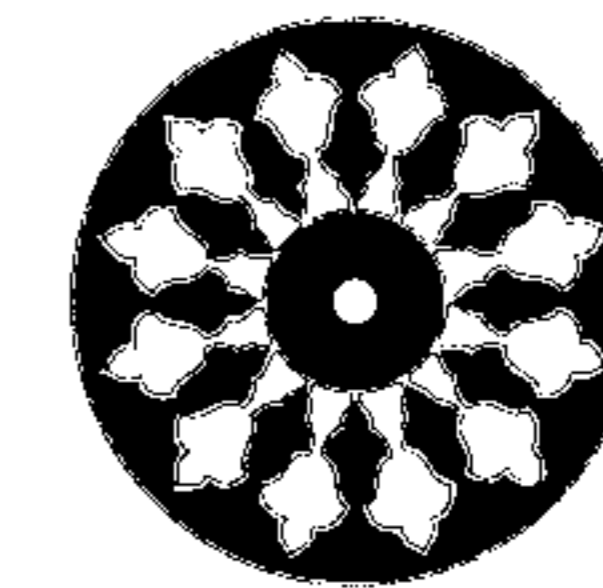


Population, Poverty,
and Politics in
Middle East Cities



Edited by
Michael E. Bonine

University Press of Florida
Gainesville Tallahassee Tampa Boca Raton
Pensacola Orlando Miami Jacksonville

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02 01 00 99 98 97 6 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data
Population, poverty, and politics in Middle East Cities / [edited
by] Michael E. Bonine p. cm.

A revision of papers most of which were presented at a
conference held in March 1993 in Tucson, Arizona.

Includes bibliographical references and index.

ISBN 0-8130-1474-3 (alk. paper)

1. Urbanization—Middle East. 2. Urban poor—Middle East.
3. Urban policy—Middle East. 4. Middle East—politics and
government. 5. Middle East—Social conditions. I. Bonine,
Michael E., 1942–

HT384.M628P66 1997 96-21377
307.7610956—dc

Table 15-1 taken from *Sustainable Cities: Urbanization and the
Environment in International Perspective*, edited by Richard Stern,
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The University Press of Florida is the scholarly publishing agency
for the State University System of Florida, comprised of Florida
A & M University, Florida Atlantic University, Florida Interna-
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Florida, University of Florida, University of North Florida,
University of South Florida, and University of West Florida.

University Press of Florida
15 Northwest 15th Street
Gainesville, FL 32611

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Chapter 4

Urban Conservation in the Old City of San'a

R. Brooks Jeffery

Within any discussion of conservation, a distinction must be made between the conservation of single monuments and conservation on an urban scale. The conservation of an individual building requires the knowledge and technical expertise to identify and restore the historic integrity of the building, even if the original function has changed. It requires an understanding of traditional construction materials and methods as well as the aesthetic patterns represented by fenestration, ornamentation, and details of construction, and even an appreciation of the scale of the hand and other parts of the human body used as a unit of measurement. Conservation on an urban scale, however, requires a much broader understanding of the economic, political, and sociological components on which the foundation of urban life stands. Architecture on an urban scale is represented not as buildings but as space and specifically how that space is enveloped in the forms of a room, a house, a street, a garden, a public square, and a communal unit such as a neighborhood or town. The dynamic sequence of these spaces is determined by the scale of the human body unified as a group by economic, religious, political, and social elements that, in turn, define a cultural memory whose identity is shaped by history.

The traditional Arab-Islamic city is defined by an overlapping of those aspects of public life that give the center its strength, be it a family, tribe, neighborhood district, or city unit. The importance of center as a concept is manifested on the various religious, economic, and social levels of urban life through the various spaces in which people dwell. In any effort to conserve an urban entity, it is necessary to de-

velop a process that identifies the centers within a historic context and attempts to define a balance between these various urban entities without destroying their individual character in a contemporary context. Conservation, however, is not a question of "modernizing" an urban unit while carefully sparing a few isolated monuments. Rather it aims to define an architectural vocabulary that will make it possible to regain and perpetuate the essential elements of the urban fabric while integrating supplementary functions to fulfill new needs. Nor is conservation the creation of a museum-city and the dissociation of urban entities from their functional role in contemporary society; rather it uses the urban morphology to reinforce a living cultural identity.

