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# Sijilmassa: The Rise and Fall of a Walled Oasis in Medieval Morocco

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**S**ijilmassa, once a great oasis city that organized caravans for gold across the Sahara, lies today in ruins along the Wadi Ziz in the Tafilalt oasis of southeastern Morocco (Figure 1). Sijilmassa flourished for nearly 650 years after its establishment in A.D. 757, and housed a population of perhaps 30,000 in the last two hundred years of its existence. Founded by Islamic dissidents—kharijite refugees from the religious mainstream who debated authority in early Islam and who sought and found spiritual refuge among the Berbers throughout the Maghrib—Sijilmassa quickly emerged as the premier desert entrepôt of North Africa. Not only did the oasis city secure the gold from south of the Sahara, it also controlled gold minting, sped the precious trade north and eastward, and was regarded by Arab geographers and historians as the wealthiest of places in the Maghrib. Because Sijilmassa organized the gold trade to Africa, Morocco, and beyond, the city was coveted by centers of power from Spain to Tunis. Prior to abandonment in 1393, Sijilmassa constituted a global place in the premodern era.

This study of the city's rise and fall is prompted by a multi-disciplinary project to unearth Sijilmassa. As geographers with the Sijilmassa Project, we have focused on the morphology of the ancient city and its organization of space, how the resources of the oasis were harnessed to sustain urban growth, and why the city collapsed.

With the expectation of developing a coherent picture of Sijilmassa as a place, we found that our approaches and methodologies contrasted dramatically with those of our colleagues in history and archaeology. Ultimately, we realized that conceptions of space, place, and landscape vary sharply among the three disciplines. The first part of this paper offers an overview of these differences and underlines

the strength of the regional concept as a geographic tool.

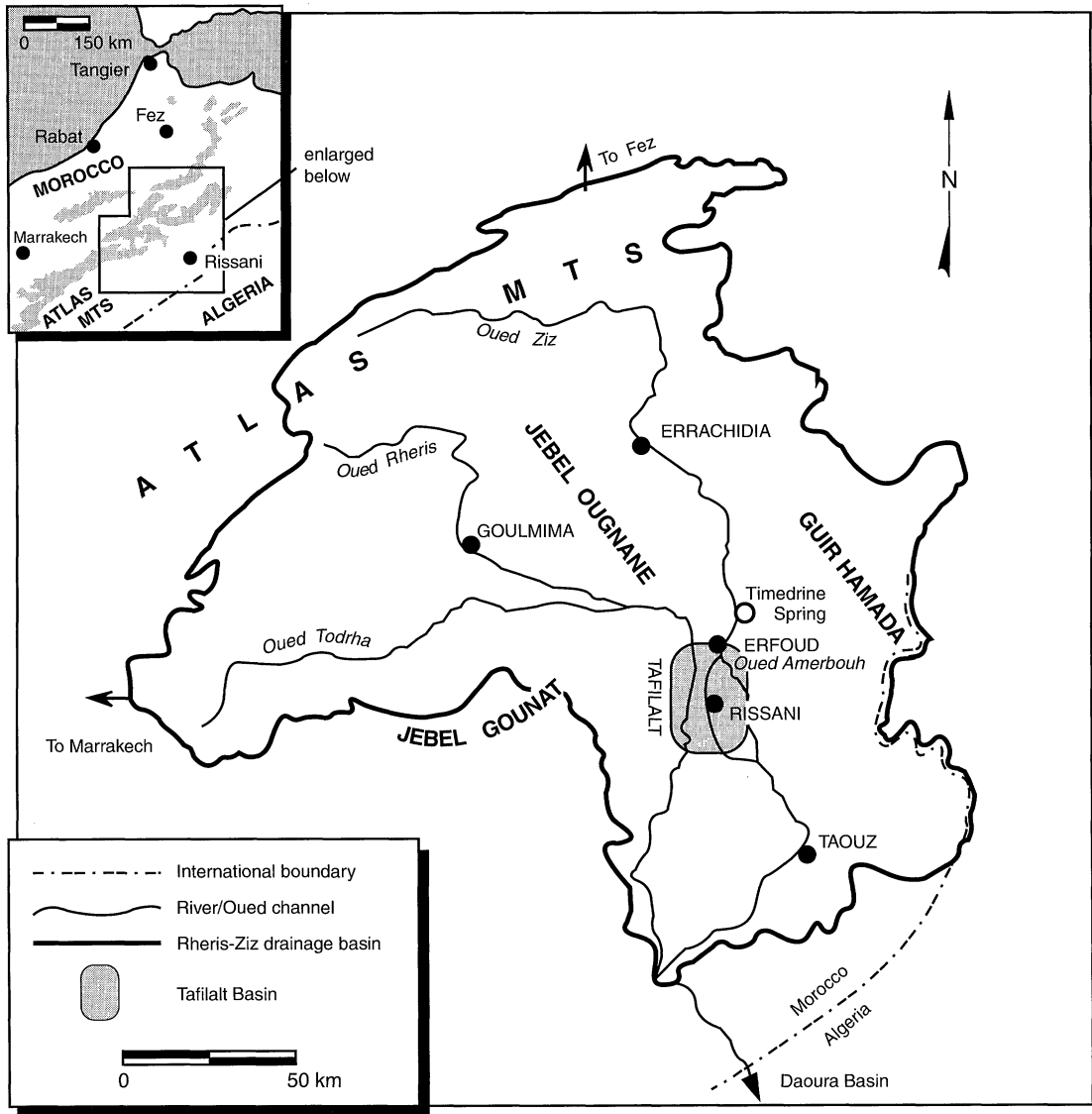
Part two presents key regional information on Sijilmassa; part three discusses our methodology—a combination of oral tradition, field reconnaissance, remote sensing, historical documentation, and archaeological fieldwork. In part four, we present findings on ancient hydraulic technologies and the ecology of development of Sijilmassian resources; we also underline the role that political and social relations played in the collapse of Sijilmassa and its nodal function in the geography of the northern Sahara.

## Place in History, Archaeology, and Geography

### History

History seeks facts, seen as the truths of time's details. Having identified temporal sequences, connections, and motivations, historians then write the narrative of events that happened in a place. These become what the French historian Veyne has called the "plot," the raw frame of history, which captures the play of events (Veyne 1984). For the historian, place serves largely as the stage for the plot. History chronicles how human action moves time forward in place; it does not, at least not directly, address the nature of place itself. Place in history is peripheral to the main event, which is the obverse of place's role in geography. If the medieval histories of Sijilmassa provide a fairly clear-cut picture of the run of dynastic events, they shed little light on the nature of the place itself. It is through this breach that we may infuse geography into history and archaeology.

## TAFILALT BASIN, SOUTHERN MOROCCO



**Figure 1.** The Tafilalt Oasis/Basin, southern Morocco. The Sijilmassa ruins lie near the modern town of Rissani. The oasis forms out of the near-convergence of the oueds Rheris and Ziz, the primary channels of the drainage basin outlined here.

### Archaeology

As the study of "past cultural behavior within . . . specific historical and ecological frame-

works," archaeology assigns place a central role (Hester 1976:4). Archaeology operates within spatial contexts where human events in the past took place and where sites and land-

scapes were deposited with the artifacts that are archaeology's raw material. Like history, archaeology seeks temporal connections and sequences from evidence of earlier human activity.

The archaeologist works with fragmentary records of place and at map scales that are often large. But because the archaeological record is nested within a hierarchy of place—a niche within a wall framing a dwelling in a neighborhood in a city in a network of trading towns—the analysis usually takes on broader spatial meanings that provide insights into the human condition, the province of the historian, or the nature of place, the province of the geographer. And while the objects found and the sites excavated are often of primary interest, archaeological interpretations (like history and geography) aim at larger issues, namely the “explanation of cultural processes by testing generalizations about how cultures function and evolve” (Watson 1984:viii).

Place in archaeology is the *passé structurel*, or structure of past place. Yet place has a broader regionality, and it is that larger vista that we brought to bear on the archaeology of the Sijilmassa site, notably by viewing the ruins in the context of local environmental and regional features that have served the people of the Tafilalt oasis over time. As geographers, we see the ruins, the oasis, and the entire region as a coherent “site.”

### Geography

Place is concrete in and central to geography. In the largest sense, geography studies the organization of space, while human geography studies that portion of space that has been inscribed by human activity. Although place in geography has the widest possible range of denominations, region and landscape constitute its primary conceptualizations. This three-tiered way of thinking (space-place-region), so fundamental to geographic analysis, organizes our interpretation of the site, setting, and function of Sijilmassa.

For the geographer, place is both where things occur as well as a point of departure for understanding why things occur where they do. The choices of scale and form of place are sufficiently open to respond to the question at hand. Similarly supple are the spatial outlines of human activity in place—location, dis-

tribution, regionality—which are refashioned through subsequent human action. Geography moreover links human events, objects, and actions in place with the physical environment (Entriken 1991:10). Place is both “real” and an artifact of human perception: it is “a fact to be explored in the broader frame of space, but . . . also a reality to be clarified and understood from the perspective of the people who have given it meaning” (Tuan 1974:213).

