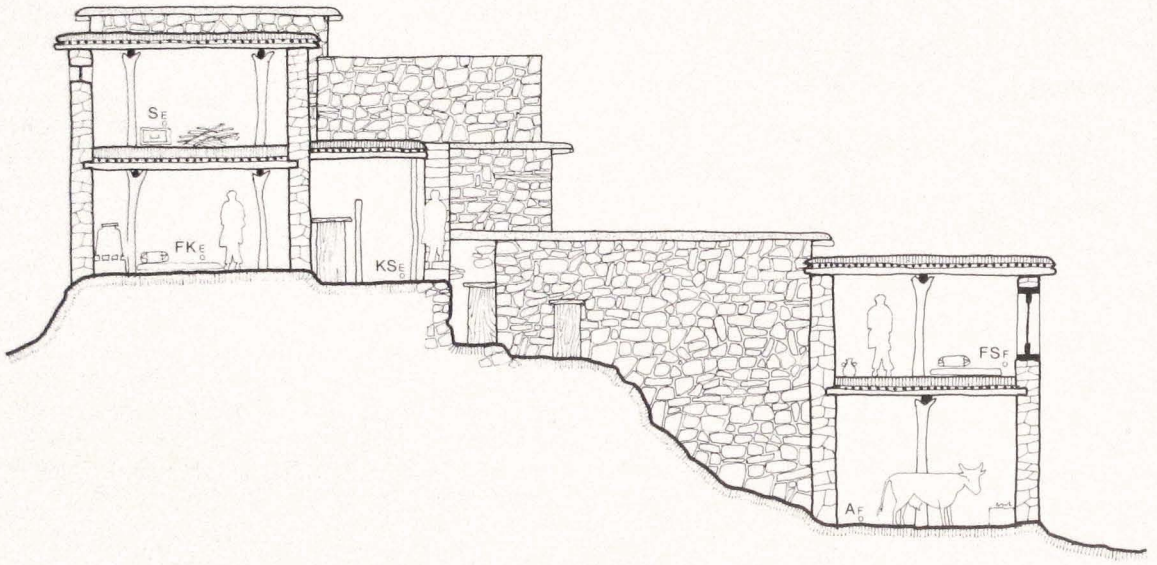
quarters with storage space above, below, or around them as a way to preserve heat in the winter and protect against drafts. Seasonal adaptations are made by having separate summer and winter living rooms.

There are two types of entrances to family living quarters. Most of the entrances front on part of the central courtyard which leads to the outside via a corridor. Each family also maintains one door that leads directly to the outside of the cluster through a nonresidence space (store room, anteroom, or kitchen). Since the houses in Taqma have no toilets or washrooms, this direct access to the outside is quite useful. One reason for the lack of circulation is the need to provide interior living spaces protected against the winter cold as much as possible by means of heavy walls. The rooms themselves are quite small, with their few apertures oriented south and east to maximize insolation. Taqma displayed a higher percentage of southern apertures than any other study village with a weighted distribution (1=small window, 2=door or medium window, 3=double doors or large window) as shown in Table 8 (see also S-2).

Table 8 Apertures in Taqma

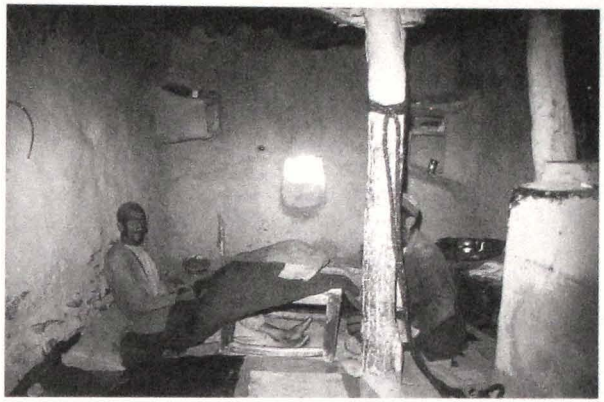
North	19	12%
South	92	60%
East	38	25%
West	4	3%
Total	153	100%

S-6
Section AA



0 1 2 3 4 5 6 7 8 9 10M

49. Interior view of family room in Taqma with men demonstrating the use of a *sandali* heating system.



SYMBOLS

A	Animal space
$F_{\underline{E}}^{\underline{O}}$	Family room of family E
K	Kitchen
S	Storage

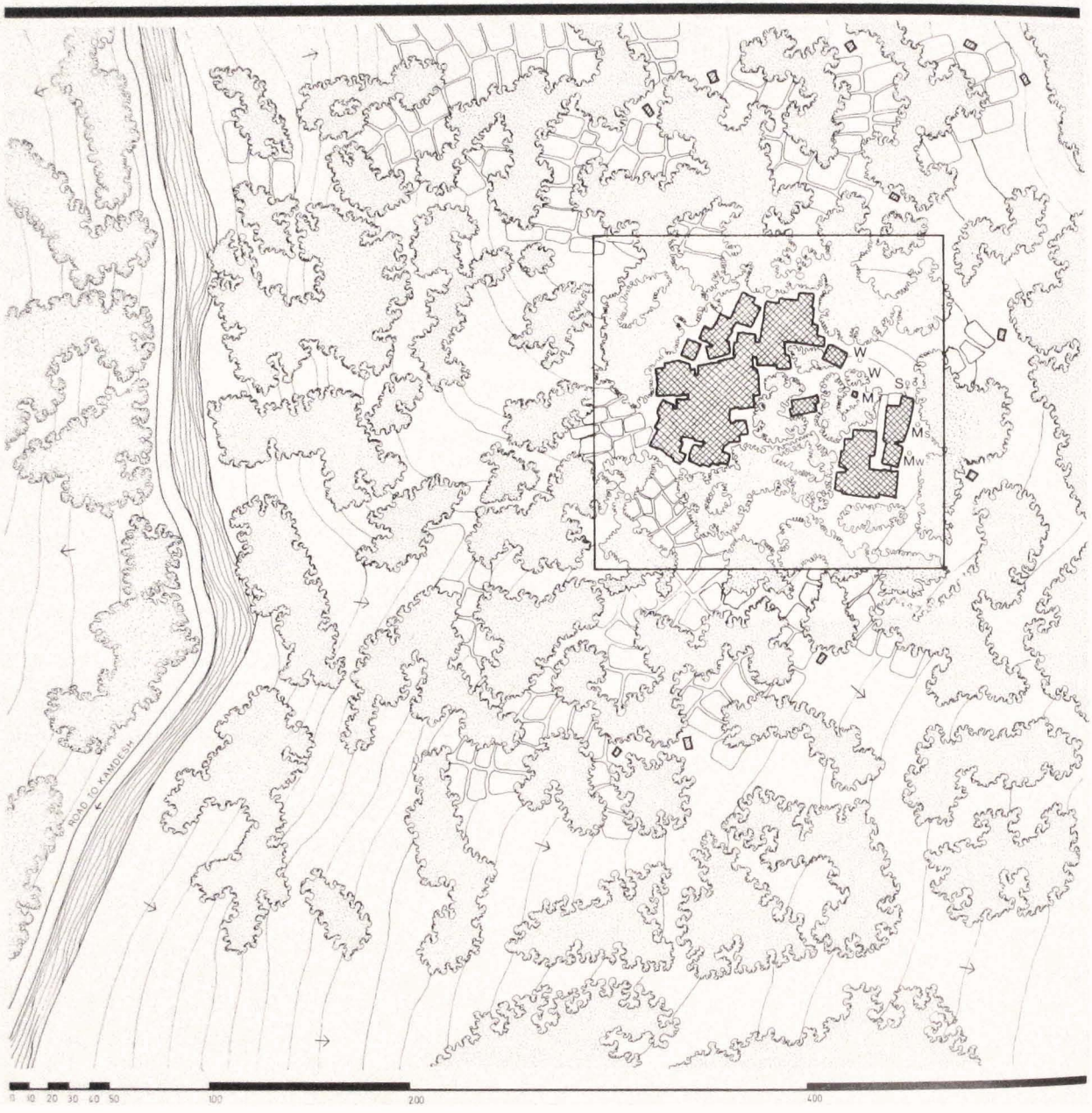
CONCLUSIONS

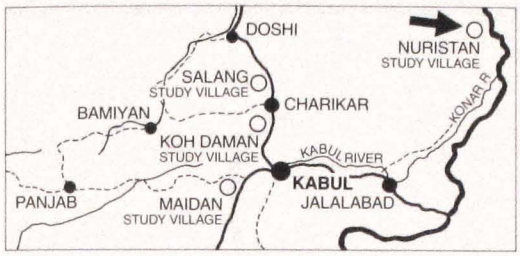
Of all the study villages, Taqma is the most constrained by its physical environment. Visually the use of local stone built into the slope of the mountain makes it appear that the village is an organic part of the landscape. In terms of materials, orientation, and organization of space, its choices are few. And while these choices may be optimal for the site, the construction of villages in areas where agricultural land is scarce and climate severe is obviously not the ideal choice for the people involved. Nevertheless, because of population pressure or the desire to escape the political control of neighboring groups, such remote mountain villages are found throughout Afghanistan, and the investment in these structures is so great that, having come into existence, they are not readily abandoned. While road transportation has offered new economic possibilities to the villagers, this has had little impact on the architecture.