Vernacular architectural expressions developed from human attempts to define a balance with the environment that appreciates the utility and beauty of materials inherent to the region. Through the development of technology, many societies have gained control over their physical environment and, consequently, have divorced themselves from the daily experiential understanding of their immediate environment. These technological advances have encouraged a homogeneity and internationalism of cultural expression at the expense of the idiosyncrasies of our personality, whether as individuals, groups, regional inhabitants, or cultures. Contemporary technological expression of architecture is often beyond the ordinary person's understanding and the scope of one's individual skills. The monuments of vernacular cultures, however, allow its inhabitants to experience architecture as it relates directly to the environment and to their everyday lives. It is the essential function of urban conservation in a traditional culture, therefore, to identify the cultural memory embodied in its architectural expression as a means of reinforcing the inherent values of the culture as perennial and vigorous.¹

The incorporation of these conservation ideals into a comprehensive plan is best described by Ronald Lewcock, who explains that the process requires an interdependent combination of legislation, public education, and money, to which this author would add the initial step of planning. The planning process begins at conferences and other forums for the exchange of ideas, and involves the participation of all the disciplines that represent the vocabulary of the urban environment: architects, planners, sociologists, economists, health educators, and others. Legislation is necessary to codify this language into standards for the implementation of the planning process. Only through the enforcement of a legislative infrastructure can there be a full realization of the

conservation of the cultural values represented in the built environment.

The third component of any conservation program is public education. Comprehensive programs must be developed to educate people—especially property owners, occupants, and trustees of old buildings—understanding the role of architecture in the conservation of their cultural heritage. The only way we have of persuading owners to accept legislative restrictions on their buildings is to educate the entire public to the importance of protecting its community's monuments, thereby putting the owners under pressure from their own community. Once a commitment is made to the vision and its dissemination, the final goal is the establishment of financial mechanisms, such as tax exemptions, grants, long-term credit, cooperatives, and foreign investment, that will provide the means to implement the vision.²

One major conservation program on an urban scale has been the attempt to preserve—to save—the Old City or *medina* of San'a. One of the oldest cities in the Middle East, San'a not only contains some of the most dramatic and interesting vernacular architecture in the world, but the Old City has also survived basically intact into the later twentieth century. Yet even with these assets, the attempt to conserve the entire Old City in the face of the "modernization" and the changes of the last several decades is very complicated and multifaceted. As will be seen, it entails much more than just preserving beautiful architecture. This chapter first gives a short account of the history of the city and its major physical features in order to suggest the rich culture of its built environment. Then the discussion centers on the conservation program itself, which began in 1984. The chapter concludes with an evaluation of the overall project and discusses additional measures that may ensure its success.

The Old City of San'a: A Brief History

Situated on the high, central plateau in the southwestern corner of the Arabian Peninsula, San'a is one of the oldest cities in the world.³ The valley in which the present capital of the Republic of Yemen lies is defined by the mountain Jebel Nuqum (2,892 meters), under whose protection San'a has prospered as both an agrarian and fortified center, and the *sa'ilah*, or watercourse, which splits the valley and provides a line of definition throughout the growth of the walled city. Its geo-

graphic position allowed San'a to control the major trade route from Marib, the capital of the Sabeian Kingdom (1000 B.C.—A.D. 400) located northeast of the city, to the seaports along the Red Sea. San'a was deemed a *mabram*, a sacred place, and was the location of a military headquarters by the third century A.D.⁴

Pre-Islamic San'a was distinguished by two fortified nodal points: the Ghumdan Palace and the citadel or *qsar* (fig. 4-1). The legendary Ghumdan Palace, which was located near the present Great Mosque but which has long since been destroyed, was purported to be ten stories tall. It established a precedent of verticality as an important element in the morphological vocabulary that continues to define the Old City today. The eastern nucleus of the Old City was, and still is, defined by the citadel located on a foothill of Jebel Nuqum.

San'a's growth can be divided into several Islamic periods starting with the Persians in the seventh century, during which time development was organic and quickly consumed the markets and farmland west of the principal citadel. During this medieval period in the ninth century the first of many walls around the Old City was built. Subsequent walls marked the city's progressive settlement to the west. A change took place in the sixteenth century when the Ottoman Turks conquered Yemen (until 1630) and established the area outside the western gate as a garden suburb and residential area. In fact, much credit for the preservation of the Old City today is owed to the Turks, who separated their new city and hence left the medina unchanged.

Another major change in the social and physical structure of the city came when its Jewish population was expelled from the Old City in the seventeenth century. Forced to live on the Tihama Coast of the Red Sea for a year, they were then allowed to return to the San'a valley but not to the Old City. Instead, they were compelled to build their own quarter on the western side of Bir al-'Azab and the preexisting village of al-Bayniyah. The new quarter became known as Qa' al-Yahud (note fig. 4-1 [Ka'a el Jahaud]), and by the end of the eighteenth century, the neighborhood had its own *sug*, fourteen synagogues, and houses "as handsome as any in San'a."⁵

Under the subsequent rulers of Zaydi Imams, development of the western part of the Old City continued. In 1708, Imam al-Mutawakkil built a large palace in a garden on the western side of the city, surrounded by its own defensive wall. The tall palace in fact became the object of many Western depictions of San'a in the nineteenth century,