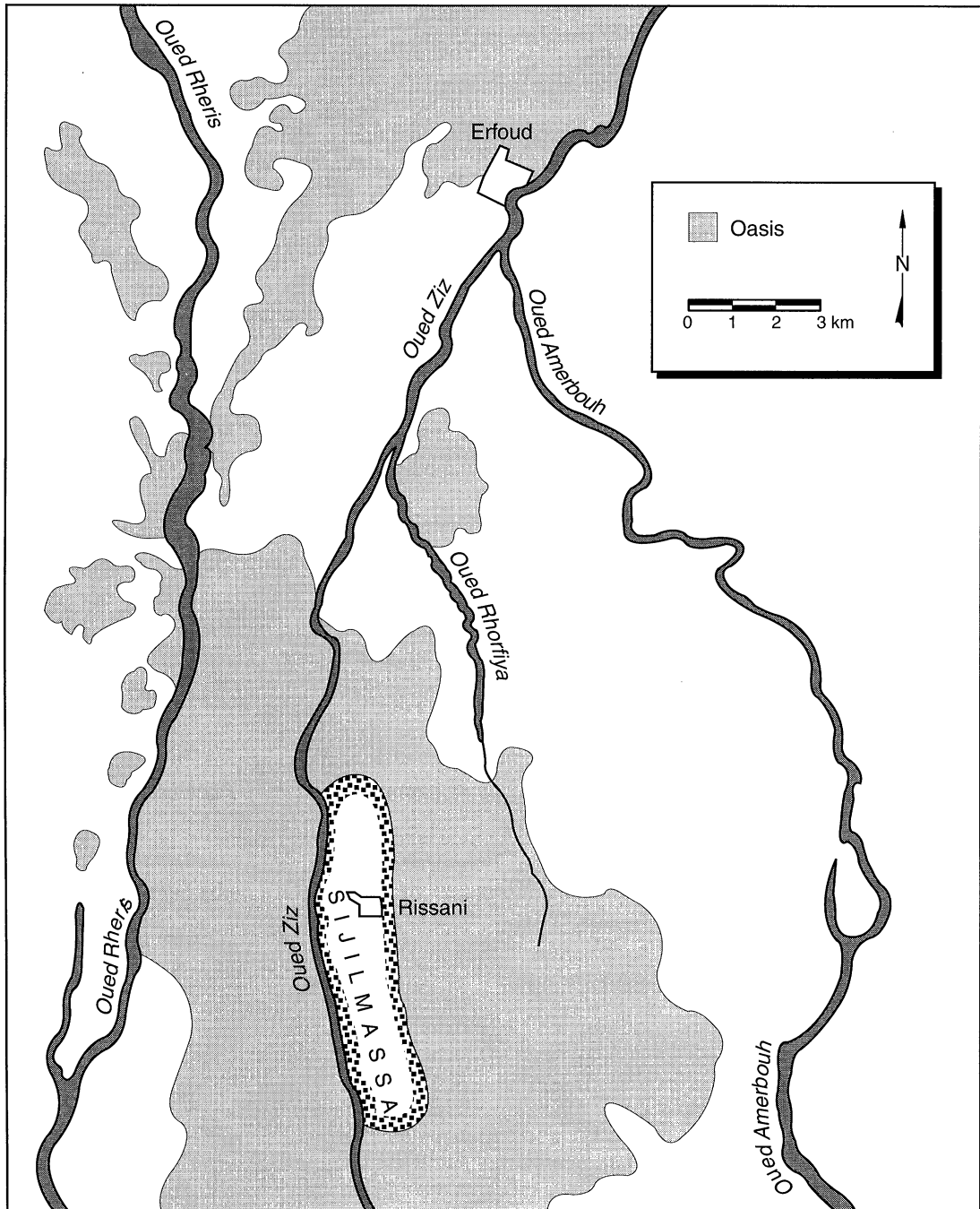
While history, archaeology, and geography all seek to understand what happens in place, the geographic tradition stands alone in seeking to understand the coherency of place. Unlike history or archaeology, geography is not tethered to events, to the past, or to a site; it is free to roam across the boundaries of time and place, to give coherent meaning to places in the process of becoming, and to explain how they change and why. Accordingly, geographers learn about past places by drawing upon the broadest possible range of regional observations. At Sijilmassa, our appeal to colleagues in history and archaeology has literally been to “broaden your sights!”

## Sijilmassa: Site and Region

### Site

Sijilmassa's ruins, adjacent to the modern town of Rissani, juxtapose a barren landscape with the lushness of date palms and grain and vegetable fields of the Tafilalt oasis. The heart of the ancient city occupies a small rise surmounting the plain of the Oued Ziz (“oued” is the usual spelling of the Moroccan Arabic for *wadi*, or perennial stream). Here, the ruins of Sijilmassa form a mass of mounds and hollows rising five to ten meters above the Ziz plain. Atop the rise are the remnants of a mosque built in the 1600s and 1700s. These serve tourists as a convenient, if historically misleading, vestige of Sijilmassa. In a broad stretch between this rise and the Ziz, several hundred meters distant, a gently sloping alluvial surface is littered with pottery shards and ruined adobe walls. Material culture remains are here found to depths of seven meters. In all, Sijilmassa's ruins extend along a sliver measuring eight kilometers in length and one and a half kilometers in width along the left (east) bank of the Ziz (Figure 2).

## TAFILALT SURFACE DRAINAGE



**Figure 2.** Sijilmassa and the surface drainage pattern of *oueds* (wadis) as they exist today. The Oued Ziz is actually a canal (*seguia*) diverted from the true Ziz (Oued Amerbough). The Seguia Ziz has meandered in places from its channelized banks since construction in the eleventh century.

## Region

Sijilmassa is located in the Tafilalt basin, a syncline surrounded on east and west by low mountains and filled by alluvial sediments eroded from the Eastern High Atlas Mountains (Margat 1961:23). Pleistocene and later outwash material was transported by numerous desert streams, most prominent of which are the oueds Ziz and Rheris. These streams frame the oasis and provide its main water resources (Figures 1 and 2). The Tafilalt oasis occupies the heart of the basin and covers an area of approximately 15 by 25 kilometers (375 sq km).

The Tafilalt, Morocco's largest single oasis, is given life by these streams which converge upon and die in it. The Tafilalt is the farthest point to which water flows seasonally outward from the Atlas. Accounts of medieval travellers and contemporary hydrogeological studies all suggest that the region's climate and water regimen have not changed appreciably since the time of Sijilmassa (Hopkins and Levtzion 1981; Margat 1961). Surface-water supplies normally increase during the mediterranean-type winter experienced in the mountains, wane in the early summer, and are generally absent until the autumn rains begin. Flooding in this desert setting is periodic, and an abundant water table lies only a few meters below the surface. Beyond the Tafilalt stretches the full Sahara, where the interstices of human life are few and far between.

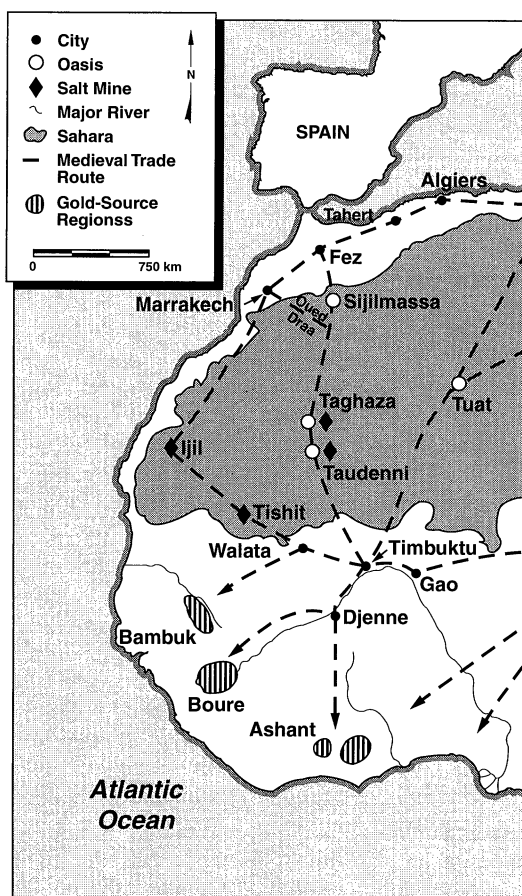
## Sijilmassa in Historical Perspective

Sijilmassa is known first and foremost for its historical role in the transSaharan gold trade with ancient Ghana. The essential outline of this trade was the exchange of copper and brass from North Africa and salt from the Sahara itself for gold from regions south of the Sahara (Bovill 1970). Sijilmassa is noted as early as A.D. 956 as minting all the gold transported northward from the Sudan (al Mas'udi, in Hopkins and Levtzion 1981:36), and numerous accounts over the next four centuries repeatedly identify Sijilmassa as the organizer of the trans-Saharan gold trade and the central pivot for caravan routes linking West Africa north to Fez

and Sebta (Ceuta) and eastward to Tahert (in eastern Algeria) (Figure 3).<sup>1</sup> With its immediate hinterland population and market area limited to the Tafilalt oasis and environs, the growth of Sijilmassa was rooted in, and dependent upon, long-distance trade. In this sense, Sijilmassa was a mirror image of the cities on the other side of the Sahara with which it traded goods and influence (Winters 1981:345, 347).

Although Sijilmassa may have been founded to capture the African gold trade from established North African entrepôts, medieval histo-

### GOLD TRADE ROUTES



**Figure 3.** Medieval trans-Saharan gold trade routes and associated sites, circa A.D. 1000–1400. The primary route plied by medieval caravans from the Maghrib connected Fez to Timbuktu via Sijilmassa. Sources: after Martin 1986; McDougall 1990; Winter 1981.

ries picture the city's origins as a spiritual refuge in the desert (Al-Bakri, in Hopkins and Levzion 1981:64–66). It was the second city founded by the forces of Islam in the Maghrib, following Kairouan in Tunisia in A.D. 670. Unlike orthodox Kairouan, however, Sijilmassa was one of a series of towns established by kharijite exiles from Abbasid Mesopotamia in the mid-700s and sprinkled across North Africa. Engaged in a struggle over who had the right to become the head of the faith, kharijites literally departed the field of sectarian battle in 657 and relocated in places where their belief that anyone could become the head of Islam could endure. Kharijism, Islam's first heresy, has long since died out in the Tafilalt, but survives in the Algerian Sahara.

From establishment of a kharijite refuge in A.D. 757 until its demise in 1393, Sijilmassa was a stunning success. With the resource base of the Tafilalt oasis at its command, Sijilmassa ruled the caravan trade of the Sahara and connected the Mediterranean and Islamic worlds with West Africa. As an independent city-state, Sijilmassa held a complete monopoly on the West African gold trade—as organizer of the twice-yearly caravans and the locus of coinage and transfer point for gold—until the mid-1000s, or for somewhat less than half its existence (Harris 1895; Bovill 1970). The discrete nature of the Saharan route, the unidimensional quality of the trade, and the location of Sijilmassa at a remove from the heart of Morocco and the Maghrib ensured both security and wealth for the oasis city-state.

Given its wealth and strategic significance, Sijilmassa was the first object of conquest for the Almoravid movement. The Almoravids, bent on conquering the Maghrib and Iberia in the name of a new vision of reformist Islam, swept northward from the Atlantic coast of modern-day Mauritania in the 1050s and ruled over all of western Islam by the early 1100s. For the next 300 years, Sijilmassa played a key role as a leading source of revenue and a flashpoint for political rivalry within three successive Moroccan empires: the Almoravids (until the 1150s), the Almohads (until the 1260s), and the Marinids (from the 1260s until the fall of the city in 1393). Within these Moroccan imperial systems, Sijilmassa's power was gradually diluted as first the Almoravids, and then the Almohads and the Marinids, allowed other groups along Morocco's desert frontiers to

conduct the precious trade (Kenbib 1986–1987:51, 72, 79). Primary among these were the Saadians of the Draa Valley, 150 km west of the Tafilalt (Figure 3). In addition to the loss of their monopoly on the gold trade, Sijilmassians chafed at the demands made on their wealth by the Marinid dynasty then in control of Morocco (Kenbib 1986–1987:85). Competing Marinid princes had battled for control of Sijilmassa in 1331–1333, 1361–1363, and in 1387 (Jacques-Meunié 1982:288–294). In the end, rivalry for power and territory among Marinid factions led to the extinction of their empire, and the Moroccan political landscape devolved into petty power centers. In the 1400s, for the first time in over 300 years, no central authority held sway in Morocco. In the Tafilalt, Sijilmassa fell and the oasis became a landscape of adobe villages (*qsar*; plural, *qsour*).

