MARITIME EXCHANGE NETWORKS AND URBAN-CENTERED STATES IN ANCIENT EAST AFRICA

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INTRODUCTION

Our knowledge of the role of ancient societies has advanced exponentially in the past two decades due to renewed anthropological interest and methodological advances in identifying and characterizing the evolution of the state (Blanton and Fargher 2008; Flannery and Marcus 2012; Kristiansen and Larsson 2005). The importance of travel, trade, and sustained long-distance interactions feature prominently in the rise and sustenance of early societies as they do in out times (e.g., Bowden and Seabrooke 2006; Casson 1994; Chaudhuri 1985; Kristiansen and Larsson 2005; Helms 1988; Oka and Kusimba 2008; Polanyi 1957; Stewart 2008). Systematic, problem-oriented research on the Kenyan coast and its hinterland has enabled us to understand the ecological, cultural, and economic milieu in which complex chiefdom and urban polities arose in Eastern and Southern Africa in response to global long-distance exchange in the Indian Ocean (Kusimba 2008; LaViolette and Fleisher 2005; Mitchell 2005; Pwiti 2005; Sinclair et al 2012). Ancient East Africa communities organized themselves along ethnic lines but were linked to each other through numerous networks of interactions at various scales (Herlehy 1984; Kusimba and Kusimba 2005; Kusimba et al 2013). In this paper, we use the concept of interaction spheres to discuss archaeological evidence for interactions at three scales in East African Coastal societies: first, the coastal city and its immediate hinterland; second, the Coast and the Interior; and third, the Coast and the Indian Ocean trading complex. Finally, we examine the question of collapse of the Coastal polities, and view it through the lens of shifting macro-level trade relationships in the Indian Ocean and beyond.

THE SWAHILI COAST

Swahili urban states thrived on the eastern coast of Africa between 800 and 1500 CE and were closely linked to the development of market-centered towns, that received ship borne goods from the far corners of the Asian and Mediterranean world and send forth the produce of Africa to Eurasia (Fleisher 2010; Horton 2013; LaViolette 2013; Mitchell 2005; Pearson 1998; 2003; Pollard et al 2012; Sinclair and Hakansson 2003). Up to the 1980s, the East African coast was strewn with the remnants of this ancient civilization: the ruins of once flourishing towns with their elite mansions and mosques built in coral rag (Figure 1). The overall cultural dimensions of the citizens of the coast at the time of the contact with European merchants turned governors was nominally Islamic, a consequence of nearly seven centuries of economic contact with and colonization from southern Arabia, western India, and Portugal (Hourani 1996; Pearson

1999, 2003). The residents also interacted directly and indirectly with communities as far as Indonesia and China. Yet, despite this welter of external contacts, it was a culture that remained essentially African in nature and scope (Allen 1993; Caplan 1998; Fleisher 2003; Horton 1996; Kusimba 1999a, 1999b; Mathew 1956; Middleton 2001, 2004).

Archaeological and historical research specifically aimed at understanding ancient transcontinental communication between Africa and Eurasia remains insufficiently developed. Although recent scholarship has unveiled early Indian Ocean maritime connections, the role of Africa and Africans is often omitted from the conversation (Chaudhuri 1985; Abu-Lughod 1989; 2008:186-89). Thankfully, this is beginning to change (e.g., Campbell 2005; Hawley 2008; Pearson 1998, 2003). Africa and Asia have been linked economically and technologically for several millennia. Many of the food crops that are now staple foods in much of sub Saharan Africa were first experimented with and domesticated in Asia. Some of the African domesticates including sorghum, millet, coffee are widely consumed by contemporary Asians as staples (Possehl 1986; Boivin et al 2013).

Figure 1: An elite Residence at Gede, Kenya (ca. AD 1200-1500)

Ancient connections between Africa and Asia, including China are exhibited in the numerous trade artifacts that have been recovered at many sites across the continent. Artifacts including Indo-Pacific beads, glass, Middle East glazed pottery and jewelry, Chinese stoneware and porcelain, among others have been recovered at nearly all medium to large settlements along the Eastern and Southern African sub continent from the Tang Dynasty to the present (Rourgeulie 1998; Robertshaw et al 2003, 2006; Sinclair et al 2012; Oka 2008; Walz 2010; Pikirayi 2010). These non-African artifacts bear witness to the global connections, contributions, and complexity of the Africa's past and systematically dismantles the long-held narrative that Africa was isolated from Eurasia and, with the exception of north Africa, contributed precious little to global civilization (e.g., Abu-Lughod 2008:188).

Global Connections: Africa, Asia, and Mediterranean Europe

Trade played an important role in the development of cultures throughout ancient times (Oka and Kusimba 2008). Trade linked diverse peoples and communities in a network on interactions that had a huge impact in advancement of the daily life. Archaeologists and historians have documented evidence of biological, cultural, linguistic, commercial, and technical communication between East Africa and the Middle East beginning from the early first millennium CE (e.g., Rourgeulie 1998; Ray 1998; Sedov 1998; Serjeant 2000; Steensgard 1987). The Periplus of the Erythrean Sea, a third century mariner's guide presumably written in Alexandria, mentions that iron lances, hatchets, daggers, and awls made at Muza, east of Aden constituted trade items consigned for African markets (Casson 1989). Trade items from the East African coast consigned for foreign markets in India, the Middle East, and China included marine products- tortoise shells and ambergris; animal products- ivory, rhinoceros horns and cat skins; and vegetable products-mangrove poles, wood, and timber. Turtle shells and ambergris were in high demand in India and China (Freeman-Grenville 1962; Horton 1996:414). Ivory, rhinoceros horns and leopard skins were exported to India, China, and Persian Gulf. Timber for building and aromatic products were needed in the Persian Gulf. Demand for African timber in the Gulf was high enough to be reported by Ibn Hawqal c.960 CE who wrote that houses in Siraf were built of wood from the country of the Zinjs (Freeman-Grenville 1962; Martin 1979).

Textiles including silk and cotton were spurn in Mogadishu, Pate, Zanzibar, Kilwa, Mahilaka, and other major towns and their products widely traded in Eastern Africa reaching as far as Egypt. Upon their visit to Pate, the Portuguese were sufficiently impressed by the high quality silk manufactured there (Freeman-Grenville 1962). Mining and working of iron was an important industrial activity at Malindi and other Swahili towns. The superior quality of iron products made in East Africa was impressive enough to be added on the list of African exports to India by Indian merchants who regularly visited the coast with the aid of annual monsoon winds (Horton 1996:418). Al Masudi who visited East Africa in 912 CE left one of the most cogent descriptions of the iron industry on the coast in his The Meadows of Gold and the Mines of Gems. Commenting on the ongoing transoceanic trade between East Africa and Asia, he wrote:

> The Zanj exported gold, silver, iron, ivory, tortoise shell, and slaves. Iron was probably the source of the largest profits. Indian merchants came to buy iron and took it back to their own country

> where they resold it to the manufactures of iron weapons. The Zanj of Malindi owned and worked iron mines, as did other towns, but Malindi must have been the most important. East African iron was much valued in India, partly because there was no lack of supply and partly because it was of good quality yet easy to fashion and they became masters of the skill of working. The Indians were said to make better swords than anyone else, and weapons made of the iron of Zanj were used throughout the Middle East and countries of the Indian Ocean (Freeman-Grenville 1962:20).