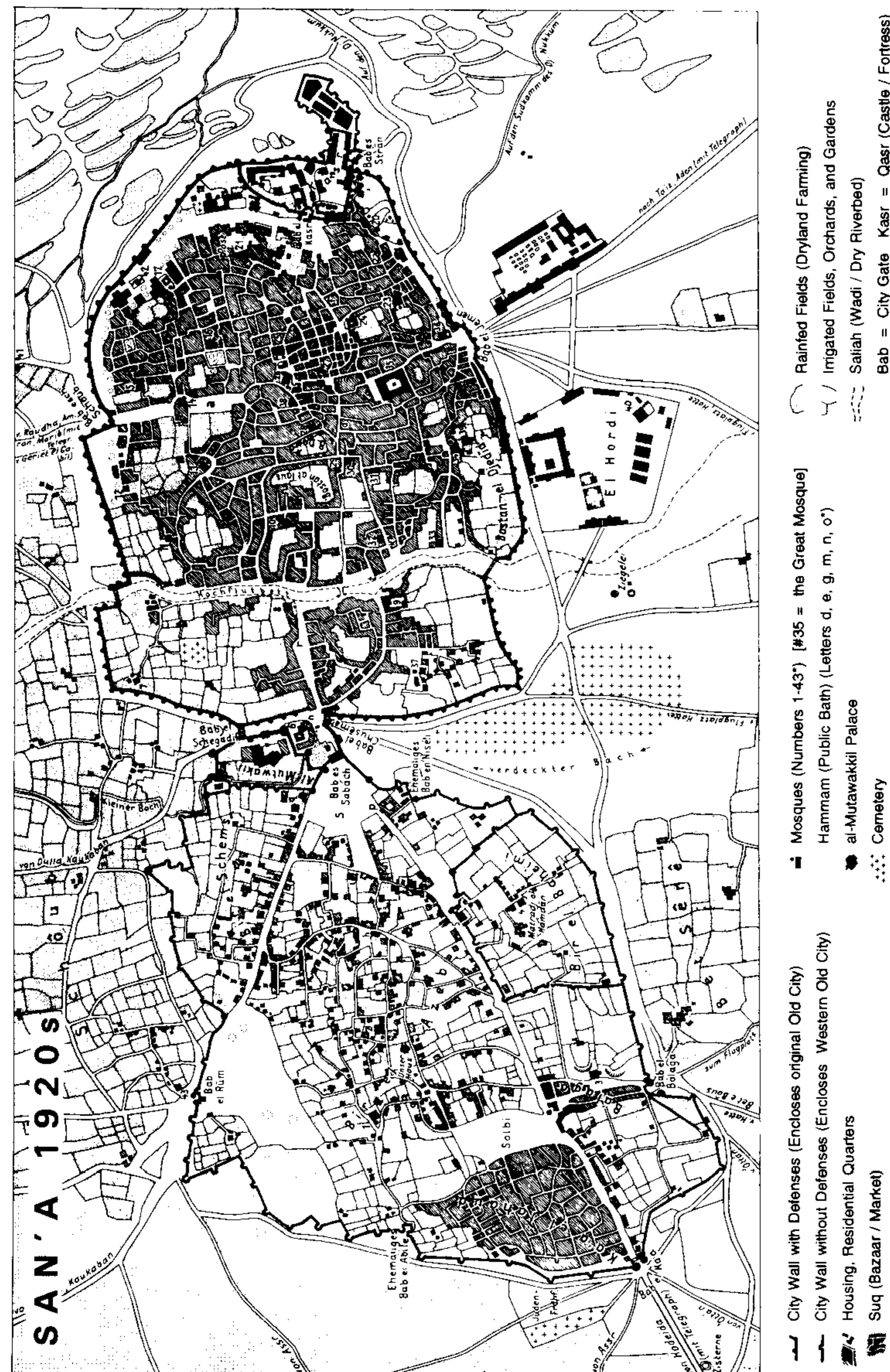


Fig. 4-1. San'a: the Old City and the western suburbs in the 1920s. Sources: Rathjens and Wissmann, "San'a." Also reproduced in Serjeant and Lewcock, *San'a*; Lane, *San'a*; and Kopp and Wirth, *Beiträge zur Stadtgeographie von San'a*.

which, again, emphasized verticality as a characteristic unique to San'a's architectural identity. At the beginning of the nineteenth century, walls were built around Bir al-'Azab and Qa' al-Yahud, along with six gates and three major squares within the walls.⁶ This newly walled suburb was sacked extensively in 1851 and 1853; when he saw it in 1858, H. A. Stern described Bir al-'Azab as a "large tract of waste land, varied by cemeteries and fragments of former dwellings."⁷ Between 1872 and 1918, San'a once again came under the yoke of the Ottomans, who returned to their previous residential area. New buildings, including the Turkish hospital and school, were constructed outside the western walls. The fortifications were improved by the construction of round towers at regular intervals around the city walls.