Following Sijilmassa's collapse, the Moroccan gold trade declined. Iberians sought to control the trade by sea and quickly succeeded in dominating West Africa's external trade. For the Iberians, sea-going ships and coastal "factories," not land routes, served as the means of penetration and control of the gold trade. At the same time, the Portuguese and Spanish repeatedly invaded Morocco in the 1400s and 1500s. With much of the country held by Christians, Morocco lacked a political focus until the emergence of the Saadians of the Draa as a powerful new political force in the early 1500s (Kenbib 1986–1987:83–87). The "Golden Trade of the Moors" did not completely die out, however; the caravan trade and the minting of African gold and Atlas silver continued in the Tafilalt until the turn of this century (Harris 1895; Bovill 1970).

The economy of the Tafilalt continued, albeit in different form, after the fall of Sijilmassa. Indeed, the Tafilalt experienced a period of renewed greatness in the seventeenth century. This renaissance traces its origins to the 1200s when descendants of the Prophet Mohammed's son-in-law, Ali, living in Jubail on the Red Sea coast of Arabia, were invited by Sijilmassians to settle in their city. Carrying with them the holy mantle of the Prophet, the Alaouites (as this family is known) infused a sense of holiness to the Tafilalt (Kenbib 1986–1987:99).<sup>2</sup> By the early 1600s, the Alaouites had refashioned the infrastructure of the oasis and expanded large-scale irrigation through a network of dams and canals off the Ziz and Rheris

(Margat 1959:255). In 1631, the inhabitants of the Tafilalt pledged fealty to the Alaouites, who then began a campaign of territorial conquest designed to safeguard the Tafilalt's trade routes. Within a generation, the Alaouites were masters of Morocco, and the facts of their Tafilalt provenance and their uninterrupted rule over Morocco ever since has enshrined Sijilmassa's place in both memory and history.

## The Tafilalt: Economy, Society, and Settlement

### Economy

The productive basis of the Tafilalt, as elsewhere in the oases of the northern Sahara, has been the irrigated cultivation of the date palm; in the Tafilalt the exceptional quality of dates has been cause for remark since earliest times. Al-'Umari (d. 1349) compared them to the fine dates of Iraq (Hopkins and Levtzion 1981:274). Here, as elsewhere in the northern Sahara, date palms are grown in a system of agricultural production little changed since medieval times: grown in irrigated *jnan* ("gardens"), dates shield crops grown underneath them—fruit trees, barley, henna, vegetables—from the sun. Expansion of production, however, has been a repeated goal in the Tafilalt. In Sijilmassian times, incremental increases in irrigation from the Ziz and the Rheris permitted more centralized control of the resource base through more intensive water management of the *wadis*. Perhaps shortly after the arrival of the Almoravids in the eleventh century, the entire course of the Ziz was reconfigured. Later, probably toward the end of the 1300s or the beginning of the 1400s, *khattara* ("chain wells," known elsewhere as *qanats* or *karez*) were added to the technological repertoire. The Alaouites built many dams along the Ziz and Rheris—some twenty in all—but these dams built in the 1600s post-date our subject.

### Society

Our primary interest focuses on the spatial organization of Sijilmassa's landscape and how and why it changed so profoundly at the end

of the fourteenth century. An analysis of regional social organization provides some clues into the social space of Sijilmassa and the city's ultimate demise. While all social groups in the region are regarded as *Filali* (of or from the Tafilalt), these groups can be separated into four basic dichotomies: Muslims and Jews; Arabs and Berbers; oasis dwellers and nomads; and, in the oasis, free people and people in bondage (slaves and indentured servants, or *haratin*). Further divisions of status are defined by holiness, especially sainthood; any one could rise to sainthood in either the world of Tafilalt Islam or Tafilalt Judaism, within or outside the oasis (Figure 4).

Africans sold as slaves came along with the gold. In the Tafilalt, slaves were the property of the *zaouias*, or religious endowments for Islamic saints and their schools. Through the practice of *habous*, or pious donations, to the *zaouias*, they became large land- and slave-

### SOCIAL SPACE OF THE TAFILALT

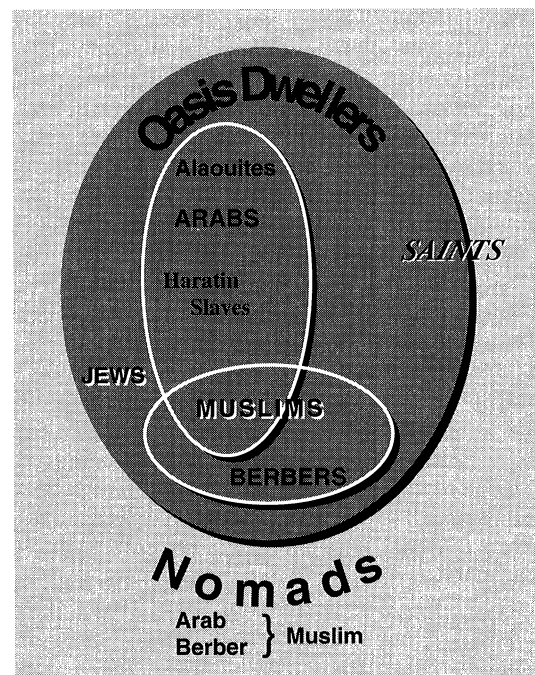


Figure 4. Schematic diagram of the social structure of the Tafilalt region. Sources: Fieldwork in the Tafilalt.



owning institutions. The *haratin*, a dark-skinned and Arabic-speaking indentured class, are still numerous in many villages and they constitute the backbone of the oasis labor force. *Haratin* are chattel in that they are seen as belonging to Arab, Jewish, or Berber families who may call upon them to labor at any time. Their status is hereditary. *Haratin* could own property, however.

Sijilmassa was largely populated by Berber converts to kharijism, but its political and spiritual rulers were Arab: the kharijites from Mesopotamia. As in much of Morocco, the general transition to Arabic accelerated in the 1200s after the arrival of powerful new Arab groups in the Tafilalt: the Banu Ma'qil nomads and the orthodox Alaouites (both from Arabia) (Dunn 1977:71); and the subsequent arabicizing leadership of the Marinids at the national level.

The Alaouites crown the Tafilalt social pyramid. As descendants of the Prophet's son-in-law, Ali, they are known both as Alaoui, from Ali; and *shurfa* ("honored"). And as the progenitors of Morocco's longest-lasting dynastic line (which governs the country today through King Hassan II), the Alaouites demonstrate the continuing power of early Islamic bloodlines. Their endurance also provides substance for the widespread Moroccan perception of the Tafilalt as an especially holy place. The Alaouite of the Tafilalt are in the same bloodline as the *sultan* ("king"), many of them serve at court, and they form a large body of relations to the throne. While normally removed from political power in Morocco, the Filali Alaouite elite traditionally have retained a key role in the political culture of the country since they are consulted over the choice of the new *sultan*.<sup>3</sup>

Another group high in the Tafilalt social pyramid is Muslim saints (known as *wali Allah* or *solih*) and their descendants. Saints may be either Berber or Arabic-speaking and can come from any social group in or outside the oasis (like the Muslims, Moroccan Jews too have their saints). Once acknowledged as saints by the Islamic community, the *wali Allah* hold special status in religious and community affairs and they are elevated to the rank of *sheikh*. Their influence may result in the foundation of a *zaouia*, which further radiates specific theological beliefs. Saints' descendants may continue to bear the flame of holiness

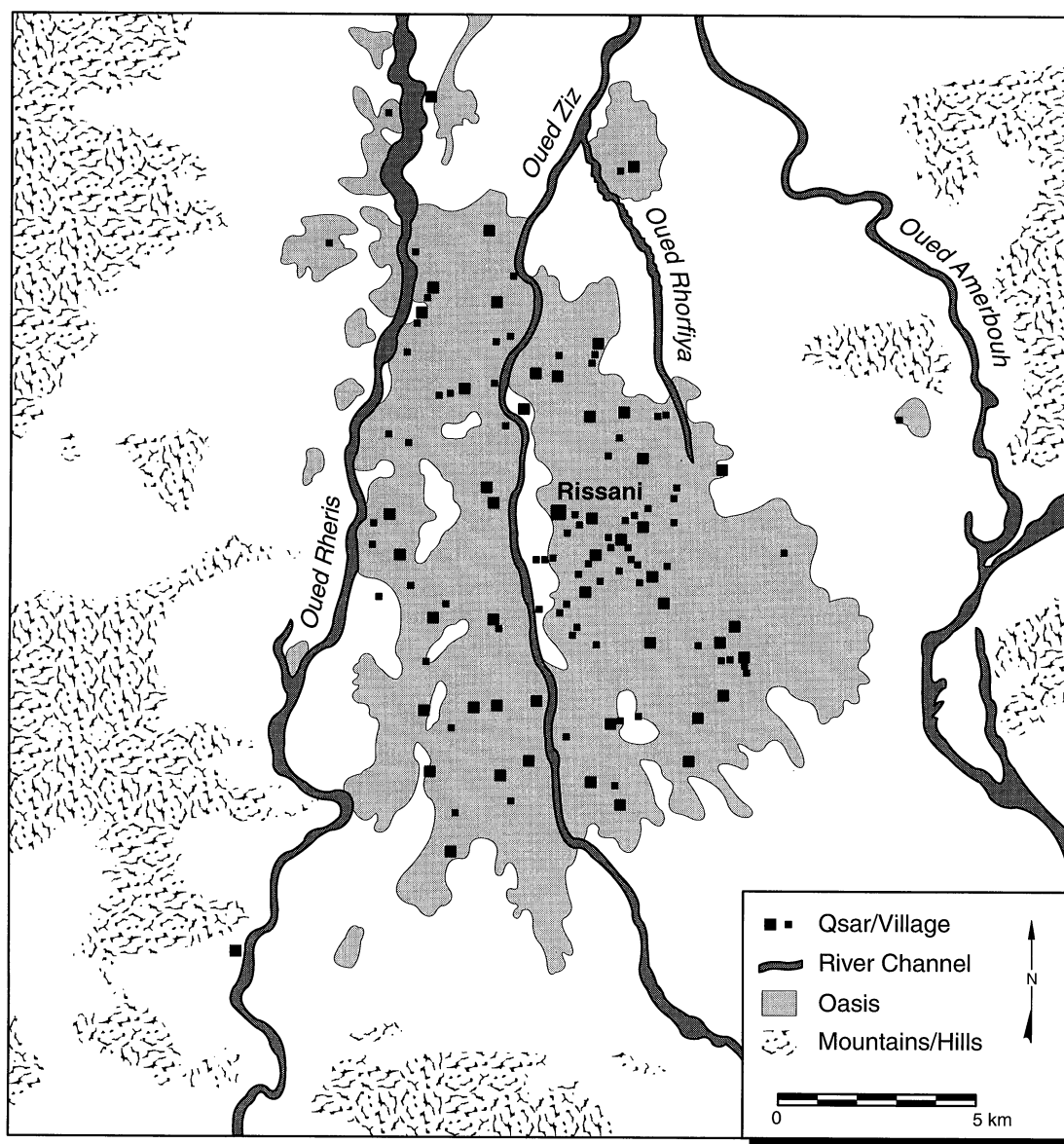
(*baraka*), provided they follow in the righteous path of their forebears.