As elsewhere, trade was crucial in the development of complex African chiefdom, states, and urban polities that emerged during the later half of the first millennium of our era to the 16th century CE. Along the East African coast, from Somalia to Mozambique, autonomous urban polities emerged (Figure 2). The residents who were drawn largely from the region pursued diverse but complementary vocations, which ranged hunting, agrarian, fishing, and trading. The locals engagement in local, region, and transoceanic trade served as the main catalyst for building communal and personal wealth which witnessed a steady transformation of the villages and hamlets into small towns, cities, and ultimately to city states that boasted a large and diverse citizenry (Tables 1-2). As they transformed into states, the emergent economic and political elite vied for managerial control of sources of wealth, which was sustained through forging and maintaining relationships and alliances with transoceanic and hinterland partners (Kusimba and Kusimba 2005; Kusimba et al 2005; Middleton 20o1, 2004; Mitchell 2005; Pwiti 2005). The cities' prosperity was affirmed and fostered by social and political stability across the region (Oka et al 2009). Evidence for relational and political stabilities is found in, bonds, pacts, and treaties, usually, called blood brotherhoods in East Africa (Herlehy 1980, 1984; Kusimba and Kusimba 2005). Within the cities themselves, alliances sanctified through opportunistic intermarriages among the political and economic elite, who included foreign residents were the norm (Hitchens 1938; Middleton 1992; 2004; Tolmacheva 1990). These relationships bound the cities residents to their neighbors in the rural hinterland and strangers across the sea were the kernels upon which African connections, contributions, and complexity depended. Continued regional and intercontinental prosperity depended upon forging and maintaining commercial and cultural dialogue amongst interacting partners (Allen 1993; Middleton 1992; Oka and Kusimba 2008; Udovitch 1970).

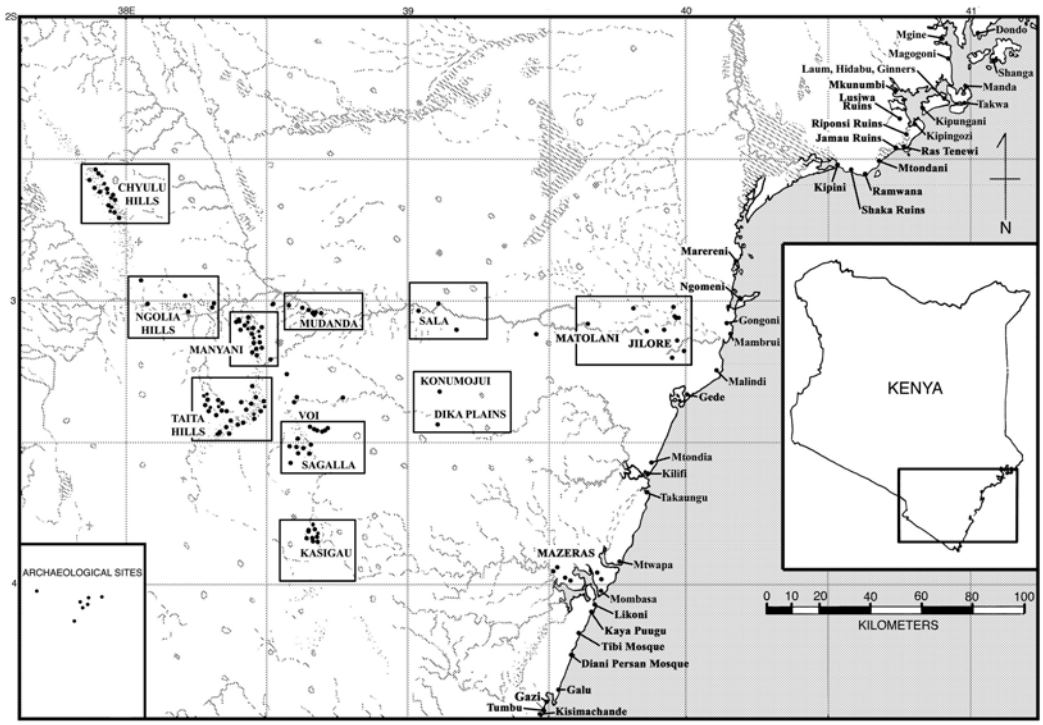


Figure 2: The Kenyan coast and the Interior ca.AD 1850.

By the beginning of the second millennium CE, Eastern and Southern Africa, indeed the entire Africa continent had become a regular partner in the millennial old long distance exchanges that reached as far as the Arabian Peninsula, India, Sri Lanka, and China (Mitchell 2005; Pearson 2003; Wilkinson 2003). By the 13th century there had emerged a local African urban elite that financed, managed, and controlled local, regional, and transoceanic trade and communications along the East African seaboard. Innovations in ironworking aided agricultural intensification and specialization in hunting, fishing, and herding. These changes improved the quality of life and precipitated population growth, and economic prosperity for some 200 years.

In the late fifteenth century, however, Europe entered into the equations seeking to control and benefit from the millennial old trade in the Indian Ocean (Acemoglu and Robinson 2012; Pearson 2003). The rivalry for control of Indian Ocean commerce was economically crippling for Africa and Asia and beneficial for Europe (Fergusson 2012 but see Hodgson 1992). The consequences of competition for control of transoceanic trade were warfare, which favored Europeans due to their superior naval and military power. The post-sixteenth century ushered in an era of decline and dependence while paving way for Europe's colonization of Asia in the 17th century and Africa in the 19th century (Blaut 1993; Gunder-Frank 1998; Oka et al 2009; Rodney 1974). Economic decline and the ceding of sociopolitical power to European nations was a region-wide phenomenon that affected Asian and African political economies. Legitimate and mutualistic regional and transoceanic trade gave way to the now-infamous ivory and

slave caravans, financed by overseas merchant groups. Coastal slave raiding expeditions weakened long- standing alliances among peoples, cut off traditions of herding and farming and decimated populations. Today, the ruined walled towns of the east African coast and in the African interior suggest the magnificence of Africa's achievements and contributions to world history.

Cultural Period	Predominant Domestic House Ground Plans	Community Settlement Patterns	Subsistence Patterns	Community Size and Structure
Period I [BC 100-AD 300]	Circular	Free and central-based wandering, semi-permanent sedentary to simple nuclear centered	Hunting, gathering, fishing, gardening, barter	Seasonal camps and semi- sedentary hamlets of single family groups and small bands
Period II [AD 300-1000	Circular, globular, cylindrical	Increasing restricted wandering and semi-permanent sedentism to simple nuclear centered	Hunting, fishing, gathering, agriculture production, barter, local and some inter-regional trade	Seasonal camps, small scattered sedentary villages of closely related kin
Period III [1000-1500]	Globular, cylindrical, rectangular	Restricted wandering, semi-permanent sedentism to long and continued sedentism	Hunting, fishing, gathering, intensification of agriculture production, inter-regional, and international trade	Seasonal camps, semi-sedentary camps, large villages, small to medium-sized towns, and cities with diverse populations
Period IV [1500-1950]	Cylindrical, rectangular	Restricted wandering, semi-permanent sedentism to long and continued sedentism	Hunting, fishing, gathering, intensification of agriculture production, inter-regional, and international trade	Seasonal camps, semi-sedentary camps, small to large villages, towns, and cities with diverse populations

Table 1: The relation of Subsistence, Community, and Settlement Pattern to House Plan on the East African Coast

Class	*Size [Hectares]*	*Features Present*	*Settlement Type*	*Number of Sites*	*Examples*
5	1.0	0-1 mosques, <5 tombs	Hamlet	34	Mgangani, Kinuni, Kongo, Munje, Diani, Tiwi
4	< 2.5	1-2 mosques, 5-10 tombs, 1-5 coral buildings,	village	39	Shee Umuro, Mwana Mchama, Kilepwa, Mnarani, Shirazi, Rubu, Tumbe, Galu
3	2.5-5.0	1-2 mosques, > 10 standing coral houses and town walls> 2 tombs	Small Town	19	Koyama, Ngumi, Chula, Ishakani, Kiunga, Omwe, Shee Jafari, Kitoka, Kilepwa, Jumba la Mtwana, Dondo
2	5.0-15.0	2 mosques, > 2 cemeteries, 50-100 coral houses, enclosed stone houses and open mud and coral houses	Towns	9	Merka, Munghia, BurGao, Siyu, Shanga, Manda, Mwana, Mtwapa and Vumba Kuu
1	>15	3+ mosques, 3+ cemeteries, > 100 standing coral houses, existence of wards	Cities	8	Mogadishu, Barawa Malindi, Lamu, Mombasa, Pate, Ungwana, Gede

Table 2: Classification of Coastal Sites in Kenya

THREE SCALES OF INTERACTION: COASTAL CITIES AND RURAL HINTERLANDS

One of the central theoretical debates in the later prehistory of eastern and southern Africa today concerns the origins of precolonial urbanism and the nature of urban-hinterland relationships (Chami 1998; Fleisher 2010; Kusimba 2008; LaViolette 2013; LaViolette and Fleisher 2005; Sinclair 2010; Sinclair and Håkansson 2002). Mabogunje (1962:3–4) first pointed out in his classic study of Yoruba urbanism that cities do not exist on their own, but are tied to their hinterlands. He demonstrated that Yoruba cities performed specialized functions in the context of a largely agricultural and undifferentiated hinterland. Nevertheless, cities are often of markedly different character from their hinterlands, including greater ethnic diversity, a higher degree of social complexity and status differentiation, and more diverse economic and subsistence activities, contributing to their "cosmopolitan" character (LaViolette 2008, 2013; Marcus and Sabloff 2008; Trigger 2003; Sinclair et al. 2010). Cities have almost always exerted economic, social, or ideological power with regard to their hinterlands, yet this relationship was also faced by certain constraints in productivity, communication and transport that limited city-hinterland interactions that remained remarkably consistent across the ancient world.