The Turks withdrew in 1919, and Imam Yahya (1904-48) secured his power by maintaining strict isolation from the outside world and regressive conditions within the country. Yet, at the same time, the royal family and other wealthy families enjoyed a renaissance of architecture. Many of the medina's great mansions date from this period, although in actuality these houses were usually additions and renovations to structures built several hundred years earlier. Imam Yahya built a new palace next to the old one in Bustan al-Mutawakkil, where the first electricity in the city was installed. Inhabitants returned to the Old City, and its population reached as high as fifty thousand by midcentury.⁸

Because northern Yemen was never colonized by a Western power, and even the Turkish presence was rather minimal and localized, San'a and Yemen maintained a purity of indigenous architecture that is rare in this century of international homogeneity. However, the outside world—and modernity—struck Yemen quite suddenly. The Yemeni civil war of 1962-69 brought in Egyptians on the side of a republican faction opposed to the regressive policies of the royalist imamate, who had the support of Saudi Arabia. During this period the Old City's inherent morphology remained relatively unchanged as dense vertical habitation maintained its contrasting relationship with the lush open spaces used for cultivation. The Egyptians continued the development of the western part of the Old City. They planned a new commercial center just outside the western walls of the medina and constructed a four-lane boulevard parallel to the western wall, a ring road encircling the Old City walls, and other roads that radiated from the newly created public square, Maydan al-Tahrir. Between the attacks on the Old City during the civil war and Egypt's attempt to develop a modern city, most of the

original city gates were demolished and new openings were created to accommodate the increasing vehicular traffic. This new city, outside the walls, thus became the center of modern business activity, leaving the Old City to the craftsmen, indigenous merchants, and traders. During the 1970s and 1980s the areas outside the Old City continued to develop at an ever-accelerating rate.

The previous lack of modern development and the extensive employment of Yemeni laborers abroad made Yemenis keenly aware of the ever-increasing need for modernization, and they embraced it wholeheartedly when it arrived. Along with public services, cars, and foreign consumer goods, change brought massive urban migration, traffic, litter, cheap foreign construction materials, and an obsession to become a modern state, even at the expense of traditional culture. The richest of the Old City's inhabitants moved out to modern suburban dwellings, and the largest and finest of the traditional houses were either left to decay through neglect or subdivided into apartments that were rented out to the poor. Much of the commercial vitality of the market area also left the medina. The importation of cheaper goods caused many of the traditional crafts, along with their shops, to disappear. Many buildings fell into disrepair as periodic maintenance was disregarded. The skills necessary to repair traditional buildings were not passed on to a new generation, and, consequently, modern and often inappropriate techniques were used when repairs were done at all.

The Traditional Urban Elements of San'a

The Old City of San'a is composed of a number of functional and morphological elements, some with counterparts in many other Islamic Middle Eastern cities and others that are unique to San'a and Yemen. A principal morphological determinant for any desert city is water, and the San'a valley is no exception. Gardens, mosques, and public baths within the medina relied on the sophisticated system of partially subterranean water channels known in Yemeni dialect as *ghayls*. Similar to the Iranian *qanat* and Omani *falaj*, these ghayls transported water to their destination by drawing on a complex network of wells, generally located at the foot of hills and high mountains.⁹ Downstream from the actual catchment area there is generally a large cistern that ensures a steady flow and continuity of the supply. From the cistern an open

channel continues downslope, sometimes zigzagging to create a more gentle gradient and usually terminating in agricultural fields. Even as recently as the mid-1970s the ghayls were also used for drinking water and religious ablutions.¹⁰

Like many traditional cities of the Middle East, the Old City of San'a is organized into urban districts or neighborhoods, which were roughly defined by alliance formations consisting of groups of families. An urban district in San'a varied in size but was generally small and tended to form alliances with other districts, which might or might not be permanent. It is possible that some urban districts developed from the settling of isolated tribal groups. Evidence for this lies in the continued existence of the original two districts of al-Qati' and al-Sirar, which were settled in this manner.¹¹ Today there is much less distinction between independent neighborhoods or districts, due to their diminished relevancy as organizational units and the increased control by a strong central government. In one sense, their identity has become defined as urban rather than tribal or even kinship related.