In its essential outlines, the social organization of the Tafilalt has remained recognizably similar since the arrival of the Alaouites in the 1200s, the recrudescence of sainthood in Moroccan Islam in that century, and the concomitant appearance of the Arabian bedouins, the Banu Ma'qil (Eickelman 1976). Jews, though numerous throughout Tafilalt's recorded history, were excluded from political (but not economic) power in the framework of the Islamic city. Jews have not been present in the Tafilalt, however, since the 1973 Arab-Israeli War (when they were evacuated to Israel virtually overnight), but they remain strong in local memory and the shrines of Jewish saints attract Jewish pilgrims still. Within the social hierarchy, then, power is weighted toward the Alaouites and the saints. Within Muslim social space, Berbers can become saints, but they cannot become Alaouite. With the arrival of the Alaouites at Sijilmassa, a powerful new social force had clearly emerged.

## Settlement

The population of the Tafilalt today numbers over 80,000 people, or more than twice the estimated population maximum of Sijilmassa.<sup>4</sup> The Tafilalt settlement pattern is one of villages dispersed throughout the oasis, with the market town of Rissani (pop. 1982, 7755) providing a clear focus for the entire oasis (Figure 5). Villages, which range in size from 200 to 2,000 people, consist of contiguous dwellings set along narrow alleyways that often conform to a grid pattern within the *qsar*'s walls. The residential organization of different social groups varies from village to village. The concentration of Berber villages in the northern and western Tafilalt reflects their recent sedentarization and some consequent enlargement of oasis space. Some villages are socially homogeneous, while others are heterogeneous and spatially segregated. Still others are heterogeneous with no detectable residential segregation. Whatever the case, the small size of the typical village (fewer than a thousand inhabitants) means that different social groups live in close proximity to one another.

## CONTEMPORARY SETTLEMENT IN THE TAFILALT OASIS



**Figure 5.** Contemporary settlement in the Tafilalt Oasis. The dozens of villages scattered throughout the oasis have replaced the single central city of medieval Sijilmasa.

### Methodology: Collating Multiple Sources of Evidence

The joint Moroccan-American Sijilmasa Project has conducted four seasons of field

work—1988, 1992, 1993, and 1994. The archaeological excavations have steadily advanced our understanding of the layout and historical development of the site.

As geographers at the archaeological project, we developed our picture of the Sijilmasa

landscape by drawing upon five sources of data: oral tradition, field reconnaissance, remote sensing (air photos and Landsat imagery), historical documentation, and archaeological fieldwork. Understanding contemporary society in the region also played an important role. These sources were interwoven in two steps: we first produced a conceptual model of Sijilmassa upon which we overlaid evidence from oral tradition; we then produced a synthetic, second-generation map which collated details from our five sources of evidence and keyed these into a topographic map.

### Oral Tradition

Interviews furnished a wealth of information about the site and situation of Sijilmassa. We collected mythic histories of Sijilmassa, compared these with findings from archaeological sites and historical texts, and placed the whole in spatial context. In addition, environmental information elicited during interviews—about springs, wells, water tables, canals, dams—revealed reference points for the human landscape of the ancient oasis. The locations of these environmental features were verified by field reconnaissance and tied to contemporary cultural and physical features.

In total, we conducted over 100 interviews at 21 villages throughout the Tafilalt during June and July 1992. Our informants revealed an oral tradition on Sijilmassa preoccupied with the end of the ancient city; moreover, most Arabic speakers in our sample claim descent from the Sijilmassians.

### Field Reconnaissance

Walking the Sijilmassa site, combing the riverbeds and canals, and navigating the confines of the oasis improved our understanding of the landscape and the water resources of the Tafilalt and of Sijilmassa as a place. When narrators of oral tradition identified architectural or agricultural features associated with Sijilmassa, we tried to find them, often accompanied by the people who described them. What we learned in one instance began to resonate with what we learned in another; as our local knowledge became "denser," to use Clifford

Geertz's redolent term, our ability to reconstruct the landscape deepened.

Landscape features identified through oral tradition and recovered through field reconnaissance helped to establish our first model of the Sijilmassa landscape.

### Remote Sensing

Topographic maps covering the northern part of the Tafilalt oasis at 1:50,000 and the entire region at 1:250,000 were used as base maps for plotting locations of Sijilmassian and contemporary features and ecological data. Aerial-photo reconnaissance and Landsat satellite imagery provided an overview of the archaeological site and oasis environment. Landsat Thematic Mapper imagery provided remarkable views of surface water channels in relation to settlements as well as of the distribution and quality of groundwater resources (as inferred from the density of palm trees). Satellite imagery delineated arable and non-arable land in the Tafilalt, facilitated computations of the field area in the oasis, and provided evidence of abandoned fields and earlier levels of water supplies, water management, and food production.

Aerial-photo analysis also permitted us to confirm the location of features identified in oral and written histories, but which were imperceptible or obscure at ground level. Features alleged as Sijilmassian were then mapped. In this way, air-photo analysis guided further archaeological surveys and excavations.

### Historical Documentation

The medieval texts, however fragmentary, provide pivotal descriptions of the place in its time. Medieval Arab authors chronicled the importance of Sijilmassa as an independent city-state and caravan center; its incorporation into the Almoravid empire was documented by Al-Bakri in 1068. Although few medieval chroniclers actually visited Sijilmassa, it figures large in many historical accounts as the jumping-off point for the gold trade and as a standard point of reference for the location of known places in the world.

### Archaeological Fieldwork

The on-going archaeological dig has several objectives: establishing the outlines of the city, finding its prominent structures, and documenting long-distance exchange at Sijilmassa. Much of our evidence comes from ceramics recovered at the site.

The problems of archaeological excavation at Sijilmassa are daunting. The lower-lying parts of the site have been repeatedly washed by floodwaters. The lengthy occupation of Sijilmassa (757–1393) defines a complex record through many levels of cultural succession. There was extensive ceremonial rebuilding in the 1600s, and parts of the site have been used as a dump, a cemetery, and a slaughterhouse in modern times. This said, fourteen soundings at the site in 1992 uncovered several Sijilmassian-age structures, notably a residence with three distinct levels dating to the 1000s and a wall and tower-gate complex dating to at least the 1100s. Excavations in 1994 revealed three successively reworked mosque structures (attributable to the early, middle, and late Sijilmassa eras) in layers beneath the seventeenth-century Alaouite mosque in the central part of the site.

Ceramics offer the most impressive evidence for the development of Sijilmassa. Through 1993, some 22,000 ceramic pieces (intact and shards) have been examined and classified into eight groups based on texture, color, size, quantity, and paste. Sijilmassian ceramics are interspersed with foreign material which sheds light on the web of trade relations. The 1992 discovery of a nearly intact plate decorated with Quranic inscriptions proved to have originated in thirteenth-century Qal'at Banu Hammad (eastern Algeria), thus confirming a trade route identified in documentary sources. Similarly, a cache of 32 gold coins found in 1992 in Aqaba, Jordan, 29 of which were minted in Sijilmassa sometime before 1013, underscores the long-distance reach of Sijilmassa in the pre-Almoravid period.

### The Sijilmassa Landscape Map

By collating the data from these five sources, we were able to construct a map of the ancient city and oasis: a theoretical model, as it were, of Sijilmassa. The core of the model is based on the spatial congruence of the multiple

sources of evidence (Figure 6). The model represents Sijilmassa in its final phases.

This conceptual model of the Sijilmassa landscape was then fitted to a base map produced from topographic sheets and Landsat imagery. Aerial photographs were scrutinized again with the intent of recovering Sijilmassian components; features identified in both the oral tradition and in aerial photos were aligned. Field reconnaissance corroborated inclusion of some elements and the exclusion of others. The final map (Figure 7) represents what we believe to be the most complete picture yet produced of the medieval Tafilalt, and, most especially, of Sijilmassa in its last phases. The remainder of this paper attempts to account for the map's key features and to clarify their functions using oral traditions, field and photo reconnaissance, and medieval texts.

## The Sijilmassa Landscape

### As Portrayed in the Oral Tradition

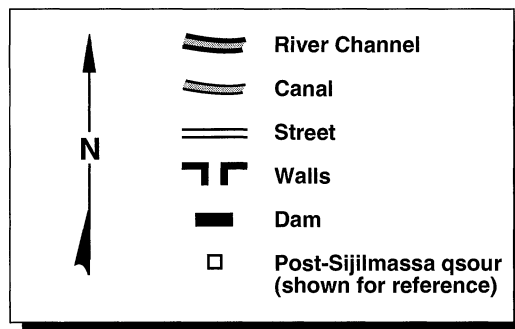
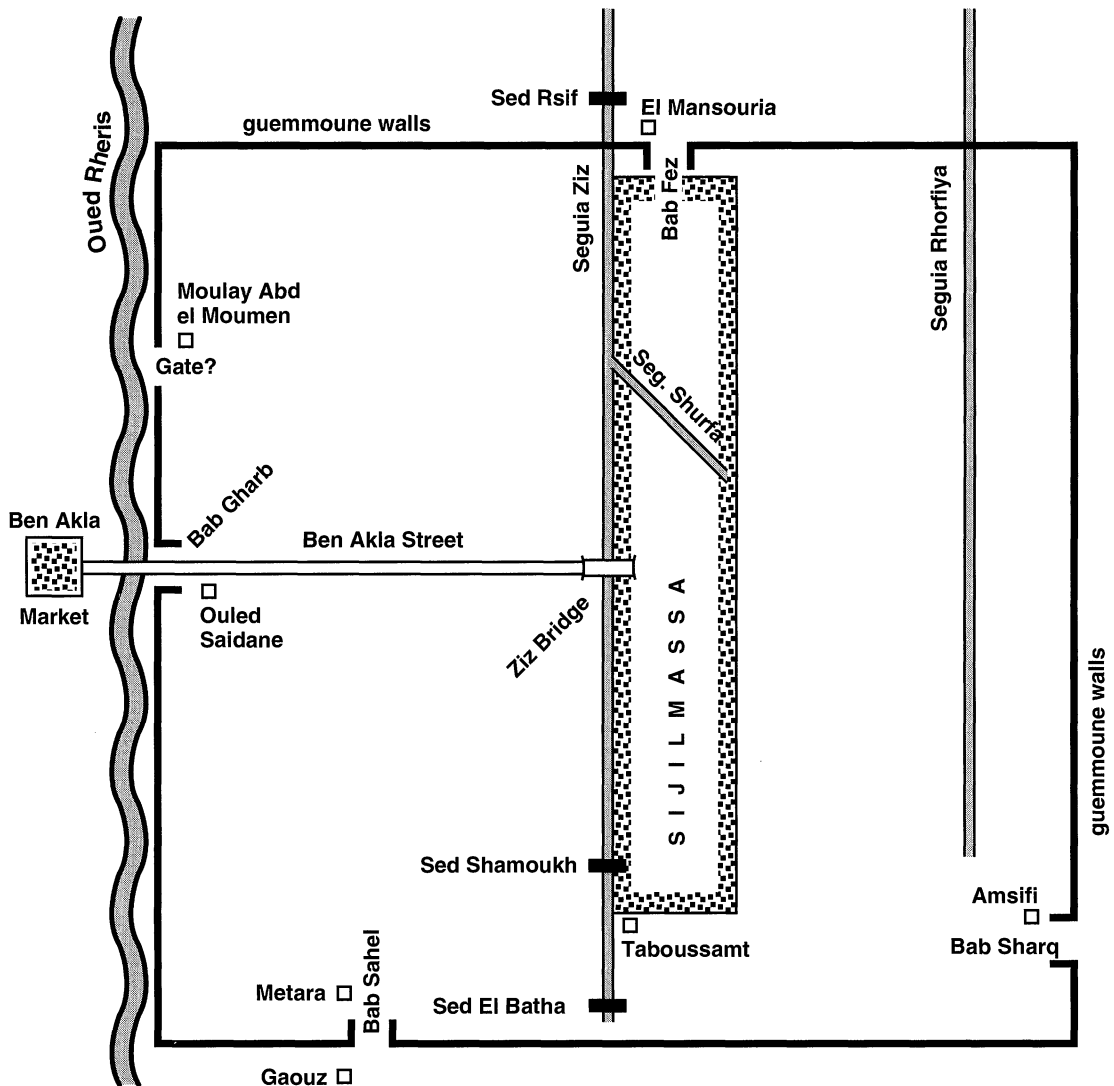
Oral tradition focuses on four aspects of the Sijilmassa landscape: 1) setting; 2) walls and gates; 3) streets and markets; and 4) water and agriculture.