N-1

Site

Line frame indicates study area





Sasco

A MOUNTAIN VILLAGE IN NURISTAN

VILLAGE
Sasco

DWELLING TYPE
Flat roofs
Heavy timber and stone walls

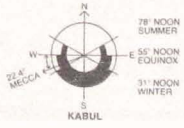
SYMBOLS

	Agriculture		Road
	Buildings		School
→	Gradient rise	$S_{♂}$	Boys'
M	Mill	$S_{♀}$	Girls'
M_S	Mosque (summer)	W	Washing
M_W	Mosque (winter)	W_o	Water point
	River		

DISTANCE FROM STUDY AREA

Kabul	460 km	16.5 hrs. auto/foot
Nearest village	4 km	1.5 hrs. foot
Medical aid	6.5 km	2 hrs. foot
High school	6.5 km	2 hrs. foot
Government office	6.5 km	2 hrs. foot
Police	6.5 km	2 hrs. foot

Available materials: wood, stone, clay
Sustenance: agriculture, animal husbandry



Buildings constructed of heavy timber and stone with elaborate post and beam supports are found among the Nuristani peoples northeast of Kabul in the heavily forested upper reaches of the Konar River Valley and its tributaries. Similar structures are also found among the Pashai people living in the lower tributary valleys of the Konar and along the Alingar and Alishang rivers. Nuristan, formerly known as Kafiristan, "Land of the Unbelievers," was converted to Islam after the Afghan conquest of the area in 1895–1896, when the area received its current name meaning "Land of Light."

Although remote and without roads, these forest mountain villages have long attracted the attention of scholars. G. S. Robertson's *Kafirs of the Hindu Kush* (1896) first brought them to public attention in the West, and his book still provides a classic description of their way of life before their incorporation into the Afghan state and their conversion to Islam. With their extensive use of timber, elaborate carvings, and spectacular sites literally clinging to the sides of steep mountains, they represent a unique tradition, and the published literature on them is out of proportion to their relatively small numbers in Afghanistan. Lennart Edelberg's posthumously published monograph, *Nuristani Buildings* (1984), is the most comprehensive work on their building types. It is supplemented by Karl Wutt's *Pashai: Landwirtschaft, Menschen, Architektur* (1981) for architectural developments in a culturally similar adjacant area.

N-2
Apertures

Table 9 Sasco

Total population	381
Number of dwelling units	71
Number of families	77
Average family size	4.9

People per Family	Number of Families	Total Number of People
2	4 (5%)	8
3	10 (13%)	30
4	20 (26%)	80
5	18 (23%)	90
6	10 (13%)	60
7	9 (12%)	63
8	4 (5%)	32
9	2 (3%)	18
Totals	77 (100%)	381

SYMBOLS


Apertures


Gradient rise

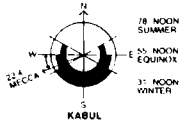

Study cluster


Trees

SOCIAL ORGANIZATION

The study village of Sasco is located in the lower Bashgul Valley one and one-half hours' walk upriver from Kamdesh (N-1). It was the most isolated of all the study villages, with only pedestrian access and about 200 km from the nearest large town. At the time of our survey, the village had a population of 381 people divided into seventy-seven families living in seventy-one dwelling units, as shown in Table 9. Although all the people of the region are known as Nuristanis to outsiders, this label actually covers culturally similar peoples of five different valleys, each speaking its own language. Sasco is a Kati-speaking village.

The village economy is based on transhumant alpine farming that combines pastoralism with intensive irrigated agriculture. Cows, goats, and sheep are the most important animals; millet, maize, wheat, and grapes are the most important crops. Tree crops such as walnuts and mulberries are also important. Unlike other parts of Afghanistan, women are responsible for the agricultural work which is carried out on small irrigated terrace plots dug into the mountainside. This is back-breaking work because everything is carried up and down the steep mountainsides in conical baskets. The men are responsible for the livestock, which they take to high mountain pastures during the summer.



N-3

Space use, levels 1 and 2

50. Overview of the old section of Sasco village in Nuristan. Study cluster at left.

SYMBOLS

A_{A} Animal space of family A

F Family room

R Roof

S Storage

Trapdoor

Fire pit

Subscripts
A Animal food
P Personal

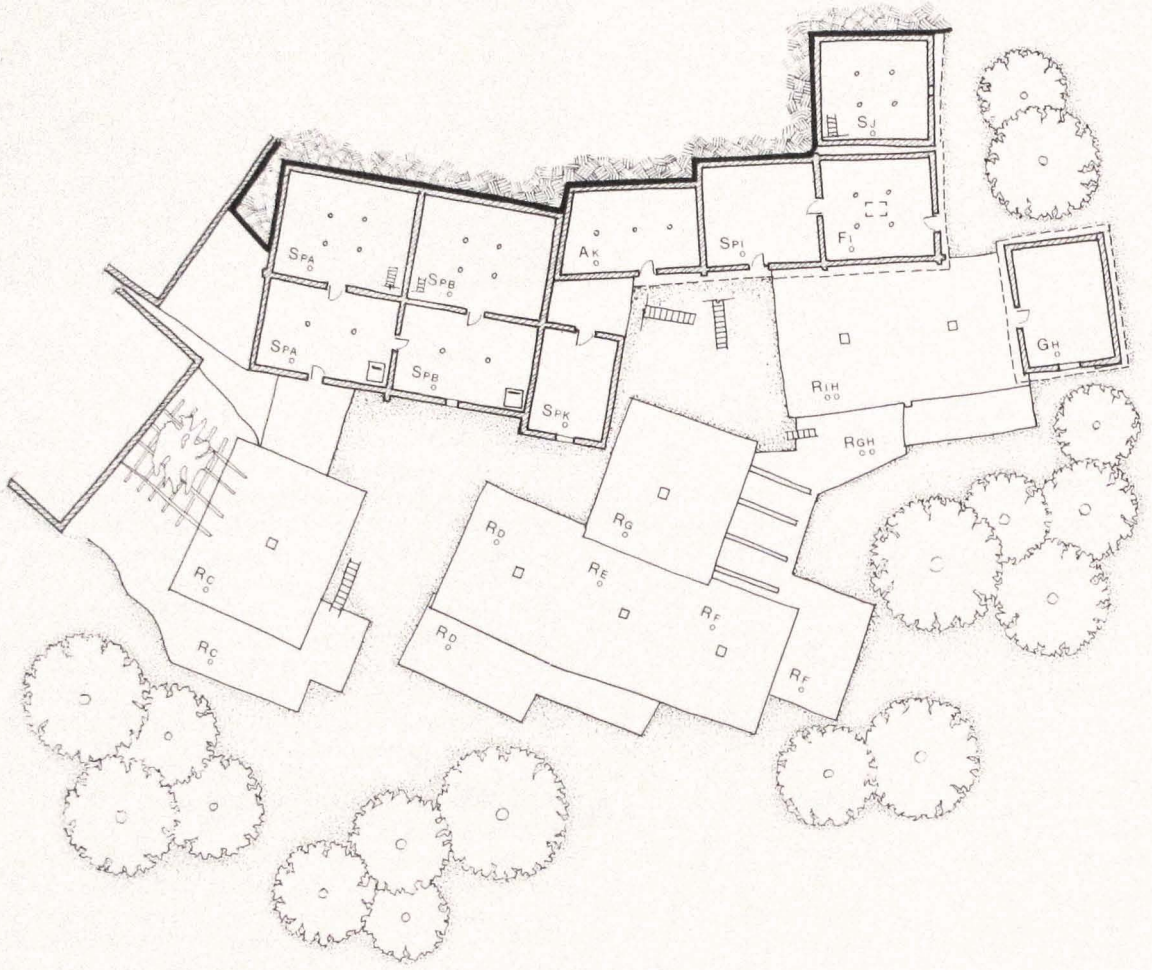
The animals provide milk products such as ghee (clarified butter) and cheese. Animal wealth is also the key to social status, and the value of a house is given in cows, not money (Edelberg and Jones 1974).