The market or suq was, and still is, the focal point of commercial and social activity in the Old City. Von Wissmann's accounts in the 1920s defined the southern limit of the market as a line drawn between the important monuments representing the history of the town—that is, the Great Mosque, the adjacent site of Ghumdan, the ruins of a sixth-century church, and the citadel.¹² Morphologically and functionally the suq has maintained its traditional characteristics as described in its earliest accounts: separation from the residential quarters; organization into production and trade zones; and the presence of customs and storage houses. Al-Razi described the San'a market in the eleventh century in much the same way as accounts from the eighteenth century do, although the latter note the increased differentiation of the commodity markets. The various branches of handicraft production became more differentiated because of increased specialization, and eventually they relocated. The spatial organization, and particularly the development of production zones, correspond roughly to what exists today.¹³

Between the markets and the city gates are found *samsara* (pl. *samasar*) or caravanserais. These large warehouses-hostels provided accommodations for caravans, farmers, and merchants traveling the trade route and passing through the city. Typically, the larger enclosed *samsara* area was divided into three sections: animal stables on the lower levels;

storage rooms in the upper mezzanine; and above these a private open courtyard with lodgings for the travelers that included tearooms and, in some cases, luxurious accommodations.

Within the medina of San'a the traditional mosque complex, in addition to its primary function of worship, is the focal point for an even larger system of community functions. Traditional neighborhood units formed around the mosque and the public services it provided: education, jurisprudence, a public well, garden plots for growing food. Mosques and their auxiliary services are under the administration of the *waqf* (religious trust or endowment). In fact, an estimated two-thirds of the Old City is waqf. The mosques of the medina, in the order of their recorded founding, describe the pattern of growth that established and defined quarters in the city, which are often named after their mosque.

The earliest mosques did not have domes or tall minarets due to the austerity of early Islam here, which was reinforced by the Zaydi Imams. Minarets, in fact, were not introduced to Yemen until the fifteenth century, although they quickly became an emblem of the religious institution to which they belonged; their height and elaborate decoration proclaimed the mosque's importance. The minarets are constructed almost entirely of brick. The flexibility of the material is used to create intricate patterns, which are often whitewashed to accentuate their designs.

Public baths, or *hammams*, are scattered throughout the Old City. They consist of a series of domed spaces that surround a large main room and follow a graduated transition from cold to hot, the procession through which assumes the aura of ritual. The building is submerged to insulate the hot rooms, which are supplied with heat by hypocausts and vertical flues in the walls. Baths were usually associated with neighborhood mosques, and as waqf property they continue to provide income for the maintenance and improvement of the mosque facilities. The baths were models of decorum and cleanliness until only recently, when lack of maintenance has forced many to close.

The most striking feature of the Old City is certainly its verticality, defined by the numerous tower houses looming above the narrow and winding streets. The tower houses of San'a are unique to southern Arabia and manifest the Yemeni preference for height; most are for single and extended families and contain at least five stories, and some reach to eight or nine levels (fig. 4-2). Their origin may lie in the remote villages where farmland was scarce and building vertically was



Fig. 4-2. Tower house in the Old City (photo by M. Bonine)

the best means of making efficient use of the land. The vertical arrangement of these multistory houses reflects the same transition from public to private space that is represented horizontally in most traditional houses throughout the Middle East. Each house is topped with a private sitting room called the *mafraj*, where afternoon social gatherings are surrounded by highly decorated walls. The tower houses are built of a combination of stone and baked brick punctuated with windows of alabaster and colored glass held in gypsum tracery. Exterior ornamentation is quite elaborate, often resembling patterns of latticework, jewelry, or textiles.

Unseen behind the street façades of these tower houses are the expansive open spaces around which the houses are grouped. These open spaces, which occupy approximately one-fifth of the medina, are also

waqf property; they are attached to specific neighborhood mosques or other public facilities. Within the open spaces a distinction is made between the *bustan* (garden) and the *maqshama* (market garden). The fruits and vegetables grown in the latter are sold to the market to support waqf facilities of the district, including the hammam, *madrasa* (religious school), and public wells. In a remarkable example of a complete traditional ecological system, the water drawn from the public well first serves for the ablutions of the neighborhood mosque, and is then used to irrigate crops in the open space. Dung collected from the long drop toilets of the tower houses is dried and burned for heat in the hammams; the ashes are then used for fertilizer in the gardens.

Two alternate housing types are found in the areas adjacent to the old walled city, in Bir al-'Azab and Qa' al-Yahud, respectively the former Turkish and Jewish neighborhoods. The houses in Bir al-'Azab are much smaller than the tower houses. Their principal sitting room, or *diwan*, is located on the ground floor overlooking a courtyard containing a pool. A balustrade defines the courtyard, providing sufficient enclosure to afford privacy yet remaining open enough for residents to enjoy the gardens that characterize this quarter. The forms and ornamentation are much simpler than the tower houses, with decorative emphasis confined to brick friezes, plaster tracery, and stained-glass windows.