**The Setting.** Oral tradition portrays Sijilmassa as long and narrow, running from the modern-day Qsar Mansouria in the north to near Qsar Taboussamt in the south; informants say that the distance amounts to a half-day's walk long for a man and a full-day's walk long for a woman to cover the eight kilometers. In width, the city was between one and two kilometers (Figures 6 and 7).

Narrators of the oral tradition insist that the Tafilalt contained only the single, large city of Sijilmassa which was located entirely east of the Ziz and coincident with the ruins in the landscape today. A single bridge running out of the central portion of the city crossed the Ziz and connected it with a market whose name, Ben Akla, lingers in the popular mind.

**Figure 6.** Conceptual model of the medieval Sijilmassa landscape based on oral tradition. The area shown covers most of the Tafilalt Oasis.

# CONCEPTUAL MODEL OF THE SIJILMASSA LANDSCAPE



Development of the landscape of individual villages followed the city's destruction. Some villages claim direct descent from Sijilmasa; these overwhelmingly Alaouite *qsour* of the central oasis also claim to have been the earliest villages implanted in the Tafilalt following the abandonment of Sijilmasa.

**Walls and Gates.** Informants recount that the city of Sijilmasa was not walled, but that the surrounding oasis was. Sijilmasa's fields (*guemmoune*) were bounded by walls some four meters high, and these delimited the cultivated oasis and Sijilmasa from the outside world (Figures 6 and 7). Oral tradition also suggests that this enclosure came late in the history of the city. The common view is that walls around the fields were designed to "keep people in Sijilmasa" during the rule of the oppressive Sultan el Kahel, or "Black Sultan." Informants consistently identify the Black Sultan as the last, and most detested, governor of Sijilmasa. He also figures in legends concerning water supplies and the end of Sijilmasa, to which we will return.

Four gates into the Sijilmasa oasis are indicated (Figures 6 and 7). As with gates elsewhere in Morocco, the names of Sijilmasa's gates reflect the direction of trade, the environment outside, or the direction in which the gate led. *Bab Fez* ("Gate of Fez"), located at modern-day Qsar Mansouria, marked the northern end of the city. No other gate provided such direct access to Sijilmasa. Parts of this gate are extant today. An eastern gate, *Bab Sharq* ("East Gate"), was located in the southeast corner of the walled oasis, near Qsar Am-sifi. In the southwest quadrant *Bab Sahel*, or "Gate of the Sahel" (referring simply to the plain, *sahel* in Arabic, south of the city), was located between Metara and Gaouz villages. In the west, *Bab Gharb* ("West Gate") opened to the Oued Rheris and the nearby Ben Akla Market.

**Streets and Markets.** Informants provided remarkable detail on a market called "Ben Akla." They referred to Sijilmasa as a customs point, or *diwan*, that focused on the Ben Akla market located just west of the Oued Rheris at the end of the bridge leading out of the ancient city (Figures 6 and 7). Ben Akla, they say, served as the caravan terminus, a market, and a place where taxes were collected. Tribal peo-

ple known as the Ait Kbour are identified as managing the market which was connected to the center of Sijilmasa by a road lined by high mud walls.

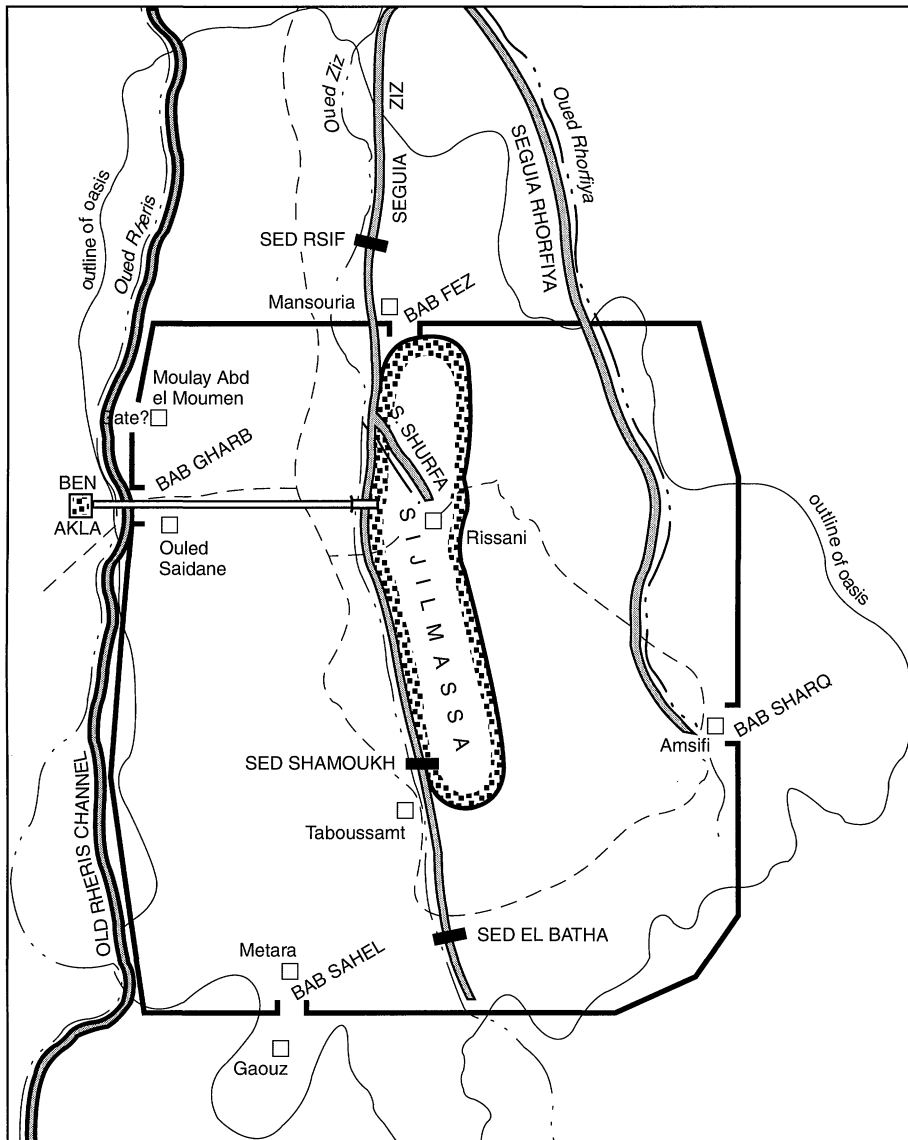
**Water and Agriculture.** Informants also had much to say about the supply and management of irrigation water in Sijilmasa. The image that emerges is one of a walled oasis surrounding a single city, Sijilmasa. Individual villages, or *qsour*, were absent. Nor was the oasis divided into districts and individual fields as it is today; it was, rather, a single agricultural space—a vast farm supporting the city.

Springs are especially important in local accounts of Sijilmasa. Oral histories indicate that during Sijilmassian times, a spring on the Ziz known as the "Timedrine" was famous for its abundance and reliability (Figure 1). Today, eight springs in the same general area as the Timedrine resupply the Ziz, though informants reckon that they are far less abundant than the ancient Timedrine.

In the lore of the Timedrine spring, the devilish Black Sultan, the last governor of Sijilmasa, figures prominently. Bent on controlling Sijilmasa for his own purposes, the Black Sultan plugged up the spring. On this informants agree, but his intentions can be read in a variety of ways. Perhaps he sought to control the oasis water supply in order to render Sijilmassians evermore dependent upon his authority. In an age of political turmoil, people may have wished to leave the city, and the Black Sultan's actions may have been an attempt to prevent the population from establishing their own villages outside Sijilmasa. By controlling the water supply of the Ziz, he could control the settlement pattern. In so doing, the Black Sultan could maintain his authority over a single, centrally controlled city and its walled oasis farmland against the budding desires of a people who wished to organize themselves differ-

**Figure 7.** The medieval Sijilmasa landscape showing ancient features identified through oral tradition, field reconnaissance, air photography and satellite imagery, historical documentation, and archaeological fieldwork. These features are collected and superimposed on the contemporary Tafilalt landscape.

# MAP OF THE SIJILMASSA LANDSCAPE



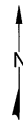
## ANCIENT FEATURES

- City
- Street / Bridge
- Market
- Guemmoune Walls / Gate
- Canal / Dam
- Old River Channel

## CONTEMPORARY FEATURES

- Oasis Outline
- Road
- River Channel
- Qsar (village)

0 1 2 3 km



ently. Perhaps, but these accounts beg many questions: How did the Black Sultan actually plug the Timedrine? Was the political situation so bad that Sijilmassians wanted to escape their own city? And how and why had the situation deteriorated to this point? Was the Black Sultan, who is nowhere recorded in history, real?

Oral tradition also identifies three low dams (*sebs*) and an associated network of canals (*seguias*) constructed to divert water from the Ziz during the Sijilmassian era. This irrigation system created the agricultural surface of the oasis. Informants indicate that the dams were constructed in the following order: 1) Rsif, in the northernmost part of the oasis; 2) El Batha, near the southernmost extent of the ancient oasis; and 3) Shamoukh, at the southern margins of the ancient city (Figures 6 and 7). Two major canals are also indicated: Shurfa streamed off the Ziz just north of the central area of Sijilmassa by simple sluice gate; Rhorfiya branched off from the Ziz just north of the oasis and provided water for eastern fields (Figure 7). Smaller canals distributed water from these primary canals and from the oueds Rheris and Ziz.