In spite of some basic constraints on ancient urbanism, there is in fact great variation in archaeologists' approaches to understanding the origin of ancient cities (Sinclair 2010). Usually, the birth of a city emerges out of changes in settlement pattern and landscape within a particular region. Along the Swahili coast, and in Africa in general, there has been more of a focus on the towns themselves because of logistical difficulties, a paucity of researchers, and because of an external orientation among many colonial and mid-twentieth century scholars in which Indian Ocean trade and its signatures have often been privileged (Killick 2009; Pradines 2013).

The Swahili port city of Mtwapa, where I have worked for nearly three decades, exhibits three scales of interaction that were crucial for its rise and sustenance as an urban polity (Figure 3). First, was Mtwapa's relationship with nearby fishing and farming villages along the mouth of Mtwapa Creek. Second, was Mtwapa's partnership with communities inland from the coast in the Tsavo region. Third were the interactions that the governors and citizens of Mtwapa forged with international trading partners via Indian Ocean networks. At each of these three scales, material evidence connects the urban center of Mtwapa with economic and social interactions that gives us clues to the evolution, character, and constellation of Swahili civilization. However, it is increasingly clear, based on both qualitative and quantitative distinctions in urban settings, that inequality in access to crucial coastal resources, such as human labor, arable land, fishing areas, and mangrove forests, were important factors underlining the emergence of Swahili cities (Kusimba and Kusimba 2009; Kusimba and Oka 2009). As Indian Ocean trade networks overlay these local inequalities, regional and international trade goods were incorporated into elite-controlled social and economic networks. These three scales or levels do not have a necessary chronological relationship, and each of them could be paramount in any particular region at any particular time. The question of the relative importance and the nature of interactions at these three scales is an empirical one.

Figure 3: Mtwapa Polity (ca. AD 800-1750)

Scale One: Mtwapa and the Villages along Mtwapa Creek

The first scale of analysis of a Swahili town that I discuss is that of a large town and the smaller communities, often villages, in its immediate hinterland. Large towns were often located at the mouths of rivers or near estuaries, inlets, and offshore islands (Freeman-Grenville 1958). Located at the mouth of a navigable creek, the port of Mtwapa originally covered about nine hectares out of which about four still contain standing architecture, including one main congregation mosque, 64 houses, some 20 mounds, and 13 wells (Figure 4). At its height, Mtwapa's estimated population reached 5000 (Kusimba 1993). As a port, Mtwapa's role in the regional and overseas trade is evident in the nature and distribution of artifacts recovered in excavations. The town's location at a deep natural harbor with excellent careening facilities placed it in a most favorable positions to engage in interregional social and economic networks.

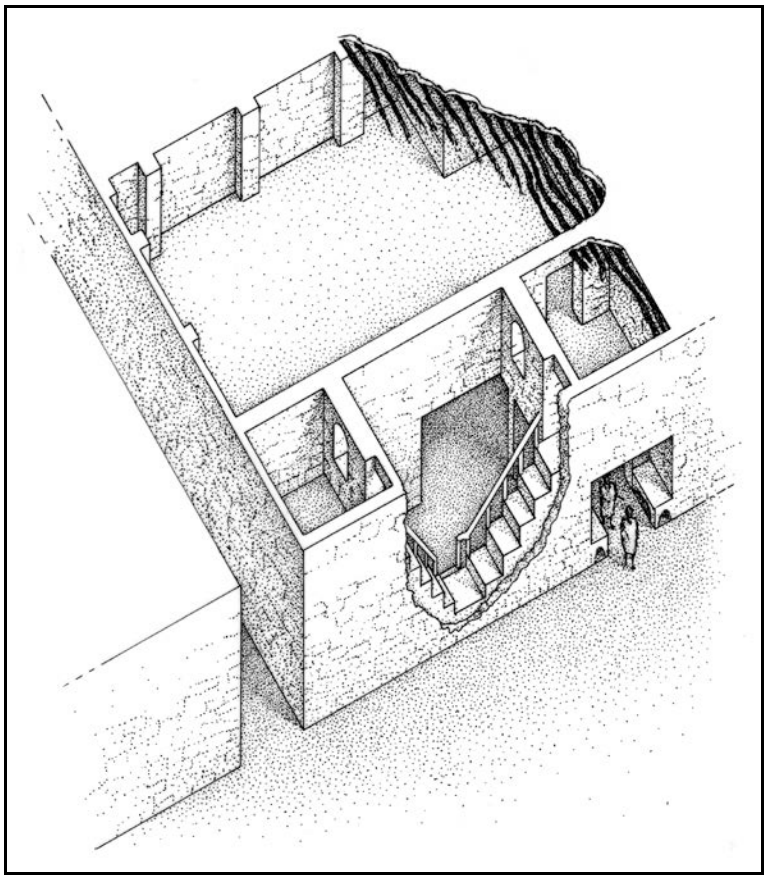


Figure 4a: Illustrated Ground Floor of an Elite Residence in Lamu

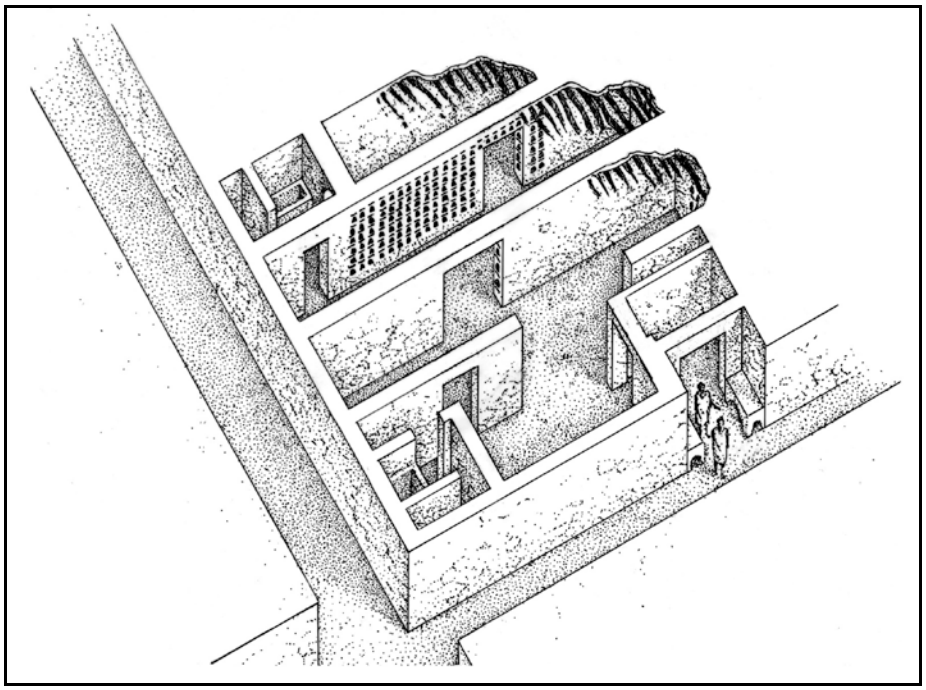


Figure 4b: Illustrated Second Floor of an Elite Residence in Lamu

Mtwapa was abandoned after ca.1750 CE following the effects of the Little Ice Age and the decline in international maritime trade. The site has been inhabited for nearly 4000 years (Kusimba et al 2010). Mtwapa's location on a navigable creek offered some advantages of direct interaction between coastal and hinterland trade and, where appropriate, direct trade between foreign merchants and hinterland peoples (Kusimba 1999b). Hinterland peoples were also likely to exercise some power in the affairs of the town since they could circumvent other towns' rules, which tended to restrict non-elite access to foreign traders and merchants (Nicholls 1971; Willis 1993). In this sense, Mtwapa's location served to reduce local elite intermediaries' dominance and likely made it a place where trader-friendly rules were exercised (e.g., Gray 1957:61; Sheriff 1971:136). Minimalist monopoly over access to foreign and hinterland traders provided opportunities for forging regional and interregional networks that were unavailable to hinterland traders on more isolated island towns, like Mombasa, Lamu, Pemba, among others where local elite monopolized access and trade relationships with foreign merchants and served as primary middlemen.