The social organization in Nuristan is hierarchical, with a caste-like division between landowning farmer/herders and hereditary professional artisans, formerly slaves, who do the woodworking, ironsmithing, and other crafts. The aristocratic households have the interior four supporting house columns elaborately carved. In the past the right to have specific types of wood carvings and other decorations was strictly regulated, and even today their presence reflects social distinctions within the village. The artisans form their own distinct social group, *bari,* and have a status inferior to that of their neighbors. It is they who provide the elegant wood carving and careful carpentry that make Nuristani dwellings so distinct.

INTERIOR COMPONENTS, CIRCULATION, AND CLUSTER SPACE

A Nuristani house generally has at least two stories. The top level contains the family living quarters. This single room serves many functions year-round: as kitchen, sleeping quarters, public room for receiving guests, private room for family life, etc. This is in sharp contrast to similar mountain villages in Salang or Istalif, where there are separate rooms for cooking and multiple rooms used as residential space, particularly for moving from winter to summer rooms. Nuristanis rarely maintain separate guest quarters. Visitors are few and obligatory hospitality non-existent. Storage rooms are always found on the lower levels,

N-4
Space use, level 3



LEVEL 3

0 1 2 3 4 5 10M 20 40

SYMBOLS

A_{K} Animal space of family K
$_{O}$

F Family room

G Guest room

R Roof

Smoke hole

S Storage

Trapdoor

Fire pit

Subscripts

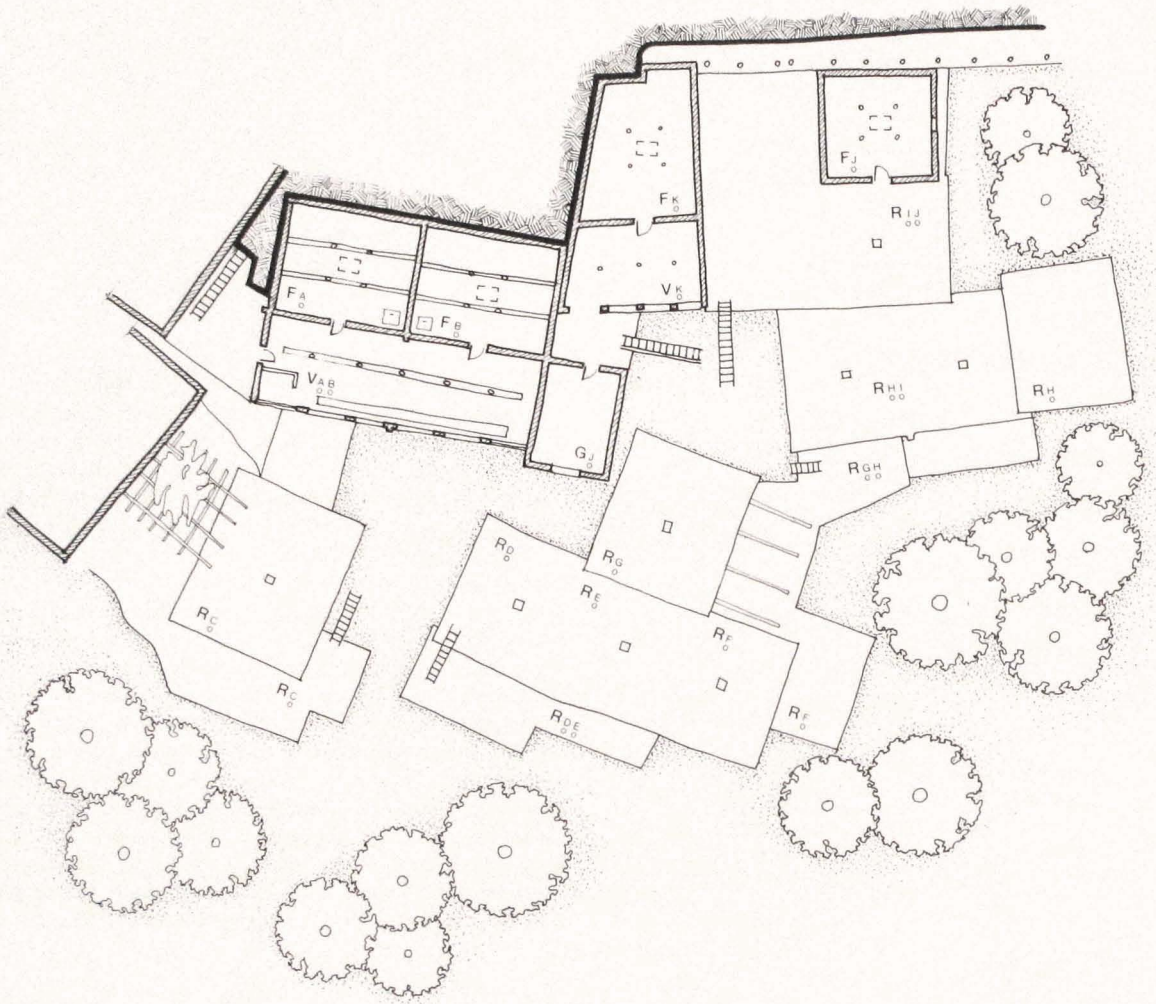
P Personal

with animal stables beneath them in some cases such as in the study households (N-7).

The houses in Sasco are dug into the mountainside and stacked one atop the other so that the roof of one house creates the only flat open space for building on the next level. The roof space is used for such activities as drying crops and holding public meetings, feasts, and dances. Unlike those in other parts of Afghanistan, women here are not secluded, so there are no barriers designed to screen the roof activities of one household from another. While roof space provides village-wide access among houses, there are no roof entries to any dwellings (N-8).

People use the connecting roofs to move between houses on the same level. Movement between levels within the village is by means of notched logs, which the inhabitants find satisfactory but most outsiders find difficult to use. Although set permanently in place, they can be removed for defensive purposes if necessary. People move between levels within individual houses using a trapdoor set in the floor of the living space with a notched log that leads below to storage rooms or animal stables. The lower storage rooms generally have a door leading to the outside, but this is only for moving equipment, hay, manure, or ani-