### **As Portrayed from Field and Photo Reconnaissance**

Some of the features noted in the oral histories are visible on the ground and/or aerial photographs. Oral tradition thus promoted our awareness of many new features which, when followed up by field and photo reconnaissance, led to additional discoveries.

**The Setting.** Field reconnaissance revealed the presence of canals, houses, and defensive walls and gates here and there across much of the central Sijilmassa site. Aerial photographs documented that the extensive ruins were patterned into alternating blocks of houses and open squares. These ruined walls, most of which are visible only on the air photos, are easily distinguished from undisturbed soil and surface ruins by their tone, texture, and geometric pattern. These suggested an older city below the level of Alaouite ruins. Archaeological soundings carried out in 1993 and 1994 confirmed the existence of these wall segments and their association with the city of Sijilmassa.

**Walls and Gates.** A long, eroded wall—identified as part of the ancient oasis wall in oral tradition—is visible along the oasis margin on the east bank of the Oued Rheris at Moulay Abd el Moumen, a ruined *qsar* in the northwest of the oasis. Here, two long segments of the suggested oasis wall run along the east bank of the Rheris. The wall's trend conforms to an older channel of the Rheris, suggesting that it dates from a period when the *wadi* had a different course. The wall appears to have caved in at two points where cut-bank erosion encroached as the Rheris meandered. Allowing for portions obscured by modern cultivation and erosion, this segment of the wall extends for almost 3.5 kilometers.

Another long segment of what we believe to be the encircling wall of the ancient oasis is visible in air photos. This segment, more than six kilometers long, is especially clear in the less cultivated areas of what is today mostly open desert around the southeast corner of the oasis. All of these segments accord with the locations and patterns of the encircling wall outlined in oral tradition. Moreover, these walls are unrelated to contemporary landscape features such as fields, canals, roads, and natural drainage patterns. These contrasts suggest that these segments are relics of an earlier landscape.

Elsewhere, the encircling oasis wall seems to have been destroyed by erosion and by farmers and builders since the fall of Sijilmassa. In sum, we believe that enough well-placed ancient wall segments are present to validate a walled-oasis model. Evidence of long, straight walls, in stark contrast to the cellular pattern of today's fields and walls, underscores the distinctive and collective nature of landholding and settlement in late Sijilmassa.

Of the gates identified in the oral tradition, the northern gate, Bab Fez, is a relatively well-preserved Marinid-style structure. Parts of it have been worked into contemporary Qsar Mansouria and are used as a barn. A freestanding and largely intact part of the gate is the single largest, best-preserved element of Sijilmassa. The purported location of the East Gate, near Qsar Amsifi, also reveals remnants of a gate, though its style, having been strongly modified and incorporated into later structures, is not decipherable.

**Streets and Markets.** We also documented a wide range of surficial cultural features at the



site of the legendary Ben Akla Market just west of the Oued Rheris (Figures 6 and 7). Particularly prevalent are stone date-pit pounders (used to render date pits into animal feed) and whole and broken grinding stones. These tools are scattered over a radius of at least a half kilometer outward from what informants say was the center of the site. Sijilmassa-period ceramic shards also lie strewn on the ground. Ruins of mud-brick walls, stone building foundations, square pillar foundations suggesting a mosque, and nearby kilns indicating ceramics manufacturing are visible all over the site of the purported market. Nearby, on the east bank, a long, eroded, east-west trending wall near Qsar Ouled Saidane coincides with the wall said to have bordered the principal road running between Sijilmassa and Ben Akla. Informants identify portions of this wall as Sijilmassian.

Air-photo analysis of the Ben Akla site reveals a faint geometric patterning of ruined walls over a half-kilometer square area. A nearly straight footpath crosses much of the field area between the Ben Akla market and the center of the Sijilmassa ruin. This footpath is obvious in field reconnaissance of the area. Parallel walls visibly edge much of this straight road. This constitutes an exceptional pattern in that most contemporary footpaths meander around the patchwork of cellular field walls; long, straight paths are virtually non-existent. The eastern terminus of this feature (along the western edge of the Sijilmassa ruin at the Oued Ziz) matches up precisely with the location of a tower-gate complex unearthed in 1992 by project archaeologists. It is certainly possible that this modern, straight footpath is a descendant of the road described in oral tradition as running between central Sijilmassa and the market at Ben Akla.<sup>5</sup>

**Water and Agriculture.** The most important feature of the ancient Sijilmassa landscape does not enter into the oral tradition: the diversion of the Oued Ziz into an artificial channel running through the center of the oasis abutting the Sijilmassa site.

The fluvial landscape of today's Tafilalt consists of three streams flowing across the basin from north to south. Just north of the oasis, the Oued Ziz nearly captures the Rheris, but instead of becoming a single stream, they flow independently southward. The Ziz slices through the heart of the Tafilalt oasis and frames the western edge of the Sijilmassa site,

while the Rheris flows southward along the western margins of the Tafilalt (Figure 2). In the northern Tafilalt, near the present-day town of Erfoud, the Oued Amerbouh branches from the Ziz and flows southward along the eastern margins of the oasis. The Amerbouh and the Ziz then rejoin just south of the Tafilalt where the single stream is again known as the Ziz. Eventually, the Ziz and the Rheris join, forming the Oued Daoura (Figure 1).

Field reconnaissance and air and satellite imagery reveal that the Ziz channel is unusually straight along most of its course, which is in sharp contrast to the broad meanders of the Amerbouh and Rheris. In all likelihood, the Ziz is an artificial stream—a great central irrigation canal—within the confines of the oasis.<sup>6</sup> At the point where the Ziz and Amerbouh diverge, we found massive stone works, refashioned again and again, leading the Ziz into its artificial channel. The natural channel, known today as Amerbouh, is dry except in periods of flood. We began to realize that the Ziz had been diverted out of its natural channel at the head of the Tafilalt and redirected through the center of the oasis, thereby serving the needs of Sijilmassa.

Two other diversions of the Ziz have endured. These include the canals identified in oral tradition as the *seguías* Rhorfiya and Shurfa. The Rhorfiya, which leads off the Ziz at the point of the modern Rhorfiya dam just north of the oasis, follows a southeasterly course and terminates near what was the Bab Sharq of ancient times (Figures 2 and 7). The Shurfa forms a shorter irrigation channel near the center of the ruins. The Shurfa, always referred to as a *oued*, waters the fields of Rissani. If there were dams that diverted water to the *seguías* Rhorfiya and Shurfa (as there are today), they are not identified in the oral tradition.

The three dams noted by oral tradition as Sijilmassian (Rsif, El Batha, Shamoukh) are clearly visible in aerial photos and on the ground, though all are breached or silted up. All are old, but precise dating by field reconnaissance or aerial-photo analysis has not been possible. Based on the area irrigated by these dams on the Ziz plus the Rhorfiya and Shurfa canals today, and subtracting the arable land added to the oasis by subsequent Alaouite dams and canals (which created more arable land than is even farmed today), we estimate that the arable land of Sijilmassa amounted to

approximately 115 square kilometers confined within a roughly rectangular area of 10 km on one side and 11.5 km on the other.

### As Portrayed in Historical Texts

How does the evidence from oral tradition and field and photo reconnaissance compare with historical accounts? Sijilmassa first appeared in the historical record within 100 years of its founding in 757. The city was initially noted as a standard point of reference for world locations (the *clima* system) in Al-Khuwarizmi's (d. 846/847) *Surat al-Ard*. Sijilmassa appears in thirteen other medieval accounts in a substantive way and is mentioned in many more. Chronologically, these range from Al-Khuwarizmi in the 800s to the *Kitab al-Ibar* of Ibn Khaldun written in 1374–1378. Leo Africanus, writing more than a hundred years after the fall of Sijilmassa in the early 1500s, provides a coda to the corpus of medieval Arabic texts.

**Nature of the Texts.** Problems with the medieval texts abound. As far as can be determined, only three chroniclers—Ibn Hawqal (*Surat al-Ard* 967), Ibn Battuta (*Rihla* 1356), and Leo Africanus—actually visited Sijilmassa. Most texts merely repeat earlier information. Al-Bakri's is the most detailed account (*Kitab al-masalik wa-l-mamalik* 1068); drawing on Ibn Hawqal, he adds much creditable information received from travellers who had been to Sijilmassa. Al-Bakri, however, never left his native Spain. Ibn Hawqal's and Al-Bakri's legacy carried forward into later histories and geographies; 300 years later, Al-'Umari's fairly detailed depiction (*Masalik al-absar fi mamalik al-amsar*, 1337/38) repeats Al-Bakri and makes direct reference to Ibn Hawqal (Al-'Umari, in Hopkins and Levzion 1981:275; Ibn Hawqal 1964).

Such are the written accounts of the world in the Islamic medieval age. Medieval geographers relied on the best sources available, but they passed on and elaborated upon this information in a great chain of knowledge that changed very little over time.

**Sijilmassa From Rise to Fall.** The following narrative of Sijilmassa emerges from the medieval texts. Berber tribes in the drylands of Morocco and Algeria were attracted to the egalitarian Islamic message preached by kharijite

refugees from Mesopotamia in the mid-700s. Sijilmassa was founded by Berbers who had rallied to a charismatic kharijite, one Al-Yasa'. With Arab leaders and Berber converts, Sijilmassa flourished from its founding in 757. Two early leaders, Isa (d. 771/2) and Abu al-Qasim (d. 784), created the great and beautiful city based on commercial wealth. The latter begat the first Sijilmassa dynasty, the Midrar, which ruled over two hundred years of independent growth and prosperity in the oasis. Al-Yasa' himself ruled between 790–823 and is credited with building much of Sijilmassa's urban fabric: city walls, a palace, a great mosque, and public baths. Under the Midrar, Sijilmassa was a place of religious refuge from other Islamic ideologies and centers of power—at first the Abassids of Baghdad and their outliers in Kairouan in central Tunisia; by the 900s, the Umayyads of Cordoba and the Fatimids of Tunisia. Al-Bakri's account (circa 1068) emphasizes the long-term struggle to maintain Sijilmassa's independence, but he also recounts the collapse of independence at the hands of the Almoravid movement.

When this Islamic reformist movement swept out of the western Sahara in 1054, it conquered Sijilmassa before all other places. The Almoravids extinguished kharijism and brought Sijilmassa into the realm of Islamic orthodoxy. Thereafter, Sijilmassa constituted a province within Morocco's successive empires: the Almoravids from the mid-1000s to the mid-1100s; the Almohads in the following 100 years; and the Marinids, who first conquered the oasis in 1257 and formally annexed Sijilmassa in 1274. The rule under the last of these was combative and fragile. Rival Marinid governors and princes vied for control over Sijilmassa throughout the 1300s. Fatally enmeshed in the economy and politics of the hapless Marinid Empire, Sijilmassa finally disappeared in 1393. Having killed their governor and destroyed their defensive walls, the inhabitants moved into scattered villages throughout the oasis.