The stone house has had a long history in Swahili culture as a symbol of elite power and social distance (Allen 1976; Donley-Reid 1984, 1990; Ghaidan 1976). Three clusters of complex houses were discerned. All complex structures were well fortified with a perimeter wall enclosure. Compound houses, were built east of the town. Single houses were mostly found south and southwest of the main congregation mosque.

A perimeter wall surrounded the town's core. However, as the town's population increased, the community built outside the wall. At its height, Mtwapa had two distinct resident communities—one residing within its walls and the other outside. Both within the town wall and outside of it, differences in house size, elaboration, and construction materials shows a community characterized by a broad range of social class, wealth, and likely social status differences. Thus, like other contemporary coastal settlements, Mtwapa's resident population was economically diverse.

Neighborhoods differentiated by vocation and social classes are clearly visible in the type, quality, and style of construction. For example, access to critical wealth-creating resources such as fertile farmland, fishing grounds, mangrove forests, and exotic trade networks became increasingly restrictive. Differences in wealth were displayed in the type of material and skill used in house construction and in house size, which implied longer use-life and permanence. For example, the door frames of multi-room stone houses were of porites coral. All multi-room houses had flat coral tile roofs, and all included toilets and/or bathrooms and wells. All multi-room houses had comparatively large courtyards. In contrast, single stone houses had no wells and the quality of their finishing was less well executed when compared to complex structures. Excavations at Locality 5, a single unit stone house, showed that it had originally a mud on wooden frame but was significantly improved upon relative to household prosperity. Mud was used in some houses instead of lime as mortar. Many single unit houses appear to have had grass or coconut thatch roofs. None had a coral ceiling.

The ceramic assemblage from Mtwapa town shows the evolution of class distinctions and changes in taste and habit of this society. First, 94% of all the ceramics were locally produced, but there is a transition from small eating bowls during the later

period to shallow dishes, cooking pots, and jars. The diversity of style and form may also be indicative of the transformations tastes, eating habits, and even family sizes (Fleisher and Wynne-Jones 2011). Even when nonlocal wares are considered, however, there is great variation from one excavated locality to the next in terms of the types of nonlocal ceramics represented and their proportions in assemblages (Oka 2008). Nonlocal pottery and glassware were consistently associated with only a few localities at complex and compound houses almost exclusively; moreover, these associations appear in the earliest levels of the excavations dated to the fourteenth century C.E, and remain consistent throughout the sequence until the upper levels dated to the eighteenth century C.E. Rahul Oka's (2008) study of trade ceramics, including Chinese and Islamic pottery and porcelain, at Mtwapa asserts great disparities in the distribution of power and wealth within the town. The wealthy, including both political and economic elite, resided in better-constructed and secured quarters and enjoyed unequal access to basic resources like water. They also had exclusive rights to being buried near the town's main congregational mosque—the Friday Mosque.

Around Mtwapa – The Village of Kizingitini

Full-coverage survey beginning at the mouth of Mtwapa Creek and extending along both sides about 20 km recovered a total of 21 Late Iron Age sites identified on the basis of pottery (Kusimba et al 2013). The sites were remains of a large settlement that was located along the creek. The dispersed villages and homesteads of this nature help elucidate the nature of stone town - country town relationships (Pawlowicz 2012; Fleisher 2010). Surveys and excavations by Mutoro (1987, 1998) in the immediate hinterland of Mombasa and Mtwapa and by Abungu (1990, 1998) at Wenje along the Tana River in the hinterland of Ungwana suggested trade connections that linked the coastal communities to their hinterland neighbors. Collectively, Jonathan Walz's surveys in the Usambara region (Walz 2010), ongoing research by Matthew Pawlowicz (2012) in the Mikindani area, and Richard Helm's work (Helm et al. 2012, which extends Henry Mutoro's, earlier surveys on the Kenya coastal hinterland Intimately connected with urban settlements along the coast favored locales for earlier settlement. In fact, our survey indicates significant differences in settlement patterns and in ceramic technology that show a distinctive village lifeway persisted in the shadow of the stone town. Like Mutoro and Abungu's work, our survey yielded no significant evidence of social stratification, which is often associated with large coastal port towns, like Mtwapa, Ungwana, or Takwa (Wilson 1980). Instead, the recovered material remains, including postholes, pottery dominated by cooking pots and jars pointed to a more or less to an agrarian and fisher folk lifestyle (e.g., Haaland 2007). Salt seepage may have contributed to the lack of faunal remains. Surface and excavated materials recovered at these sites included abundant pottery, all of it local. Seven radiocarbon dates confirmed that the settlement is contemporaneous to Mtwapa and Jumba la Mtwana (Table 3).

Sample	Locale	Level [cm]	Dates	Low	Mid	High
4	3	0-10	280±70 BP	1661CE	1731 CE	1801 CE
9	5	40-60	340±70 BP	1601CE	1671 CE	1741 CE
1	2	80-90	340±70 BP	1601CE	1671 CE	1741 CE
6	4	20-40	350±70 BP	1591CE	1661 CE	1731 CE
7	4	40-60	360±70 BP	1581CE	1651 CE	1721 CE
11	5	80-100	360±70 BP	1581CE	1651 CE	1721 CE
10	5	60-80	370±70 BP	1571CE	1641 CE	1711 CE
2	2	120-130	480±70 BP	1461CE	1531 CE	1601 CE
13	5	120-140	480±70 BP	1461 CE	1531 CE	1601 CE
14	5	140-160	480±70 BP	1461BCE	1531 CE	1601 CE
8	4	80-100	480±70 BP	1461CE	1531 CE	1601 CE
12	5	100-120	490±70 BP	1451CE	1521 CE	1591 CE
3	2	130-140	500±70 BP	1441CE	1511 CE	1581 CE
5	3	100-120	510± 70 BP	1431CE	1501	1571 CE
15	5	160-180	610±70 BP	1331-	1401CE	
16	5	180-200	610±70 BP	1331-1471CE	1401CE	1451 CE
17	5	220-250	630±70 BP	1311-	1381CE	1451 CE
18	4C	260-280	650±70BP	1428CE	1358CE	1288BCE
19	4D	280-300	2850±70BP	912BCE	842BCE	772BCE
20	4D	300-320	3740±70BP	1802BCE	1732BCE	1622BCE

Table 3: Mtwapa Radiocarbon Dates

Decorative motifs on pottery found on three out of six LIA sites along Mtwapa Creek conform to the Tana ware nomenclature (Fleisher and Wynne-Jones 2011). The majority of vessels were low-fired water jars, water pots, and cooking pots. Although the Creek and Mtwapa town communities were contemporaneous and almost certainly interacted on a regular basis, the pottery excavated at the Creek sites was distinguishable from Mtwapa pottery by decorative motifs, form, and style. The Creek pottery exhibited a much smaller repertoire of forms and styles and its finishing and skill in firing was qualitatively inferior. We attribute these differences not to ethnicity but rather to differences in the social contexts of manufacture. The diverse Mtwapa pottery's relative sophistication suggests part- to full-time specialization; by contrast, Creek pottery suggests household manufacture primarily for home use.