The houses of Qa 'al-Yahud were restricted in height to two stories and could not be ostentatious, according to an eighteenth-century Muslim decree. In response to these restrictions the Jews constructed their buildings of mud brick, lowered the height of rooms, and arranged them around a central, raised courtyard. The result is a spiral of room functions from the most private sitting room at the top to the bathroom and animal stalls located at street level, but below the level of the courtyard. No two rooms in the Jewish houses are on the same level; the courtyard maintains a sacred plane between the higher and lower functions of the house and was used for the annual Festival of the Tabernacle. These houses often contain secret compartments for the protection of valuables and exits for quick evacuation, which were needed in times of Jewish persecution.

The Conservation Plan for the Old City of San'a

In 1984 UNESCO and the Yemen government initiated the Campaign for the Preservation of the Old City of San'a (which, with the unifica-

tion of North and South Yemen in 1990, was renamed the General Organization for the Protection of the Historic Cities of Yemen, or GOPHCY). The goal of the new organization was not only to focus on San'a but also to preserve the architectural heritage of historic cities throughout unified Yemen. GOPHCY is located in one of the tower houses of the west Old City, Dar al-Jadid, which was restored and equipped as its headquarters. The GOPHCY office is staffed by Yemeni architects, engineers, planners, public relations personnel, and administrators, who are assisted by experts from UNESCO, the United Nations Development Programme (UNDP), and individual donor countries. Within the political structure of the Yemen government, GOPHCY is attached to the Ministry of Culture and chaired by an official with ministerial rank; its board of trustees is chaired by the Yemeni prime minister.

Upon the inception of the preservation campaign in 1984, a plan of action was drafted, which identified five major problems within the Old City:

- Rising groundwater caused by leaking water pipes was precipitating the deterioration of foundations and the collapse of several buildings. Originally the medina had a dry sewerage system, and many houses had their own independent well for domestic use. After 1962 modern drainage and water supply systems began to be installed in the Old City, which increased water consumption and reliance on water-based sewerage systems. Over time, the water from poorly connected pipes weakened many of the tower house foundations.
- Living conditions within the Old City were defined as unhygienic due to the accumulation of garbage and excrement. This caused many of its affluent inhabitants to move to the rapidly sprawling suburbs of metropolitan San'a.
- The combination of traffic congestion, both vehicular and pedestrian, and the lack of paved streets (most had had their cobblestones removed during the civil war) made many of the Old City's streets impassable and unhygienic, especially during the torrential rainy seasons.
- Products from the traditional market are being replaced by mass-produced items of lesser quality and lower price outside the Old City.
- Architectural monuments are being threatened by poor maintenance and the use of incongruous construction materials, thus diminishing the architectural heritage for which San'a is recognized by the world.¹⁵

From this plan of action, twenty-four pilot projects were identified in 1988 as part of a comprehensive domestic and international public education program sponsored by UNDP. Many countries have donated funds and technical expertise, allowing the completion of some of the projects. These projects include, for instance:

- Numerous technical and architectural studies sponsored by the Italian government, as well as the multibuilding restoration of the Abhar Quarter, which included two tower houses, street paving, and a multipurpose neighborhood center and training workshop for restoration studies.
- Repavement of the streets between major nodes using traditional local stone, which was done in conjunction with infrastructure upgrading, including new water, sewerage, and drainage systems.
- Restoration of the caravanserai Samsarat al-Nahas, in the central suq area, which was financed by the government of Norway. The restored building now serves as the National Center for the Development of Handicrafts for training men, while a parallel restoration project, the Bayt al-Mutahar, is designated for training women in jewelry, silverwork, embroidery, and traditional weaving.
- Restoration of the tower house Bayt al-Sunaydar by the government of the Netherlands, which is now being used as a commercial center for Dutch products as well as a guest house for Dutch visitors.

Many other projects have been proposed,¹⁶ including the restoration of individual monuments, such as mosques and public baths, to their traditional functions. Other traditional buildings are being converted to new functions, such as the caravanserais that are being transformed into neighborhood centers, schools, crafts workshops, museums, and hotels. Large-scale projects include upgrading the sa'ilah, which bisects the Old City, into a pedestrian and vehicular circulation spine between the two historic parts of the Old City, as well as the restoration of open spaces into gardens, orchards, vineyards, and recreational parks.

A number of projects have been proposed to improve living conditions for the inhabitants of the Old City, as well as to stimulate economic and cultural activities in the medina. One of the projects proposes the creation of six neighborhood centers to provide for the health and education needs of women and children. One of GOPHCY's goals is to provide neighborhood clinics for everyday consultations, prescriptions, and vaccinations, as well as advice on pre- and postnatal care, hygiene, and nutrition. Meeting rooms are proposed to accommodate

lectures and literacy classes that address the recognized correlation between maternal illiteracy, poor children's health, and high infant mortality.