N-5
Space use, level 4



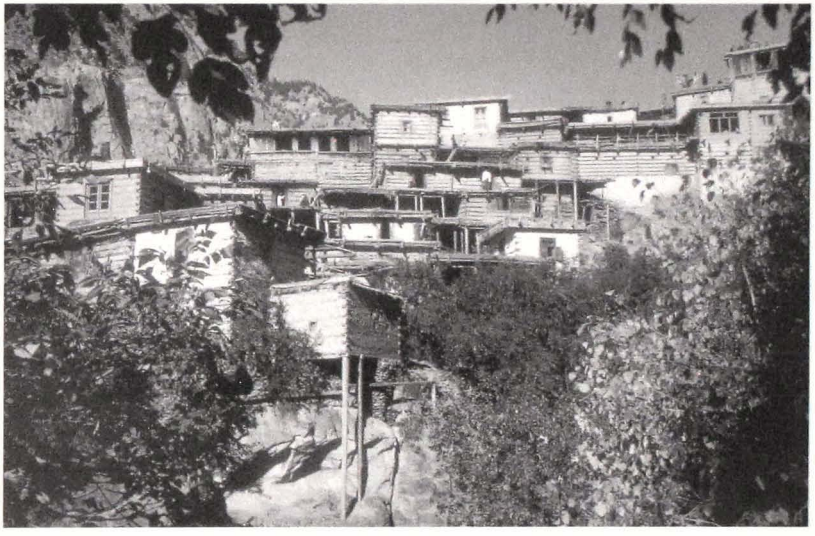
LEVEL 4

0 1 2 3 4 5 10M 20 40

SYMBOLS

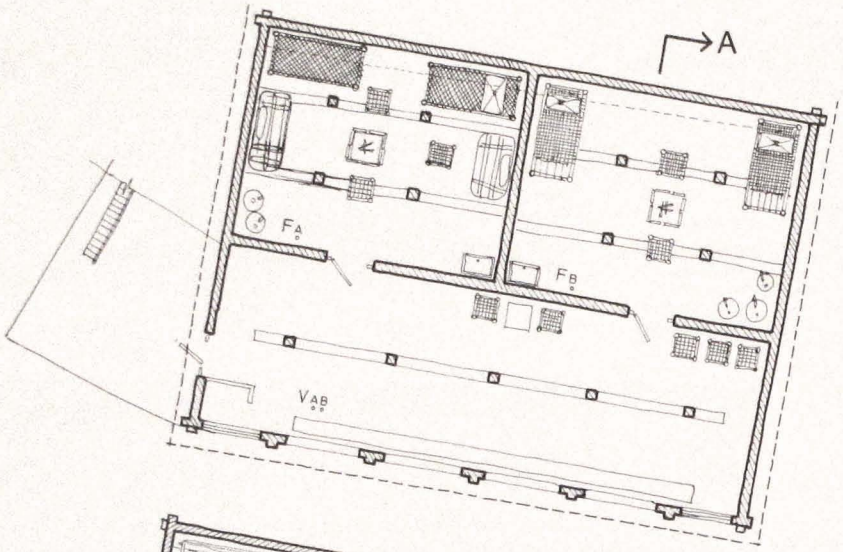
F_J	Family room of family J
	Fire pit
G	Guest room
R	Roof
	Smoke hole
	Trapdoor
V	Veranda

51. View of Sasco from below illustrating the characteristic stepping of Nuristani villages.

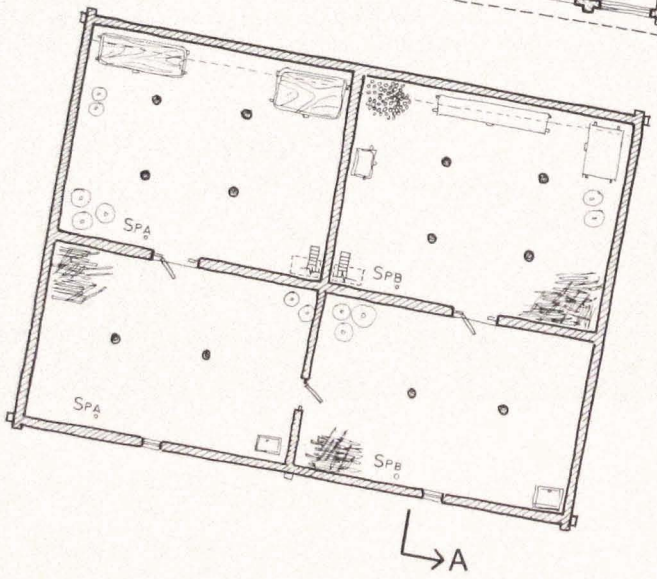


N-6

Dwelling units, levels 3 and 4, families A and B

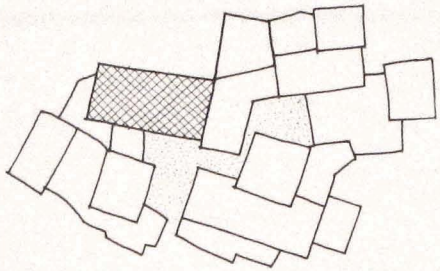


LEVEL 4



LEVEL 3

0 1 2 3 4 5 6 7 8 9 10M 20



SYMBOLS

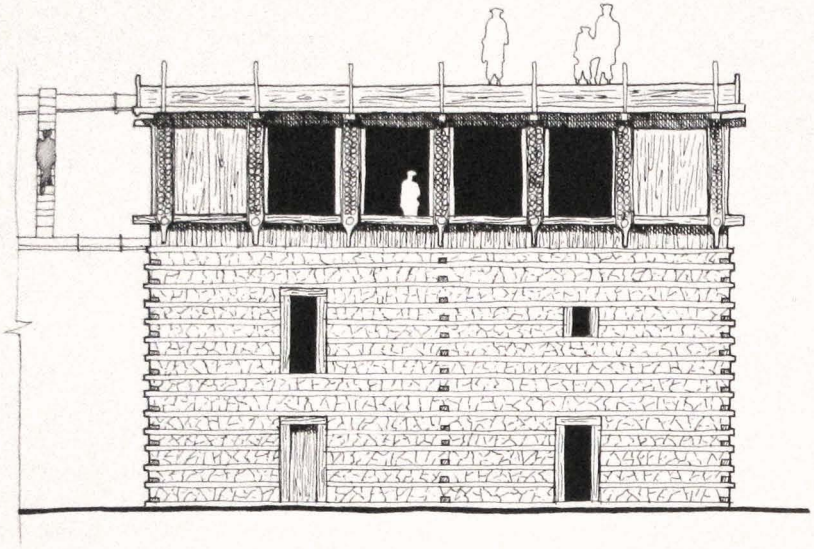
F_{A}	Family room of family A
S	Storage
	Trapdoor
V	Veranda
	Subscripts
P	Personal

mals in and out. The formal entrance to the house is always off the living quarters through a veranda or open roof space (N-6).

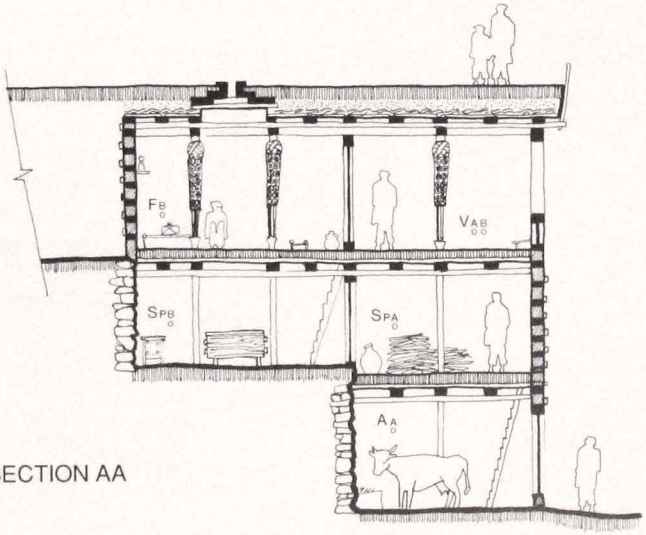
In most Afghan villages the use of a common courtyard defines a cluster. However, in Nuristan the houses are built on such steep mountainsides that it is common roof space that defines and links a series of households. Closely related families also build sets of houses using common walls and share a veranda. The study cluster is an example of this multifamily construction (N-2–5, Photo 50). In such multifamily units it is notable that there are no doors between residential rooms of individual families but that in the lower-level storage areas there often are doors linking one house with another. Of all the study villages Sasco has the closest correspondence between the number of families (77) and the number of dwelling units (71).

Nuristani villages as a whole are divided among different kinship groups. Members of the same lineage live together. The *bari* artisans inhabit their own separate sections of the village, generally located below the houses of the landowners.

N-7
Section and elevation



WEST ELEVATION



SECTION AA

0 1 2 3 4 5 6 7 8 9 10M 20

Table 10 Apertures in Sasco (Excluding New East Wing)

North	6	5%
East	13	12%
South	69	62%
West	24	21%
Total	112	100%

SYMBOLS

A	Animal space
F_{A}	Family room of family A
S	Storage
V	Veranda
	Subscripts
P	Personal

CONSTRUCTION AND ORIENTATION

Unlike the rest of Afghanistan, timber construction is universally employed in Nuristan (see p. 149). This is possible only because the surrounding mountains are heavily forested and until recently too remote to attract any commercial logging. The use of post and beam construction to build multistoried buildings means that villages can be sited on mountain slopes too steep for any other type of construction. In choosing an area for building, steep slopes are chosen because more level land is reserved for agricultural terraces. Areas suitable for a village, or a village's expansion, are therefore quite limited. Sasco is about 2,000 m in elevation and sits on an exposed hillside. Winters are cold. For these reasons the original siting of the village was oriented with most of its apertures primarily to the south and secondarily to the west, and with the northern walls of houses dug mostly into the face of the mountain. We would normally expect these apertures to be located south and east, as in Taqma village of Salang, but here the steeply sloping hill puts eastern exposures in shadow for most of the morning. Nevertheless Sasco displayed as high a percentage of southern apertures in the old village as in Taqma with a weighted distribution (1=small window, 2=door or medium window, 3=double doors or large window) as shown in Table 10 (see also N-2).