The Mtwapa-Kizingitini pattern can shed light on the process of urbanization that differentiated the landscape of Mtwapa Creek as the stone town emerged. Stone towns and their hinterlands have always been connected; for example, Allen (1993) proposed that townspeople shifted residence to their countryside farms for planting or harvesting. Initially at least, the interaction of these towns and their local hamlets would have been based on kin groups and alliances. Nicholls (1971) and Herlehy (1984) describe alliances, patron-client relationships, and fictive kinship that fostered exchanges of goods and labor between small and large settlements. However, it seems that in time the urbanites' broader networks increasingly differentiated them from their rural kin. These differences manifested themselves in terms of taste, including clothing, aesthetics, religion, mortuary practices, and diet.

Sample	Locale	Level [cm]	Uncal. Dates	Low	Mid	High
KC17	1	20-40	310±70 BP	1494 CE	1568 CE	1642 CE
KC33	3	40-60	410±70 BP	1443 CE	1521 CE	1599 CE
KC18	1	40-60	420±70 BP	1437 CE	1516 CE	1595 CE
KC5	1	60-70	420±70 BP	1437 CE	1516 CE	1595 CE
KC36	3	100-110	430±70 BP	1430 CE	1511 CE	1592 CE
KC35	3	70-90	440±70 BP	1423 CE	1504 CE	1585 CE
KC29	2	160-180	530±70 BP	1323 CE	1376 CE	1429 CE
KC30	2	220-240	610±70 BP	1300 CE	1346 CE	1392 CE
KC41	3	190-210	790±70 BP	1155 CE	1209 CE	1263 CE

Table 4: Kizingitini Radiocarbon Dates

Scale Two: The Interior and the Coast Interaction Spheres

The second scale of analysis is a regional one; it could encompass the relationships of towns and settlements with each other along the coast, and it could also encompass relationships with that most economically crucially important trading partner—the East African interior.

We initiated fieldwork in the Tsavo region 150 km east of the Kenyan coast in 1997. Tsavo was an ethnically and economically diverse area well into the early 20th century. The historic peoples of the Tsavo mosaic include the Waata, understood historically to be peripatetic foragers [KLC 1933:309); the Taita agriculturalists of the

terraced uplands of the Taita Hills [KLC 1933:319); the Akamba agropastoralists; the forager/herder Wambisha (Kimambo 1970:90; Lindbloom 1919) and the Oromo pastoralists (Gregory 1968:386).

Historically, Tsavo groups pursued different economic strategies in different environs of the ecological mosaic. They maintained their identities in spite of a high degree of trade and movement of people across community boundaries, which have been confirmed through archaeology, ethnohistory and linguistics (Ehret and Nurse 1981; Prins 1961). Taita and Oromo pastoralist groups were organized into patrilineal corporate groups. Although these societies, significant authority was held by elder males who sought to accumulate cattle and land, and control their distribution (Kumsa 1997). Consequently, intergroup conflict over wealth-building resources, such as cattle, coexisted with alliances for exchange of goods, information, and ritual power (Bravman 1998; Kusimba and Kusimba 2005; Merritt 1975). Some forms of technical and practical knowledge, such as hunting techniques, poison making, and animal tracking were so prized that blood brotherhoods and secret societies controlled the spread of this sacred information—critical oral information for a better understanding of how alliance-building and information exchange occurred (Von Hohnel 1968:267).

Macropatterns or Site Clusters in Tsavo

During our surveys, we located 250 new archaeological sites. Our survey identified six macropatterns or regional clusters, which we summarize in Table 5 below.

Site Cluster Type	Features	Sites	C14 Dates [RCYBP]
Mortuary Sites	Burial mound clusters, graves, and tombs, skull niches	Konu Moju,	No Dates yet
Open Air Hunter-gatherer settlements	Prominent inselbergs, lithic scatters, grinding hollows, faunal remains, meat drying and trade areas	Mudanda, Maungu, Rukanga, and Bungule Markets	No Dates yet
Ironworking and Intensive Economic Activity Sites	Goats, sheep and cattle pens, iron smithing, agric, terraces, salt mines, grinding hollows	B1, B28, B31, K1, -K2, K3, K4, K5, K6, and K7	170±70--240±70
Rockshelter and Cave sites	Pottery, lithic and iron artifacts, Indian, and European beads, marine shells and bead, iron artifacts, domestic and wild fauna	Kisio, Muasya, B1, B9, K1, K2, and K7	100±25--1000±25 380±70--5330±70
Terraces Fields and Settlements	Dry stonework, terracing and irrigation canal, burial cairns, crania display niches, goat pens, food prep areas, iron and pottery making locals	B1, B28, B29, B30, B31, M1, and J1	170±70--380±70
Fugitive Stockade Sites		B20, B28, B31, and R1	207±40--300±70

Table 5: Macropatterns or site Clusters of the Tsavo Region

What follows below is a brief description of the basic characteristics of each macropattern below.

1. Mortuary Sites [Cairns and Skull Sites]

Graves, cemeteries, Cairns, and skull internment sites occur widely in the Tsavo region (Kusimba et al 2005; Lugard 1959:261; Soper 1965:4, 1966, 1976; Thorbahn 1979). Thorbahn (1979: 210–11) attributes burial Cairns to Oromo pastoralists, who inhabited Tsavo's arid plains until it was designated a national park in 1948 (cf. Gregory 1968:325). Local Taita informants have variously attributed Cairns to the Wambisha and Oromo (Soper 1965). Lone graves marked by stones along known trade routes are often attributed to Arab, Swahili, and other caravan traders and porters. We assume that slave captives who succumbed along the way—victims of thirst, disease, and a host of other agents of death—were rarely buried. Skull sites in the region are attributed to the Taita.

Our team discovered eight cranial display niche sites with skull remains. Taita internment sites were located close to villages in outlying rock shelters, rock crevices, and shallow coves. The shelters for the ancestors were placed in dry and quiet places that were in close proximity to inhabited areas so that they could be maintained and protected from predators as well as witches. Ancestors were regularly propitiated in order for them to ward off potential calamities and crises like drought, disease, childlessness, and witchcraft. At one in Saghala, a nearby large rock was used as an altar for preparing gifts to present to ancestors. Large partially broken pots and gourds found at internment sites provided evidence for the ceremonial feasting that occurred at these sites.

2. Open-air hunter-gatherer settlements

As in other regions in Africa, open-air hunter-gatherer settlements were difficult to identify. However, the Tsavo landscape was marked by extensive grinding hollows that could be found in almost all-prominent low inselbergs and on rocks along seasonal springs and rivers. These grinding hollows ranged from a handful to several hundred. Many represented food processing activities such as grinding cereals, roots, and skin tanning; others bore evidence of recreational use and were likely precursors of the popular African *bao* game. Still others may have been used as symbolic markers (David 1998). Hobley (1895) wrote that Tsavo's prominent inselbergs were historically used as regional market centers attracting peoples from the wider region. Regional trade and exchange in bush and agricultural products are known to have occurred at inselbergs such as the prominent Mudanda Rock in Tsavo East and the Rhino Valley Rock in Tsavo West [both almost 1 km long]. At Mudanda, large quantities of chert and quartz stone tools were found, although construction of a waterhole had distorted these finds. The Rhino Valley Rock area contained over 300 grinding hollows of different sizes and shapes, showing the diversity of economic activities carried out at this locality. Future excavations will target these areas for testing the hypothesis on their role as centers for interregional trade and exchange.

3. Iron Working Sites

Iron bloom and artifacts were among the principle trade items that were exchanged amongst precolonial African peoples. Field and laboratory investigations into the history of metallurgical technology in East Africa have demonstrated that early iron metallurgy in precolonial coastal East Africa was sophisticated enough to include the use

of crucible steel (Kusimba 1993, 1999a; Kusimba and Killick 2003). The coastal iron makers are believed to have been capable of satisfying regional and interregional demands for iron (Emery 1824-1826; Gray 1957:61; Kusimba 1993). Further, African iron may have been exported to places as distant as South and West Asia, perhaps as bloom or even as finished artifacts. Hence, the rise of iron technology and trade played a key role in the development of social complexity along the coasts of Somalia, Kenya, Tanzania, and Mozambique. In later times, when knowledge of iron production was widespread, hinterland areas of abundant ores and wood charcoal could sustain major ironworking industrial complexes. One such region is Kasigau, where magnetite ore outcrops abound in the Rukanga and Kirongwe villages (Kusimba et al. 2005). Here, our surveys recovered two large iron-working sites, one at Rukanga and the other at Kirongwe.