Another goal recognizes that the economic survival and prosperity of the Old City are based upon creating an interdependent relationship between the traditional markets of the medina and those newer commercial zones of metropolitan San'a. It is imperative that the proposal be elaborated in direct consultation with the craftsmen's guild, for too drastic an intervention could easily upset the traditional structure of the suq and precipitate its demise. Legislation should stress the responsibility of both the waqf and GOPHCY for the economic viability of both entities within the Old City.

GOPHCY recognizes the need to establish centers for training young workers while masters of old building techniques remain alive. There is also a need to reintroduce maintenance as a vital component to the rehabilitation of the Old City. The use of traditional materials and techniques would allow the new work to survive and weather in harmony with the original building materials, which have survived to this day. *Qadad*, a waterproof plaster used to coat roofs and drainage channels, is an example of a traditional Yemeni building material that has been widely replaced by an inappropriate substitute. Because the process of applying qadad is extremely time consuming, it has been replaced by cement-based concrete. The concrete is not only incongruous aesthetically, but cement, the fundamental ingredient of concrete, is not an organic material. The organic properties of qadad, however, allow the material to expand and contract along with the rest of the building during the extreme daily temperature variations common to Yemen. Cement-based plaster also traps moisture within the exterior coating and causes the organic internal materials, such as mud bricks, to erode, thereby compromising the structural integrity of the building.

An Evaluation of Urban Conservation in San'a

A decade has passed since the inception of the UNESCO-initiated campaign, and hindsight offers us the opportunity to evaluate its goals and their implementation in terms of the overall improvement of the conservation program in the Old City of San'a. Much of what has been done in the past ten years provides an exemplary foundation for the goals of urban conservation stated earlier: planning, legislation, public

education, and money. However, this past decade has also exposed difficulties in implementing the initial goals and has revealed lessons for future urban conservation programs.

First, a review of the defined boundaries of the historic area is needed. Whereas areas within the walled Old City are designated for protection from outright demolition or modification, significant traditional buildings in historic areas peripheral to the designated Old City are still being torn down. Open spaces outside the Old City are being filled in with new buildings in the attempt to create more commercial shopping strips along transportation arteries. In particular, the area west of the Old City encompassing the old Turkish district Bir al-'Azab and the old Jewish quarter of Qa' al-Yahud is rapidly becoming a nondescript section of small, incongruous shops. Every effort should be made to recognize the historical, cultural, and architectural significance of growth between the Old City and Qa' al-Yahud. Expansion of the designated historic area would preserve the open spaces and garden palaces built during the Turkish occupation of Yemen in the nineteenth century. In addition, the old Jewish quarter contains examples of courtyard housing unique even to Yemen, and as a morphological pattern, the district is still relatively intact. These areas of Bir al-'Azab and Qa' al-Yahud should be designated as historical areas to preserve the homogeneous spatial quality of the historic buildings and open spaces, demonstrating yet another example of the grandeur of San'a before modernization changed their character. Unfortunately, recognition of both these historically and architecturally significant areas is blocked by animosity toward their original inhabitants.

One of the original objectives of GOPHCY, as outlined above, was to employ the few remaining building craftsmen to train a younger generation in traditional crafts and building techniques. Some training has already been done for small crafts (leatherwork, wood carving, and women's weaving) but precious little has been provided for the building techniques. There is a tremendous need to establish a project to train construction workers in all traditional techniques: stone masonry, rammed earth, baked brick, gypsum plaster, and wood. This training would provide employment for many and encourage young people to remain in the Old City and not flee to the modern city where unemployment is rampant. Unfortunately, a bad precedent is being set in the small crafts training, for it is being done by foreigners (Egyptians and Lebanese) in place of Yemeni craftspeople, whose traditions of artistic

ornamentation and production are being lost. The importation of craftspeople from other countries runs the risk of importing inappropriate preservation techniques. Preservation must resist the internationalizing impulse and preserve what is idiosyncratic to the region and country. Only crafts and craftspeople who are knowledgeable in particular styles and materials of the region should be used.

As in most traditional urban areas, motorized traffic is an enduring problem within the Old City. The best solution is to restrict vehicular traffic to the periphery of the historic area. This solution draws inspiration from the traditional form and function of the old gates of the walled city. Each of the loading and unloading points could be equipped with one or more caravanserai/warehouses, which would serve as centers for the distribution of merchandise. Motor vehicles were never meant for the scale of the urban streets, and they seriously detract from the experience of the pedestrian on whose scale the historic streetscape was designed.