N-8
Typical section showing terracing

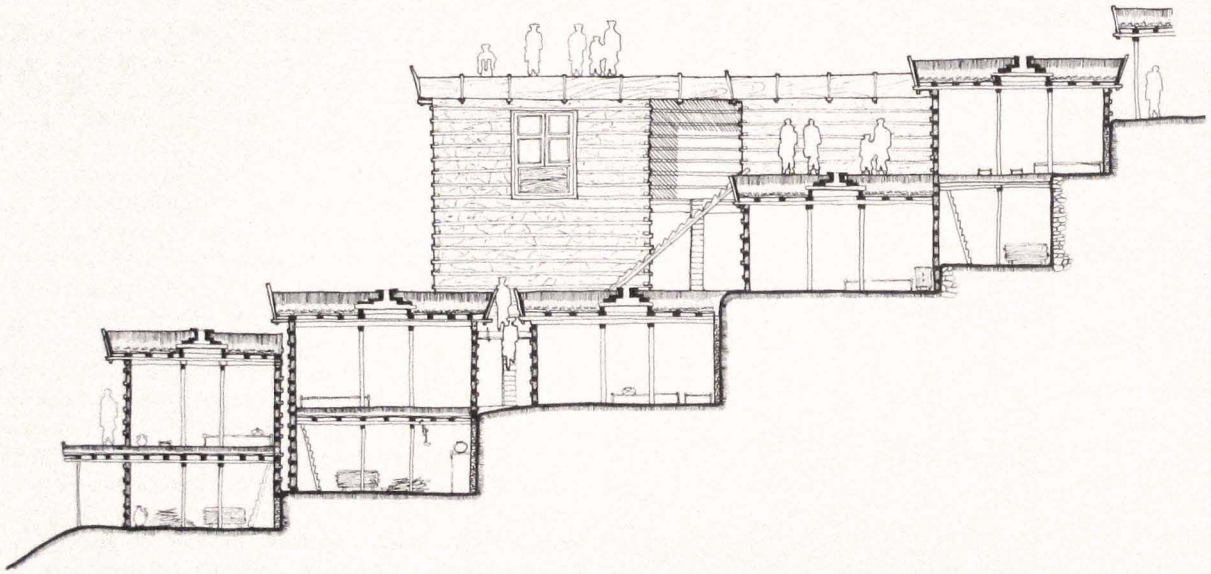


Table 11 Apertures in Sasco (Total Village)

North	9	6.4%
East	14	10.0%
South	69	49.3%
West	48	34.3%
Total	140	100.0%

This optimum location toward the south could not be achieved when an addition to the village was added to the east because of the curving slope line. In the new addition most of the apertures face west. On the lower-lying plains such a western orientation might produce too much afternoon heat, but at higher elevations this is not a significant problem.

CONCLUSIONS

The timber and stone buildings of Nuristan present an example of an architectural solution to a series of problems and opportunities. Agricultural land available for terracing is extremely scarce, so that house construction must take place on sites that would normally seem too steep for any construction. The availability of an abundant wood supply allows the builders to create structures that can be set atop one another, thereby minimizing land use. The regularity of the structures and their complex carved decorations are products of a class of skilled building specialists. Unlike the rest of Afghanistan, where domestic architecture displays little or no ornamentation, Nuristan is renowned for its integration of skilled wood carvings into its village architectural tradition.