The sites cover large areas of nearly one hectare and appear to have been centers of intensive iron production for at least 800 years. We recovered a stratigraphic sequence of nine radiocarbon dates dating back to 1150 ±70 BP at K1 (Kusimba et al. 2005). Furnace technology was primarily of bowl furnaces. Both iron smelting and smithing were undertaken in Rukanga and Kirongwe. Our survey and subsequent excavations of smelting sites at Kirongwe recovered five smelting furnaces at K7. The recovery of a smithy at K1 revealed multiple uses of rockshelter for residence and craft activities, including smithing. Excavated artifacts at rockshelters K1 and K2, including a stone anvil, a large volume of tuyere fragments, slag, and both finished and unfinished tools attest to the complexity of iron production in Tsavo. Significant volumes of slag and slag-wetted tuyeres found in levels 7 through 11 demonstrate that the most intensive iron smelting occurred during the deposition of these levels, dating from 840 ±70 to 1150 ±70 years BP. Overlying younger levels, dating to the last 500 years or so when calibration is taken into account, have much more abundant stone tools and could indicate reoccupation of the site by a group possessing an expedient technology.

Iron was an important craft and exchange item that is also preserved in the archaeological record. Historical sources indicate it was a vital part of both subsistence economies and luxury trade and its role in facilitating the clearing of cropland is well known (Huffman 1982, 1989; Oliver and Fagan 1975). However, in the Tsavo case, we think iron was much more important for enabling humans to kill elephants, whose ivory was in high demand in Asia and Europe. The technical quality of iron made in Tsavo was impressive. The arrowheads and spear points recovered have excellent cutting and penetrating qualities capable of serving primarily as elephant-killing weapons. We believe iron-working industries at the Kasigau sites of Rukanga and Kirongwe serviced a clientele of complex professional hunters who made a living through hunting of elephants and provisioning ivory to coastal merchants, as well as to local farmers.

4. Rockshelter and Cave Sites

Archaeological surveys, ethnohistorical evidence and ethnoarchaeological research suggest that there may well be hundreds of rockshelters and caves the Tsavo region. Our surveys have thus far found more than 40 rockshelters and caves in the Bungule and Kirongwe areas (Figure 5). Before the introduction of domesticated crops, the rockshelters served as seasonal residential areas and ephemeral campsites for hunter-gatherer dwellers, judging from our radiocarbon dates at Bungule 9, which go back to the late Pleistocene early Holocene times. Gradually, however, some of the shelters became

used for highly specialized activities. Some rockshelters include grinding hollows and dry stone architecture. According to the elders of Kasigau, some served as ancestral shrines or as armories for the community's weaponry. Many were associated with rainmaking and witchcraft or served as stockades for hiding during times of stress and warfare; later many became areas for penning and pen feeding of livestock. Bungule 20, in particular, is an example of a rockshelter modified with obviously defensive intent (Figure 6). Informants stressed the role of these hideouts in conflict with cattle thieves and slave traders (Kusimba 2004, 2009).