Housing is yet another critical demand in San'a, with rural and foreign migration into the capital city at its highest level in the country's history. (The migration rate has been particularly aggravated by restrictions on Yemeni workers' migration to Saudi Arabia for work, a consequence of Yemen's "nonsupport" of Saudi Arabia and the allied coalition during the Gulf War of 1990-91.) Certainly, precious funding for urban housing projects should not be sacrificed for conservation, but funding could be used to combine the need to house the urban poor with the objectives of retraining Yemenis in traditional construction techniques for the purpose of rehabilitating the Old City. The housing of the urban poor and the training of a new generation of handicraft specialists and agrarians to live in the medina and maintain the integrity of its traditional lifestyle seems an appropriate marriage of mutual goals.

Finally, a serious problem for San'a is water. The water table in the San'a valley has been dropping at a rate of over five meters per year—due, in part, to the conversion from traditional dry sanitation methods to water-based systems within the Old City, as decreed by the World Health Organization. As Western ethics were imported, maintenance as a traditional ethic was discouraged and Yemenis adopted the attitude that spending money on hidden maintenance was less worthwhile than superficial care or complete abandonment. The combined forces of increased water use and poorly maintained water and sanitation systems caused many building foundations to deteriorate and some of the tower

houses to collapse. In a country where distrust of foreign intervention is historically high, a dangerous consequence is the lack of faith in any broader conservation ethic introduced by foreign organizations such as UNESCO.

This brings me to my concluding point, which is an ethical one. Reappreciation of traditional values, defined by conservation, is a cyclical phenomenon whose time has come in many parts of the world. As much of the world was once infatuated with technology as a modern savior, many developing nations were introduced to these ethics in the name of foreign development. What makes Yemen unique is that it postponed its arrival into the modern world and is, consequently, infatuated with technology as a means to catch up with the rest of the world. The truth we foreigners must accept is that, just as historic architecture is defined by the political, social, and cultural context of its time, the act of conservation is similarly not an isolated gesture but rather one defined by a reappreciation of the values that defined the creation of the historic architecture. Therefore, for Yemen to establish a valid conservation ethic, it must be allowed to follow through with its technological expression of modernity, whether it takes a decade or a generation. The danger that exists for Yemen lies not in the importation of technology to satisfy its goals of accelerated modernity but rather in the importation of ethics that define the validity of conservation as a means of suppression.

Notes

1. Stefano Bianca, "Fez: Toward the Rehabilitation of a Great City," in *Conservation as Cultural Survival*, ed. Renata Holod (Cambridge, Mass: Aga Khan Award for Architecture), 40.

2. Ronald Lewcock, "Three Problems in Conservation: Egypt, Oman and Yemen," in Holod, *Conservation as Cultural Survival*, 76.

3. The history, development, and culture of San'a are especially well documented in the most comprehensive work on the city, R. B. Serjeant and Ronald Lewcock, eds., *San'a': An Arabian Islamic City* (London: World of Islam Festival Trust, 1983). Also see Horst Kopp and Eugen Wirth, *Beiträge zur Stadtgeographie von Sana'a* (Wiesbaden: Dr. Ludwig Reichert, 1990).

4. R. B. Serjeant, "San'a' the 'Protected,' *Hijrah*," in Serjeant and Lewcock, *Sana'a'*, 39.

5. Carston Niebuhr, *Travels through Arabia*, trans. R. Heron (Beirut: Librarie du Liban, reprint 1968), 375.

6. Ibid., 379.

7. Henry Aaron Stern, "A Journey to San'a in 1856," *Jewish Intelligence* 23 (1857): 122.

8. Carl Rathjens and Hermann von Wissmann, "Sanaa. Eine südarabische Stadtlandschaft," *Zeitschrift der Gesellschaft für Erdkunde zu Berlin* (1929): 329–53.

9. R. B. Serjeant, Paolo Costa, and Ronald Lewcock, "The *Ghayls* of San'a," in Serjeant and Lewcock, *San'a'*, 19.

10. Ibid.

11. Walter Dostal, "Analysis of the Sana'a' Market Today," in Serjeant and Lewcock, *San'a'*, 256.

12. Rathjens and Wissmann, "Sanaa," 346.

13. Dostal, "Analysis of the Sana'a' Market Today," 247.

14. R. B. Serjeant and Husayn al-'Amir, "Administrative Organisation," in Serjeant and Lewcock, *San'a'*, 151.

15. Michael Barry Lane, *San'a': Pilot Restoration Projects* (Paris: UNESCO, 1988), 14–15.

16. Numerous project proposals have been developed through the joint efforts of GOPHCY and UNESCO with the intention of attracting foreign donors. See the discussion in Lane, *San'a'*, 29–79.