PART FOUR

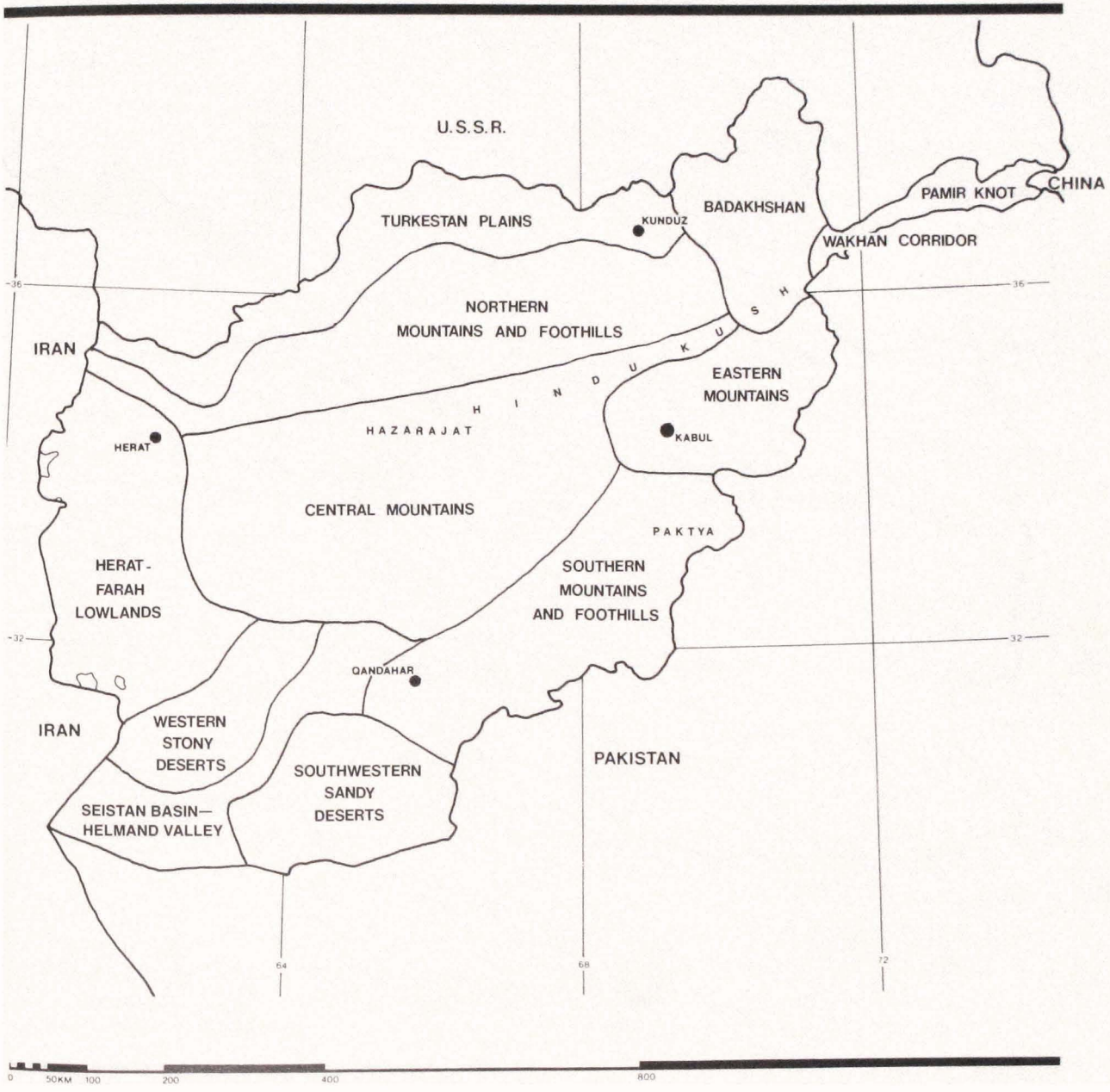
REFERENCE MAPS

Reference Map 1

General Map of Afghanistan

Reference Map 2

Geographic Zones

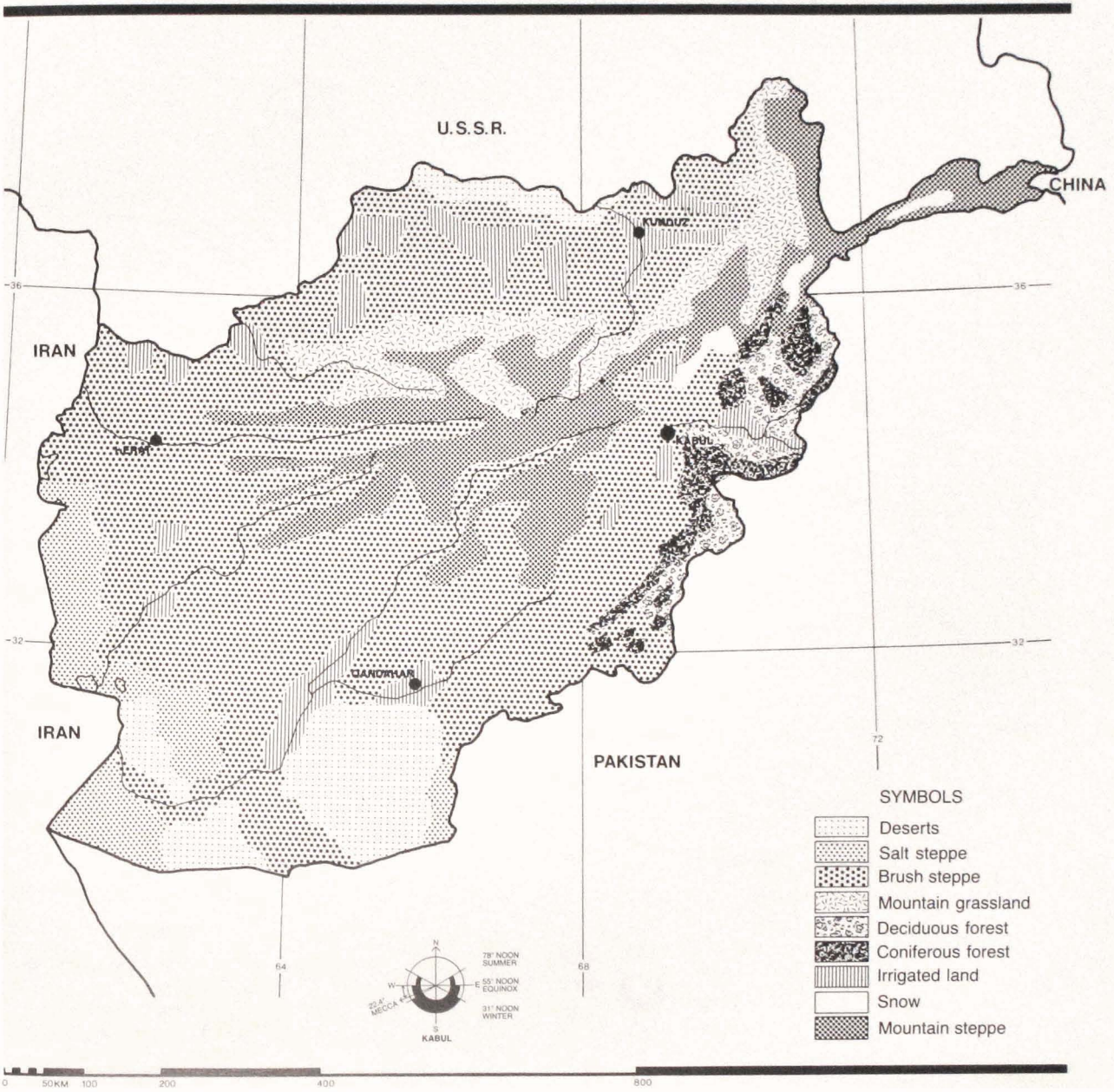


Reference Map 3

Topography

Reference Map 4

Vegetation



Reference Map 5

Climate: Seasonal Distribution of Precipitation

Reference Map 6

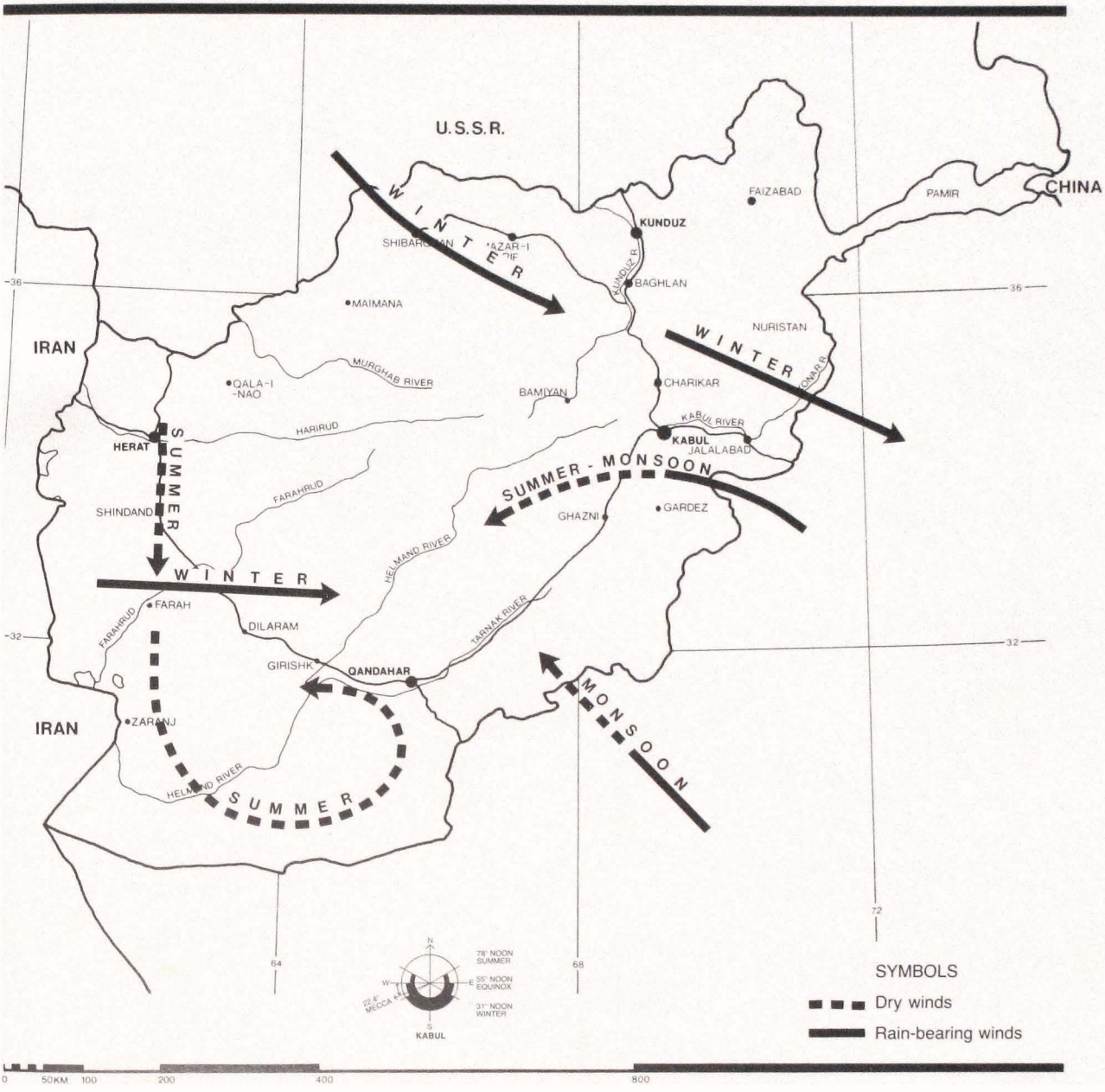
Climate: Dry Regions

Reference Map 7

Climate: Cool and Hot Regions

Reference Map 8

Climate: Winds



Reference Map 9

Minerals

Reference Map 10

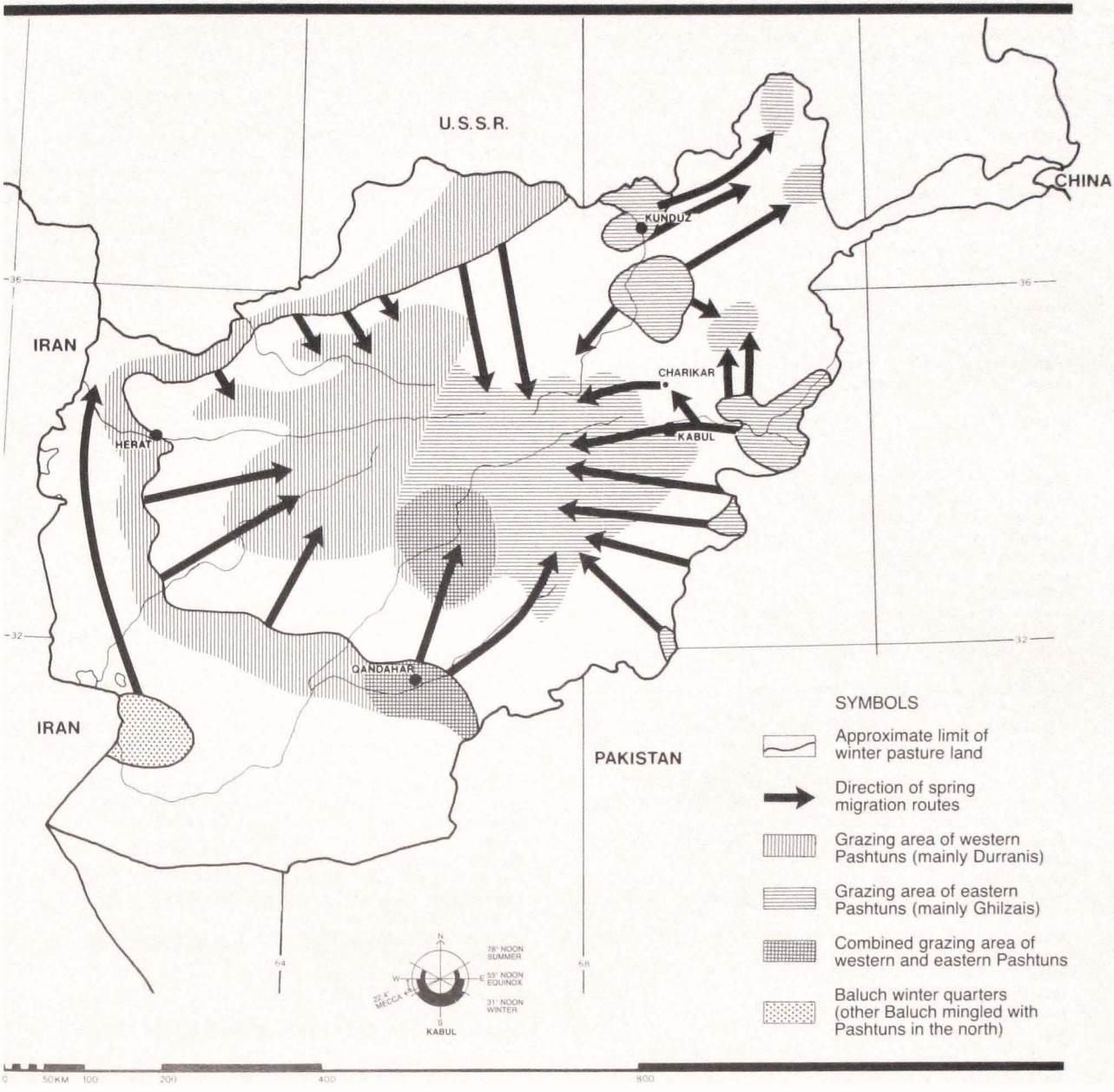
Seismic Risk Zones

Reference Map 11

Ethnic Groups

Reference Map 12

Nomadic Routes



Glossary

All terms are of Dari usage unless otherwise indicated. However, because there is often substantial borrowing of Dari terms by neighboring groups who speak different languages (and vice versa), identifications of language group are not meant to be definitive.

ailoq summer encampment or village
amo Nuristani house or room (Kamviri)
asyab-i-abi water mill
asyab-i-badi windmill
bad-gir wind catcher used for ventilation
baghesh tension bands for yurt (Uzbek)
baira diagonal poles usually nailed at the exterior corners to stabilize the frame used in *senj* construction
bari caste of Nuristani artisans (Kamviri)
bourge tower of *qala*
buria plaited flattened reed or grass matting
changarak yurt roof ring (Uzbek)
chapar alternative term for *chapari;* also used by Baluch for loosely woven tamarisk mats covering the *kodik*
chapari general term for a variety of seasonal circular or polygonal huts
chegh woven reed mat, sometimes with designs, used as portable walls for huts and yurts
chubdara rectangular building constructed of reeds with a wooden frame roof support
darwaza yurt door frame
ergenek yurt door frame (Uzbek)
eshik yurt door frame (Uzbek)
ghizhdi black tent (Pashto)
gunbad dome
jai namaz prayer mats or rugs
jui irrigation channel
kaftar khana pigeon tower
kahgil a mud plaster containing straw bits
kandu clay storage container for grain
kapa a general term for a variety of huts in northeastern Afghanistan and Central Asia
kapa-i-Arab a rectangular summer hut used by Arab nomads in northeastern Afghanistan
kapa-i-chamshi a permanent hut with bundled reed walls set into the ground and surmounted by a domical reed roof
karez constructed subterranean water conduit
kerege the cylinder formed by yurt lattice wall frame (Uzbek)
ketayba a poplar pole running the length of the top of a wall which evenly distributes the weight of the roof joists
khaar khana temporary field hut constructed of thornbushes
khaima tent
khana house
khancha-poosh a type of vaulted roof named after an inverted tray by that name
kherga yurt (circular, domed, self-sustaining framed structure with wool felt sheathing)
khesht-i-kham sun-dried brick
khesht-i-pukhta fired brick