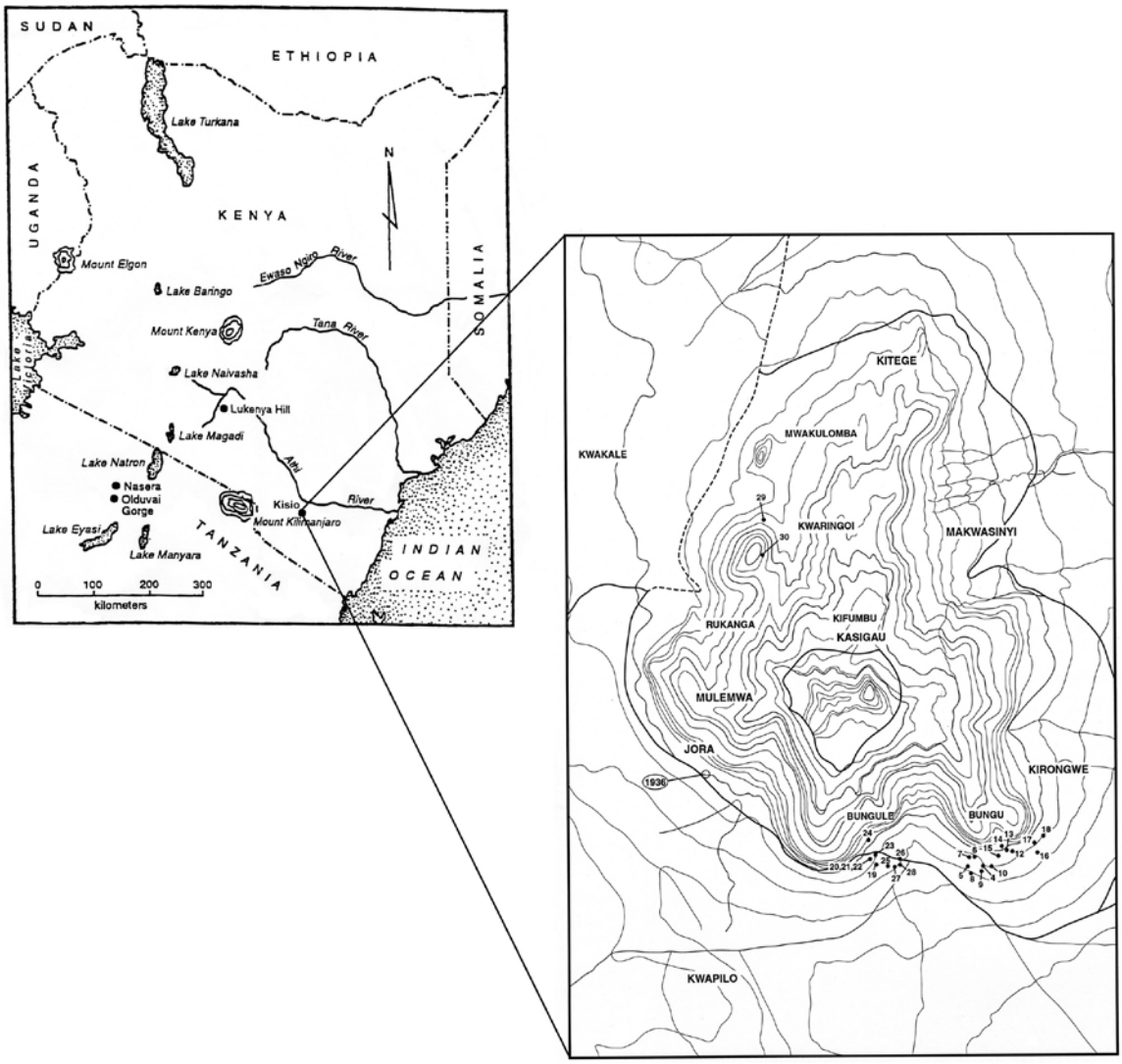


Figure 5: The Distribution of sites at Mount Kasigau

5. Kasigau Terraced Settlements and Fields

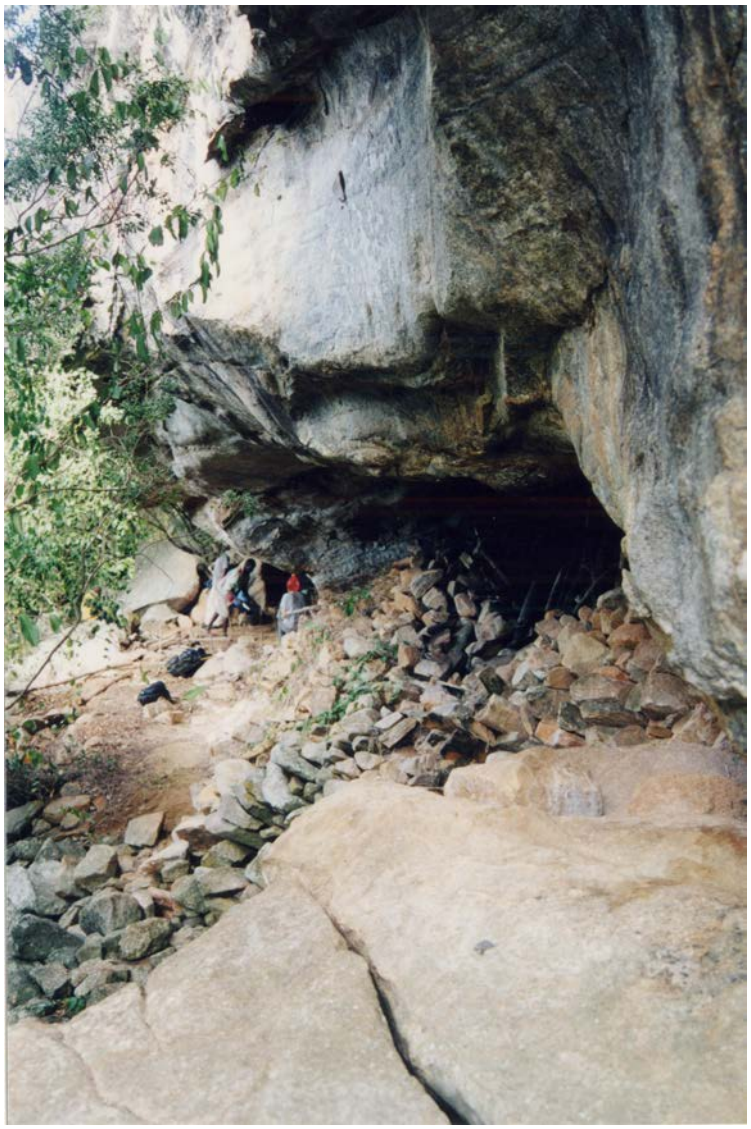
Although our informants indicated that Taita practiced irrigation farming, archaeological evidence has thus far been elusive. Our surveys revealed that the entire Kasigau hillslope contained a complex maze of terraced fields, as did Ngulia Hills. These terraced fields run across ridges that were sculpted by seasonal springs, streams

and small rivers. Each ridge contained extended family houses and their fields where they sowed sorghum, millet, beans, pumpkins, and, later, maize. Local village elders maintain that each lineage occupied several terraces adjacent to each other. The elders interviewed emphasized that the system of land tenure recognized individual rights to terraced land. Abandoned and/or poorly maintained terraces endangered neighboring terraces and thus would have been leased to individuals or families in need of land. In later years, these terraces suffered neglect as people relocated.

6. Fugitive Stockade Settlements

Beginning from the seventeenth century, many rockshelters and caves were fortified as responses to the declining regional security (Kusimba 2004, 2006, 2014). Out of the 30 shelters we discovered, 18 had some evidence of fortification. Based on our excavations of Bungule 20 and 28, which yielded radiocarbon dates on the foundations of dry stonewall, fortification may have begun as early as 400 years ago. The enclosures have large dry stonewall faces supported by vertical wooden frames. Most sites have two sections: one for people and the other for livestock. Most have an entrance and exit and, in these cases, both access ways are protected by wooden partitions that run parallel to the wall. For example, Bungule 20 is a formidable structure measuring 66 m^2 with a ceiling height ranging between 0.30 and 1.75 m.

As in other enclosures, a partitioned area was constructed to separate people from their animals. Surface finds include an almost intact bed, a hearth, and pottery shards. These, however, are modern surface deposits not associated with the primary *in situ* archaeological deposits. Three radiocarbon samples obtained from the vines and wood holding the dry stone wall had uncalibrated radiocarbon ages of 207 ± 40, 290± 70, 300 ±70 BP, placing the calibrated date of construction of the dry wall some time in the last 400 years at two standard deviations.



Excavations further revealed a detailed process of dry stone construction. This involved the digging of a foundation and erecting of wooden frame with termite resistant hardwoods tied with twine. Large rocks would then be piled along the wooden frame from the base foundation, and smaller blocks would be fitted into any open spaces remaining. Finally, clay soil from the termite hills was applied as a plaster seal to ward off insects and weatherproof the wall. The resulting structure was strong, impenetrable, and aesthetically beautiful. The recent date of rampart construction and paucity of cultural artifacts corroborate informants' oral histories indicating that Bungule 20 and other similar rockshelters were fortifications and refugia against slave hunters and others feared by Kasigau people.

The significance of Mosaics in Fostering Social and Economic Networks

Based of the radiocarbon dates now available from Tsavo, we can reconstruct the chronological history of Tsavo into five major periods in Table 6 below (Kusimba et al 2006). Ecological diversity encouraged internal trade and exchange amongst Tsavo's

inhabitants. Affinal bonds of friendships, usually referred to as blood brotherhoods and/or sisterhoods, were established among trading partners to enable trade and safe passage in what would have otherwise been hostile territory (Kusimba et al 2006). The trade boom in ivory, iron, salt, cloth, ornaments, foodstuffs created local and regional entrepreneurs among Akamba, Taita, Waata, Giriama, Swahili and other communities (Kimambo 1970; Middleton 2004; Muriuki 1974; Robertson 1997; Prins 1961:99; Unomah and Webster 1976:277). Thus, trade and other opportunities spawned subsidiary craft specialization enterprises. These would include iron smelting and blacksmithing to provision hunters, herders, miners, farmers, and warriors; poison making to provision hunters and warriors; basket making to provision caravan traders and porters; potters and grindstone carving to provision farmers, hunter gatherers, and herders. At the high point of this regional economy, intensification was a response to regional and extra-regional demands.

Between 1400 and 1600 C.E Kasigau was a major distribution center for local and regional trade, as well as a lodging and camping ground for interior and coastal long-distance trade (Wakefield 1870). Trade items exchanged at Kasigau included beads, clothe, textiles, honey and beeswax, fresh fruits, milk, ivory, rhinoceros horns, animal skins among others. The introduction of coastal crops like coconuts, tamarind, oranges, lemons, and mangoes in Kasigau was in part due the response to the trade boom and the high demand of these products by coastal traders. Everyone in the Tsavo region and beyond appears to have been involved in regional trade (Smee and Hardy 1811:176). The presence of refuge sites (Marshall 2012; Kusimba 2006) attests to the widespread insecurity and collapse engendered by the colonization of the East African coast and the rise in slave trade.

Scale Three: The Trans-Continental Scale

The final, trans-continental scale of interaction brings us back to the original lure of the Swahili for the archaeological founders of the field, whose explanatory framework of external origins has been soundly rejected, but whose examinations of nonlocal pottery and other imported artifacts have still provided benchmarks of chronology for many Swahili sites. Apart from conveying the basic spatial differences between elites and non-elite groups within cities, the type and volume of prestige goods also provide information on differential tastes, preferences, and networks within elite groups themselves and the changing fortunes of the different elite localities within a trading center (Junker 1999; Kusimba 1999b).

The Islamic Era in the Indian Ocean [700–1750 CE] was characterized by a prestige goods network that linked elites from East Africa, Southwest, South, and Southeast Asia, leading to overlapping tastes and preferences for luxury consumables, commodities, and gifts (Sheriff 2010). Since the early 15th century CE, Chinese Blue-and-White porcelains were the most desired prestige ceramics in the Western Indian Ocean, were also imitated across the Indian Ocean, especially in Southeast Asia [Vietnam and Thailand] and Southwest Asia [Persia, Syria, and Turkey (Middleton 2004).

At Mtwapa, an analysis of trade ceramics, including Chinese blue-on-white, Chinese celadon, and Chinese white porcelains shows that in the diverse urban society of Mtwapa, foreign ceramics were highly restricted (Oka 2008). Before CE 1600, localities 4, 5, and 6 showed similarities in the distribution of all the trade ceramics, especially glazed wares. However, this trend completely reversed in the post-1600 CE period.