In the six and a half centuries of Sijilmassa's history, much changed. The geographical structure of the city and the oasis, like its political career, was dynamic, but the medieval histories capture only a portion of these dynamics. Beyond Al-Bakri's account, we learn very little from these histories. Al-Bakri's, however, comes at the midpoint of the city's de-

velopment—at a time when independent city-statehood had ended, when Sijilmassa was becoming one province within a greater empire. Great changes lay ahead.

**The Al-Bakri Landscape, circa 1068 A.D.** Al-Bakri describes the city as the creation, in large part, of the Midrar ruler Al-Yasa' in the early 800s. Al-Bakri observes that Al-Yasa' built a wall in 814/815 "surrounding the town"; the wall had twelve gates, eight of which were of iron. Al-Yasa' also built a royal palace and an "excellent" mosque; he evidently failed, however, in improving the city's baths which are "of poor construction." "Around the town are numerous suburbs with lofty mansions and other splendid buildings. There are also many gardens" (Al-Bakri, in Hopkins and Levzion 1981:64–65; also Taouchikht 1989:106–127). "Sijilmassa," he wrote:

stands on two rivers, whose source, in the place called Ijlaf, is fed by many springs. On approaching Sijilmassa this stream divides into two branches, which flow to the east and west of the town. . . . The water in the town is brackish, as it is in all the wells of Sijilmassa. The cultivated land is irrigated with water from the river collected in basins like those used for watering gardens. (Al-Bakri, in Hopkins and Levzion 1981:65)

Although Al-Bakri offers a few comments on Sijilmassa's abundant agriculture, the bulk of his text deals with the history of the Midrar dynasty.

Subsequently, Al-Idrisi (*The Book of Roger* 1154) portrayed Sijilmassa as a "great and populous city along an abundant stream" (quoted in Taouchikht 1989:108). The anonymous *Kitab al-Istibsar* (ca. 1194) described Sijilmassa as "one of the greatest cities in the Maghrib," south of which there are "no inhabited places. . . . Between Sijilmassa and Ghana is a desert of two months' journeying over uninhabited sands and hills with little water." The *Kitab al-Istibsar* also noted that the Jews of the Tafilalt "possess vast wealth" (Hopkins and Levzion 1981:138–140). Ibn Battuta (the *Rihla*, 1356) chronicles his journey in 1352–1353 from Sijilmassa to the city of Mali and farther south in the company of Sijilmassa merchants and their caravan trading salt for gold; his account provides many details (and anecdotes) of the trade itself (Ibn Battuta, in Hopkins and Levzion 1981:281–304).

**The Encircling Oasis Wall.** Three accounts shed light on the oasis landscape and its encircling wall. According to Al-Dimashqi (d. 1327), "Sijilmassa is surrounded by walls of a circumference of twelve parasangs" [a Persian land measurement equivalent to 3.88 miles] (Al-Dimashqi, in Hopkins and Levzion 1981: 209). Sijilmassa's walls were thus on the order of 46 miles (74 kilometers) in circumference. Al-'Umari (d. 1349) also describes the walls: "This wall sheltered buildings, gardens, and palms, and was between 70 and 80 kilometers long" (quoted in Taouchikht 1989:53). It is instructive that these rather precise estimates of the wall's circumference appear late in the historical record and not in earlier accounts. Leo Africanus, visiting the Tafilalt in the early 1500s, also noted that the oasis was walled.<sup>7</sup>

**Sijilmassa's End.** Much like its founding, the city seems to have disappeared in a flash. As late as the 1350s, the city was, in the words of Ibn Battuta, "one of the finest" that he had visited; he portrayed a city in control of a vigorous trade in gold across the Sahara (Ibn Battuta, in Hopkins and Levzion 1981:282). Yet, when Leo Africanus visited the Tafilalt in 1514–1515, the city had collapsed; according to Africanus, Sijilmassa's disintegration occurred in 1393 (Léon L'Africain [Leo Africanus] 1957:428–430). He reported that Marinid Morocco in the late 1300s was marked by political confusion and the fission of the empire into two parts: one part held by the Marinid sultan of Fez, Abu al-Abbas; the other by Abdul Rahman of Marrakech. With the death of the sultan of Fez who had attempted to unite with Sijilmassa, Leo Africanus states that the people of Sijilmassa:

killed the governor and demolished the wall of the city's fortress. This has remained deserted until the present. The people regrouped and built large fortified houses [*qsour*] in the fields and districts of the provinces. Some of these [*qsour*] are free; others are bound to the Arabs. (Léon L'Africain 1957:425)<sup>8</sup>

He further elucidates the reasons for Sijilmassa's demise:

[Back] when the people were all agreed, they built . . . walls to stop the incursion of Arab horsemen. While the people were united, with a common will, they remained free. But factions arose, and they demolished these walls and each [group] called upon the Arabs to protect them. So it is that these people have become the subjects and al-

most the slaves of the Arabs. (Léon L'Africain 1957:428)

Consequently, the unified polity of Sijilmasa gave way to the *qsar*, each of which is "governed by a particular lord, who is a party head" and is split by "discord and division." The people are "always fighting each other, doing as much harm as they can, which is to say damaging the irrigation canals which come from the river." They also "cut off palm trees at their trunk and steal from each other, which the Arabs abet." Jews are numerous, especially in Qsar Taboussamt (in the southern oasis). Most people are poor; but the minting of gold and silver goes on, as does the caravan trade of "some rich gentlemen" who exchange "the merchandise of Barbary" for gold and slaves (Léon L'Africain 1957:428).

The ruins of Sijilmasa were still apparent in the landscape:

the city was built in a plain, on the Ziz, and was encircled by a high wall of which one can still see some parts. . . . Sijilmasa had fine temples and colleges supplied with numerous fountains whose water came from the river. Great wheels took this water from the Ziz and projected it into conduits bringing it into the city. . . . (Léon L'Africain 1957:430)

A vivid picture emerges of a society sufficiently fractured and divided to have resulted in the abandonment of Sijilmasa and the reorganization of the landscape into "about 350 'castle-forts' [*qsour*], some large, some small, outside of the villages" (Léon L'Africain 1957:428). Sijilmasa lay already buried in time.

## Conclusions: The Organization of the Sijilmasa Landscape

Our collation of related information from diverse sources—oral tradition, field reconnaissance, remote sensing, historical documentation, and archaeological fieldwork—constitutes the basis for our spatial reconstruction of the oasis entrepôt. Seven conclusions can be drawn.

**1. Sijilmasa occupied a long and narrow space along the Ziz.** With the gate at Qsar Mansouria as a reference point for the northern extent of the city, Sijilmasa's ruins can be traced almost eight kilometers downstream along the Ziz. Ruins extend laterally from the

Ziz approximately one and a half kilometers on the left (east) bank. The site of the ancient city is confirmed by archaeological soundings, field reconnaissance, satellite and air-photo imagery, oral history, and the historical record.

**2. An encircling wall framed the oasis.** It seems clear that the oasis of Sijilmasa (the then-arable portion of the Tafilalt) was walled, at least in the city's last phases (and perhaps earlier). Al-Dimashqi's, Al-'Umarī's, and Leo Africanus' commentaries on a high wall encircling the oasis are confirmed by fieldwork. The 70-odd km circumference of the wall reported in these histories is somewhat longer than the circumference of 43 km revealed in oral tradition and field and photo reconnaissance. This discrepancy may have to do with translations of linear distances that appear in the medieval texts.

**3. The city of Sijilmasa was also walled.** In Al-Bakri's times (eleventh century) the city of Sijilmasa was walled, and apparently the oasis was not. The presence of a walled city is repeated over and over again in the medieval manuscripts and it is confirmed by archaeological findings: Sijilmasa was walled at least along the Oued Ziz. It may be that oral traditions insisting that the city of Sijilmasa was unwalled are simply wrong; alternatively, we suspect that the city wall was abandoned at some later date in favor of the larger oasis wall.

**4. Sijilmasa's growth was facilitated by the progressive expansion of the water resources of the Tafilalt.** Expansion probably proceeded in three steps. In the first step, Sijilmasa was supplied by springs surfacing within the Tafilalt oasis itself. In the mid-eleventh century, Ijlaf (a place-name that occurs nowhere in the region today) was the source of Sijilmasa's water supply. Sijilmasa stood between two streams that stemmed from Ijlaf. In the 1950s, the French hydrologist Margat theorized that these two streams (mentioned by Al-Bakri) are the present-day Oued Ziz and the canal (*seguiya*) called "Oued" Shurfa (Margat 1959:256–257). Margat reasoned that these streams derived from springs located three kilometers north of Rissani where an outcropping of conglomerate forms a feature known as the Djebilet ("little mountain") and where artesian water is plentiful. "It is possible to suggest the existence of a

line of springs in this sector arising from the water table, feeding a perennial *oued* as far as Sijilmassa and used in the area surrounding the town for irrigation" (Margat 1959:257). This is also where the Rsif Dam of oral tradition is located. These springs flowed into the channel we now know as the Oued Ziz and, farther downstream, the "Oued" Shurfa (Figure 7). This is where, according to Al-Bakri, Sijilmassa "stood" on two "rivers." Satellite imagery and test wells have shown that this area contains the most shallow and abundant groundwater in the entire oasis.

Al-Bakri's commentary provides further clues on the character of the Oued Ziz in the eleventh century: "The water in the town is brackish as it is in all the wells of Sijilmassa" (Al-Bakri, quoted in Hopkins and Levzion 1981:65). Brackish water indicates that the water of Sijilmassa was not the fresh water that the Ziz provides today; it was rather water from the shallow Ijlaf springs. Later diversion of the Ziz provided greater supplies of better-quality water. Given that Al-Bakri wrote in the 1060s, a decade after the Almoravid conquest of Sijilmassa, engineering changes in the Ziz must have followed the Almoravid conquest. In Al-Bakri's day, the waters of the Ziz probably still flowed naturally along the eastern margins of the oasis in the streambed known today as the Oued Amerbouh. While Al-Bakri did not identify the "other" river at Sijilmassa, he did identify the historically accurate "Oued" Shurfa. Unlike the other streams of the oasis (Amerbouh, Rheris), the "Ziz" (Arabic for "fine") bears an Arabic name. It is reasonable to assume the streambed now called the Ziz was then merely the outflow from a local oasis spring (an outflow perhaps bearing, originally, a now-lost Berber name, like the Ijlaf spring itself) and that Arab engineers reformulated it and named it later.

The second step in hydraulic expansion involved a major work of engineering—the diversion of the original Ziz from its natural bed into a channel in the middle of the Tafilalt oasis. Landsat and air-photo imagery reveals that this channel is actually a series of canalized, post-Pleistocene runoff channels. The building of this great canal connected the waters of the Ziz with those from the Ijlaf springs, which evidently were deemed insufficient for Sijilmassa's water needs in the age of Almoravid empire-building (eleventh and twelfth centuries).