kishmish khana grape-drying building
kiz felt (Uzbek)
kodai a rectangular hut used by Pashtuns around Jalalabad
kodik a tamarisk hut used by the Baluch in southwestern Afghanistan
kori the frame of a *kodik* (Baluchi)
kota single room or detached building
kuchi a term for nomads, literally "those who move"
lacheq a type of round hut consisting of bent poles lashed together with a tension ring (Uzbek)
magara cave
maldar term used for nomads in northern and western Afghanistan, meaning "livestock owners"
mana the vertical poles used in *senj* construction
mehrab a wall niche denoting the direction of Mecca
mena temporary field shelter
minar a tower
namad felt mat
ooee yurt (Turkic languages)
pakhsa a quantity or mass of mud; pressed tiered mud used to construct walls
palas black goat hair cloth woven into panels about 1 meter wide and 3–4 meters long, used to create black tents
palas-i-siyah Taimani tent
posteen sheepskin coats
qala most elaborate type of massive fortified farm compound
qanat linked lattices of yurt frame (Uzbek)
qanat underground water conduit (Dari); also called *karez*
qishloq winter village or yurt encampment
qoshqanat yurt lattice wall frame (Uzbek)
qrut dehydrated yogurt
qur tension bands for yurt frames (Uzbek)
sandali a heating system employing a small wooden table placed over a charcoal brazier and covered with a blanket
sarkhana yurt roof ring
sarsenj upper horizontal poplar pole used in *senj* construction
satranji flat-woven cotton floor covering
seni a wall construction system consisting of a wood frame stabilized by diagonal poles nailed at corners; space between verticals infilled with brick and finished with mud plaster
shangal the side poles of the Taimani tent
sotun column or pillar; also term for longer forked poles of Taimani tent
tagaz (targaz) scrub tamarisk, Haloxylon ammodendron
tanau ropes for tying yurt felts to frame
tandur underground bell-shaped clay oven
tarem yurt lattice wall frame (Turkmen)
tawa-khana heating system using conduits in the floor and wall, similar to a Roman hypocaust
towara reed fencing which stands 4–5 meters high
tunuk yurt roof ring (Uzbek)
üp tension bands for yurt (Turkmen)
uq yurt roof struts (Uzbek)
zarbi vault
zeirsenj lower horizontal poplar pole used in *senj* frame construction
ziarat shrine

Bibliography

Aitchison, J. E. T.
1890 *Notes on the Products of Western Afghanistan and Northeastern Persia.* Edinburgh: Neill and Company.

Andrews, P. A.
1973 "The White House of Khuransan: The Felt Tents of the Iranian Yomut and Goklen." *Journal of the British Institute of Iranian Studies* 11:93–110.

Azizi, M. M.
1980 *A Preliminary Study of Traditional Building Crafts in Kabul, Afghanistan.* Copenhagen: Royal Danish Academy of Fine Arts.

Bahadori, Mehdi
1978 "Passive Cooling Systems in Iranian Architecture." *Scientific American,* February 1978: 144–154.