The third step involved the construction of the Seguia Rhorfiya. This network of canals diverted water from the "new" Ziz, thereby expanding water supplies to the eastern oasis and the size of the oasis itself.

**5. Sijilmassa grew dramatically in size following the Almoravid conquest (1054) and retained its enlarged importance through the Almohad period (1148–1255).** Facilitated by the re-direction of the Ziz to the center of the Tafilalt and the city's doorstep, the oasis population and agricultural output reached new maxima.

**6. Sijilmassa collapsed as central authority waned in the Morocco of the Marinids (1255/1257–1393).** The demise of Sijilmassa turns on no single cause. Oral tradition speaks of the malevolence of the "Black Sultan" as well as an earthquake. Some historical events are clear. Political instability in Morocco prevailed throughout the fourteenth century and well beyond the collapse of Sijilmassa. The city was besieged repeatedly in the 1300s by warring Marinids. When the Marinids held Sijilmassa, they exploited it ruthlessly. But a broader perspective on these events may be warranted.

The gold trade was in transition. Sijilmassa's role as the sole Maghribi entrepôt and break-of-bulk point in the trans-Saharan trade changed dramatically with the emergence of Moroccan empires. Whereas an independent Sijilmassa had alternately subdued and conquered competitors for the trade across the Sahara, a dependent Sijilmassa was compelled to compete with traders in the Draa Valley, four day's journey west of the city.

Sijilmassa's loss of control over the trans-Saharan market also stemmed from changes at the other end of the routes. The locus of power in West Africa had shifted away from its original, western base in Ghana (1000s) toward an eastern base along the Niger River at Timbuktu and Gao in the 1100s and farther east to the Songhai in the 1300s (Winters 1981:345). Sijilmassa's merchants may have found it difficult to keep pace with these changes south. Finally, the emergence of Portuguese ships along the West African coast in the 1300s placed a heavy weight on Saharan traders, trapped as they were by their inland geography and single form of transportation.

The life of Sijilmassa was not shaped by external economic forces alone. Of more imme-

diate import to Sijilmassa, perhaps, was the presence of a new threat posed by invaders to their desert habitat. The presence of the Banu Ma'qil nomads in southeastern Morocco altered local relations between oasis dwellers and desert nomads. These natives of the Arabian desert, following their expulsion from Egypt by the Fatimids in the 1200s, were poorly absorbed into the texture of Maghribi society, and they wreaked havoc wherever they went. In the Tafilalt, their arrival produced a cascading series of land shortages and intertribal rivalries. The nomadic Berber tribes of southeastern Morocco joined into a great confederation—the Ait 'Atta—in response. The result was a profound transformation of the social order. And the presence of the bellicose Banu Ma'qil was conjoined with the emergence of two new powerful groups in the Tafilalt social order: Alaouites and saints.

With the arrival of the Alaouites in Sijilmassa—also from Arabia, but bearers of the holy flame of Islam and not “reckless” pastoralists like the Banu Ma'qil—Sijilmassa was infused with sacred qualities the likes of which few other North African towns could boast. What was happening in local social relations in the first hundred or so years after their arrival in the Tafilalt can only be guessed; the ramifications of the Alaouites coming to Sijilmassa with their own effective center of power are not clear. Reading history backwards, however, it appears that the Alaouites sought to reign over the oasis and to secure wide authority. This is in fact what they had accomplished by the 1600s. From the moment they stepped into the Tafilalt, the Alaouites were powerful people—bearers of the prophet's bloodline, capable, by their very being, of exerting authority over other social groups. Sijilmassa got more than it bargained for.

At the same time, as Moroccan society was declining under the Marinids, Moroccan Islam was marked by an outburst of local religious authority in the form of saints: individuals and their schools of ideology expressing a variety of reactions to the negative forces that had been unleashed on Moroccan society (Eickelman 1976:19–29). In Sijilmassa, a city once great and independent, but now squeezed by imperial decadence, the presence of the Alaouites constituted a strong impulse for change. They were “automatic” saints in an age lacking in larger authority. We would merely

add that as imperial authority vanished from the Moroccan scene, Sijilmassa, too, evaporated and was replaced by a landscape of individual villages, each with its own social order and petty center of power.

We conclude from this evidence that the Alaouite and the saintly families of Sijilmassa sought control. In the tenuously Marinid-controlled city, social relationships in the last half of the 1300s must have been corrosive and debilitating. Nomads warred at the gate; Marinids had lost control over the caravan center. These events conspired to produce a dispersal of urbanity over the landscape of the Tafilalt; the centrality of land and life was lost.

**7. Hydraulic technology was changing as Sijilmassa died.** Perhaps the most speculative of our conclusions on the demise of Sijilmassa is the role played by the technology of the underground, horizontal well shaft, or *khattara* (*qanat*). It is possible that the adoption of this new water technology facilitated the disintegration of Sijilmassa as a central place or, at least, made living apart from the city both thinkable and achievable.

Filtration gallery irrigation had diffused from the Near East to the Maghrib as early as the ninth century, and *khattara* were being built around Marrakech, Morocco by the early twelfth century (Goblot 1979; Joffe 1992). The technology was surely known to Sijilmassian engineers at this time, yet oral tradition and historic texts suggest that *khattara* were not employed in the oasis until after the death of Sijilmassa, when networks of dispersed villages with associated *khattara* emerged in the northern and western Tafilalt. *Khattara* technology conforms well to the layout of dispersed villages, each with its own ruling lineages and mechanisms for organizing labor at a more localized level. *Khattara* galleries are maintained at a small, localized level, without the extensive cooperation needed to maintain a large canal network. Furthermore, the water from a *khattara* gallery emanates from a single source—from collection in the mother well to discharge at the surface—and is sent directly to fields belonging to the village that maintains the gallery. Regional canal networks require a much greater degree of centralized control in order to allocate water to all of the fields and the users that depend on the regional system.<sup>9</sup>

Why do cities collapse? At this point in our

understanding of Sijilmassa, it appears that the mass of social relations present in the Tafilalt and surrounding region had become so dense that by the end of the 1300s they could no longer be contained within the contours of a single city, particularly one in which control from above had loosened and new social forces from within city and region had been unleashed.

One of the keys to Sijilmassa's success was that the city exercised control over the Tafilalt—an oasis kingdom whose resources it controlled, managed, and transformed over time. But while Sijilmassa walled its oasis to protect against incursions from without, equally powerful forces were at work within. In the end, it may have been Sijilmassa's nomads and saints, not kings and armies, that caused the city's collapse. In any event, the cause for collapse will not be found in the archaeological debris or the historical record. Geography, region, and place are more nearly the keys. Despite its wealth and great history, Sijilmassa vanished, replaced by its people with a new landscape of their own design for a new age and time.

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## Notes

1. In all, Sijilmassa figures substantively in fourteen medieval accounts and is mentioned in many more. Chronologically, these range from Al-Khwarizmi (d. 846/847) to the *Kitab al-'Ibar* of Ibn Khaldun, written in 1374–1378. The most important of these is the history written by Al-Bakri, *Kitab al-masalik wa-l-mamalik* (1068); it provides a rich description of Sijilmassa's economy and dynastic history. All these accounts have been trans-

lated and compiled in Hopkins and Levzion, *Corpus of Early Arabic Sources for West African History* (1981).

2. The Alaouites of Morocco, descendants of Ali, son-in-law of Prophet Mohammed, are to be distinguished from the Alaouites of Syria.
3. This is no longer the case. The Moroccan constitution of 1972 specifies that the next king ("sultan" has not been used since 1961) will be the first-born male of the deceased king (law of primogeniture).
4. The 1982 census showed a Tafilalt population of 59,670. See Royaume du Maroc 1983. Census results for 1994 were not yet available at the time of this writing; the figure is based on a suspected local RNI of 3 percent per year.
5. On the strength of evidence from our 1992 research, the Ben Akla site was revisited in 1994 by Miller and other researchers with the Sijilmassa Project. A systematic collection of surface ceramics revealed a great abundance of Sijilmassian shards and a high incidence of tradewares, perhaps transported by caravans unloading there. On the basis of this evidence, the Moroccan Ministry of Culture has submitted a dossier to protect the area as a national historic site.
6. The diverted Ziz shows some aspects of a natural wadi; over the centuries since the building of this great canal, sections of it have meandered and scoured laterally, but the degree of scouring and meandering is minute compared with the natural channels of the Rheris and Amerbouh. This is not without parallel. For example, the present course of a number of wadis in northwest Jordan is the result of human interference with their natural course—producing very long and narrow interfluvies—and only through subsequent neglect have these channels re-acquired the properties of a natural wadi (Manners 1969:261).
7. Leo Africanus measured the circumference of the oasis (not the wall) as about 80 miles [128 km] (Léon l'Africain 1957:429).
8. The "Arabs" referred to are the Banu Maq'il nomads who eventually controlled large portions of southeastern Morocco.
9. No mention of *khattara* is made in the medieval historical accounts of Sijilmassa. It appears that the technology of chain wells first appeared in Morocco during the Almohad period (1150–1250), but not until later in the Tafilalt. *Khattara* in the environs of Marrakech during Almohad times are described by Al-Idrisi in his *Description of Africa*, or as it is better known, *The Book of Roger* (1154) (see Kenbib 1986–1987:64). Margat (1961:204) holds that since the oldest Tafilalt *khattara* date from the 1500s, these village-directed water sources (which the *khattara* are) could not have been a factor in the demise of Sijilmassa. Also, because of constraints of topography, hydrology, and arable land, *khattara* cannot be constructed everywhere across the Tafilalt; *khattara* thus were not available as a solution for the new *qsour* established in the central and southern Tafilalt. These lands remained dependent on the canal network constructed earlier in Sijilmassian time. *Khattara* did offer freedom from central authority for many

in the Tafilalt; insofar as this technology contributed to Sijilmasa's demise, it was only one of several causes for the city's abandonment.

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Sijilmasa (A.D. 757–1393) was the North African head of the gold trade across the Sahara in medieval times. A synthesis of fieldwork undertaken by geographers, historians, and archaeologists suggests the environmental and social structure of the ancient city and its surrounding oasis. Collaboration demonstrates geography's role in solving regional problems originating in history and archaeology. In reconstructing the geography of past place and the demise of place, we knit together the oasis landscape and environment; local water resources, agricultural production, and social organization were key to the development of Islamic Sijilmasa. Drawing upon methodologies of oral tradition, field reconnaissance, remote sensing, historical documentation,



and archaeological fieldwork, medieval Sijilmassa emerges as a Saharan entrepôt founded in Islamic heresy; a landscape developed through diversion of a desert stream; and a city that walled its oasis to protect against bedouin incursions. The process of urban growth and decline were driven by socio-political forces and the allure of new hydraulic technologies; the demise of Sijilmassa was a result of discordant social forces contending for the region. Sijilmassa remains an icon of sacred space in the landscape of contemporary morocco. **Key Words:** gold trade, Morocco, Sahara, Sijilmassa, urban development, water resources.

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