Barfield, Thomas J.
1978 "The Impact of Pashtun Immigration on Pastoralism in Northeastern Afghanistan." In *Ethnic Processes and Intergroup Relations in Contemporary Afghanistan,* edited by John Anderson and Richard Strand. Occasional Paper of the Asian Society's Afghanistan Council no. 15.
1981 *The Central Asian Arabs of Afghanistan.* Austin: University of Texas Press.

Burnes, Alexander, Lieutenant Leech, Doctor Lord, and Lieutenant Wood
1839 *Reports on Missions in Scinde, Affghanisthan and Adjacent Countries, 1835–1837.* Calcutta: Bengal Military Orphan Press.

Centlivres, Pierre.
1975 "Les Uzbeks du Qattaghan." *Afghanistan Journal* 2: 28–36.

Centlivres, Pierre, and Micheline Centlivres-Demont
1988 *Et si on parlait de l'Afghanistan.* Neuchâtel: Editions de l'Institut d'Ethnologie. Paris: Editions de la Maison des Sciences de l'Homme.

Centlivres-Demont, Micheline
1978 "Yourtes et huttes des Turcophones du Nord Afghan (Qataghan et Turkestan)." In *Quand le crible était dans la paille: Hommage à P. N. Boratav,* edited by R. Dor and M. Nicolas, pp. 125–132. Paris: Maisonneuve et Larose.

Dor, Rémy, and Claus Naumann
1978 *Die Kirghisen des Afghanischen Pamir.* Graz: Akademische Druck-u. Verlagsanstalt.

Doxiadis, Constantinos
1974 *Architecture in Transition.* New York and Oxford: Oxford University Press.

Drew, Philip
1979 *Tensile Architecture.* Boulder, Colo.: Westview Press.

Dupree, Louis
1980 *Afghanistan.* Princeton, N.J.: Princeton University Press.

Dupree, Nancy Hatch
1971 *An Historical Guide to Afghanistan.* Kabul: Afghan Tourist Organization.

Edelberg, Lennart
1984 *Nuristani Buildings.* Graz: Akademische Druck-u. Verlagsanstalt.

Edelberg, Lennart, and Schuyler Jones
1979 *Nuristan.* Graz: Akademische Druck-u. Verlagsanstalt.

Feilberg, C. G.
1944 *La Tente noire.* Copenhagen: Gyldendal.

Ferdinand, Klaus
1959a "The Baluchistan Barrel Vaulted Tent and Its Affinities." *Folk* 1:27–50.
1959b "Preliminary Notes on Hazara Culture." *Historisk-filosofiske Skrifter, Danske Videnskabernes Selskas* 37(5): 1–51.
1959c "Les Nomades afghan." In *La Géographie de l'Afghanistan,* by Johannes Humlum, pp. 277–289. Copenhagen: Gyldendal.
1960 "The Baluchistan Barrel Vaulted Tent and Its Affinities: A Supplement from Iranian Baluchistan and Sistan." *Folk* 2: 330–350.
1962 "Nomad Expansion and Commerce in Central Afghanistan." *Folk* 4: 123–159.
1969 "Nomadism in Afghanistan." In *Viehwirtschaft und Hirtenkulture,* edited by L. Foldes. Budapest: Akademai Kiado.

Ferrier, J. P.
1857 *Caravan Journeys and Wanderings in Persia, Afghanistan, Turkistan, and Baluchistan.* London: H. D. Seymour.

Fitch, James M., and Daniel P. Branch
1960 "Primitive Architecture and Climate." *Scientific American,* December 1960: 134–144.

Gafferberg, E.
1953 *Kharzareisikaia (Afganista): Urta khanaikhyrga: Kvoprosu ob istorii kuchevogo zhilishcha.* Moscow: Nauka.

Habib, Najibullah
1987 *Stadtplanung, Architektur und Baupolitik in Afghanistan.* Bochum: Studienverlag Brockmeyer.

Hallet, Stanley, and Rafi Samizay
1980 *Traditional Architecture of Afghanistan.* New York: Garland Press.

Herberg, W., and Alfred Janata
1982 "Die Firozkohi—Jurte des Museum für Völkerkunde in Wien." *Afghanistan Journal* 9: 95–103.

Humlum, Johannes
1959 *La Géographie de l'Afghanistan.* Copenhagen: Gyldendal.

Janata, Alfred
1962–1963 "Die Bevölkerung von Ghor." *Archiv für Völkerkunde* 17–18: 73–156.

Kakar, Hasan
1971 *Afghanistan: A Study in Internal Political Development, 1880–1896.* Kabul: Educational Press.
1979 *Government and Society in Afghanistan.* Austin: University of Texas Press.

Karzev, Vladimir
1986 *Zodchestvo Afghanistanc.* Moscow: Stroiizdat.

Kharuzin, N. N.
1896 *Istoria razvitija zilishea u Kocevykh: Polukoreyykh Tjurk skikhi monguls khelich narodvoster.* Moscow.

Kussmal, Friedrich
1965 "Badaxshan und seine Tagiken." *Tribus* 14: 711–799.

Mandersloot, Go
1971 *Firozkohi: Ein Afghaans Reisjounaal.* Rotterdam: Museum voor Land-en Volkenkunde.

Marboutin, Felix
1931 "L'Actinomètre et l'orientation des rues et des façades." *La Technique Sanitaire et Municipale* March: 60–67; April: 83–90; May: 88–105; June: 126–131.

Olgyay, Victor, and Aladar Olgyay
1963 *Design with Climate: Bioclimatic Approach to Architectural Regionalism.* Princeton, N.J.: Princeton University Press.

Olufsen, Ole
1904 *Through the Unknown Pamirs.* London: William Heineman.

Patzel, Gernot, and Roger Senarclens de Grany
1978 "Die Ortschaft Ptukh Ostlichen Wakhan." In *Grosser Pamir,* edited by Roger Senarclens de Grany and Robert Kostka, pp. 215–248. Graz: Akademische Druck-u. Verlagsanstalt.

Rao, Aparna
1979 "Note préliminaire sur les Jat d'Afghanistan." *Studia Iranica* 8: 141–149.
1987 "Peripatetic Minorities in Afghanistan." In *The Other Nomads: Peripatetic Minorities in Cross-cultural Perspective,* edited by A. Rao. Cologne: Böhlau Verlag.

Robertson, G. S.
1896 *Kafirs of the Hindu Kush.* London: Lawrence and Bullen.

Salzman, Phillip
1971 "Movement and Resource Extraction among Pastoral Nomads: The Case of the Shah Nawazi Baluch." *Anthropology Quarterly* 42: 185–187.

Schurmann, H. F.
1962 *The Mongols of Afghanistan.* The Hague: Mouton.

Senarclens de Grany, Roger
1972 "Siedlungsbild un Hausformen der Ortschaft Wark im Pamir." In *Hindukusch,* edited by Karl Gratzel, pp. 61–76. Graz: Akademische Druck-u. Verlagsanstalt.

Shahrani, Nazif
1979 *The Kirghiz and Wakhi of Afghanistan.* Seattle: University of Washington Press.

Shkolnik, Amiram, C. Richard Taylor, Virginia Finch, and Arieh Borut
1980 "Why Do the Bedouins Wear Black Robes in Hot Deserts?" *Nature* 283(24 January): 373–375.

Szabo, Albert and Brenda D.
1978 *Preliminary Notes on the Indigenous Architecture of Afghanistan.* Cambridge, Mass.: Harvard G.S.D. Publication Series in Architecture.

Tapper, Nancy
1973 "The Advent of Pashtun Maldars into Northwestern Afghanistan." *Bulletin of the School of Oriental and African Studies* 36: 167–170.

Trousdale, William
In press *Reports of the Helmand-Sistan Project,* vol. 1. Washington, D.C.: Smithsonian Institution.

Whiting, John, and Barbara Ayers
1968 "Inferences in the Shape of Dwellings." In *Settlement Archaeology,* by K. C. Chang, pp. 117–133. Palo Alto, Calif.: National Press.

Wood, John
1872 *Journey to the Source of the Oxus.* 2d ed. London: John Murray.

Wright, Frank Lloyd
1951 "The Sovereignty of the Individual in the Cause of Architecture." Preface to *Ausgefuhrte Bauten und Entwurfe* (Berlin, 1910). Reprinted as introduction to exhibition, Palazzo Strozzi, Florence.

Wutt, Karl
1981 *Pashai: Landwirtschaft, Menschen, Architektur.* Graz: Akademische Druck-u. Verlagsanstalt.

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