The majority of the trade ceramics at Mtwapa are relegated to one area, Area 4, located within the main Friday Mosque Complex. This was the main gathering zone where city elites would gather to display their status through giving alms to poor and public feasting. The large collection of trade ceramics contrasts with finds in residential quarters, which had comparatively fewer trade ceramics (Fleisher and LaViolette 2007). After 1600 CE, the prestige goods received by elites through trade were not kept for display in their homes as before but were increasingly used for public feasting and gift giving at the Friday Mosque. The resultant attrition of wealth was compounded by the decline of local crafts-production (e.g., iron, steel, cloth).

Given that ceramics are extremely rare even in Mtwapa's urban context, we can hardly expect them to provide a good signature of the extent of regional and trans-continental trade across scales. However, the Tsavo regional landscape provides much evidence for trans-oceanic interactions in the form of a domesticated landscape (Greenway 1944:115-116; ll et al. 2003) consisting of abandoned orchards of mango, oranges, lemons, and tamarind. These south and southeast Asian domesticates provide the best evidence yet of East Africa's deep-time interactions with Asia. Yet, this landscape only speaks to one segment of the Tsavo mosaic. To address the entire mosaic one must turn to a little known artifact – the bead. Beads are an appropriate means for reading trans-continental networks, which often do not leave abundant archaeological traces (Van der Sleen 1967:76-91; Wynne-Jones 2010). Beads, unlike pottery, are portable, durable, visible, and highly amenable to the wearer's manipulation and self-expression. From a trader's standpoint, beads symbolized an investment opportunity unlike any other in human history. Beads reached the global market, from the poorest of the poor to the wealthiest socialites of the time. Compared to other crafts, such as ceramics, porcelain, and jewelry, the returns for beads were much larger. Due to their small size, large numbers of beads, literary in millions, would have been exported. One shipment of beads of different colors and sizes would have fetched enough profits to last a lifetime. Beads thus represent a kind of intensification of trade strategy. One could also argue that the small size and relatively small value of beads would encourage them to be widely traded beyond the Swahili coast once they arrived there as part of larger and more diverse commodity flows. Indeed, one of the most striking patterns that emerged from the Tsavo surveys was that glass beads were found at every site we excavated, while other coastal artifacts such as pottery were much more rare.

By the first century C.E., Africa's trade relationships with Eurasia increasingly began to be controlled by growing state societies and significantly contributed to bi-directional biological and technical transfers (Mitchell 2005; Oka and Kusimba 2008; Pearson 2003). Improvements in shipping technology and the introduction of the camel made it possible to trade across the Indian Ocean with East Africa and across the Sahara with West Africa. Gold, salt, ivory, hides, and spices were typical commodities in this commerce between North and South. Nevertheless, beads were part of this interaction and wherever they occur, they bear witness to the connections that no other archaeological artifacts can show due to their beauty, universal appeal, affordability, and preservation.

Despite the ubiquity of archaeological glass in Africa, this class of trade artifacts remains one of the least studied on the continent. Compared to other regions, fewer chemical and analytical studies have been carried out African archaeological glass (but

see Davison 1972; Wood 2000, 2012). Recent studies of chemical analysis with laser ablation – inductively coupled plasma – mass spectrometry LA-ICP-MS of glass beads from South Africa, Botswana and Madagascar have provided a better definition of the glass groups and reported, for the first time, a possible glass-manufacturing site in Africa, dating to around the 10th c. C.E, contradicting a long-held view that preindustrial Africans did not produce glass in the early period.

Three different archaeological sites in Kenya were investigated: from the urban coastal site of Mtwapa and from Bungule, and Muasya Rock Shelters in Tsavo. Forty-five beads from Mtwapa were analyzed, sixty-three from Bungule, and twenty-six from Muasya Rockshelter. They were drawn and monochromatic, red, turquoise, and green, and have variable shapes. The beads from Mtwapa appear to match quite well the definition of a type of beads called "Indo-Pacific Monochrome Drawn Beads" or IPMDB (Francis 1990). These beads are part of the "Trade Wind Bead" group (Van Der Sleen 1973) that includes also wound beads. These IPMDB have been identified from Africa to Japan and are known to have been manufactured in different places located in South and Southeast Asia over a 2-millennium long period.

The beads from Bungule had a more diverse typology compared to those of Mtwapa, even though most Bungule beads were made using the drawn technique. Drawn beads can have a very small diameter [2-3 mm] and are barrel or annular shaped. These beads are white [12], blue, from turquoise blue to dark blue [10], dark [10], pink [8], greenish [2], yellow and red [1 for each color]. All these beads were opaque except a dark blue one that was translucent. The color, size, and shape of the Bungule beads were very different from that at Mtwapa. At Muasya Rock shelter, only barrel-shaped beads in blue [13], white [10], opaque red [2] and opaque red over a greenish core [1] were found. In Table 7, we describe the distribution of the glass compositions by site. All glass beads from Mtwapa belong to the m-Na-Al 2 glass type and are likely to be imports from South Asia (Dussubieux et al. 2008). Muasya Rock shelter accounted for only three glass beads from South Asia compared to twenty-three of European origin. Like Muasya, Bungule accounted for more European than South Asian glass beads. The diversity of European compositions exhibited at Bungule is wider compared to Muasya. The presence of European composition at Bungule and Muasya is likely because these sites were occupied on a wider period (Table 7).

	m-Na-Al 2 glass	European compositions
Mtwapa	43	0
Bungule	5	58
Muasya	3	23

Table 7: Repartition of bead composition by sites

Based on the analytical results carried out using the LA-ICP-MS instrumentation, we concluded that the glass beads trade in East Africa belonged to two different networks: the Afrasian Trade Network [ATN] and the Eurafrasian Trade Network [ETN]. The ATN involved the Indian Ocean, Middle East and South Asia while the ETN appears to be primarily European commerce in the Indian Ocean. Mtwapa was linked to the ATN, while Muasya and Bungule were part of the ETN (Dussubieux et al 2008).

Discussion: Contextualizing Rise, Consolidation, and Collapse of the Swahili States (ca.ad 700-1900)

The evolution of Swahili sates was a product of trade networks on local, regional, and international levels, requires a multi-scale perspective. Through this approach we are able to gain an understanding and appreciation of contributions of all segments of society, including commoners, peasants, the underclass, and slaves, groups often left out of early historical accounts of Swahili urbanism. The archaeological findings from the three interactive regions provide a long-term perspective on change, documenting the origins of herding, pastoralism, and agriculture, the rise of urbanism, and other transformational social changes, including the decline, collapse and colonization of the region. Data from many sites within the different ecological zones and regions has allowed systematic comparative analysis of these changes and social patterns

The specific geographical location of coastal society influenced a mercantile character, such that it was shaped by social and economic processes on multiple geographic and temporal scales. Our survey and excavations discussed here show how the urban center of Mtwapa was influenced by and responded to local, regional, and trans-continental interactions. The favorable location of this coastal settlement could not be usefully exploited without forging partnerships with the hinterland, other coastal communities, and foreign merchants. These partnerships involved formalizing affinal ties into long lasting friendships that promoted peaceful coexistence, tolerance, and the sharing of the regions diverse resources. Wealth accumulated from these interaction spheres created differences among the Mtwapa residents, which would in time increase the social and ethnic diversity of the coastal region. Out of these diverse communities, stone towns may have grown in size primarily as religious centers after the appearance of Islam on the Coast (Fleisher 2010).

Paul Sinclair (1995) proposed that the trading centers on the East African were linked together in urban clusters where different locations had specializations in production and trade. Sinclair et al. (2012) combine data from Chibuene and other sites in the interior to illustrate the importance regional multiscalar approaches towards understanding early interactions and exchange. They show that Chibuene's location on the southern end of the East African coast provided it with exclusive access to long-distance networks. As a port of entry for trade goods found in the interior regions of southern Africa from AD 750 until *c*. AD 1000, Chibuene was "a nodal point connecting individual traders from at least three networks: the southern African interior, the northern coastal trade network and the transoceanic trade network." (Sinclair et al 2012:735).

Similarly our research discussed here shows that Mtwapa, like other ports on the coastal mainland, played a significant role in linking the interior with the coast and beyond. A regional perspective employed in this project brings to light the Swahili coast's connection to diverse ethnic and economic mosaics of the interior and to the importance, not just of Chinese porcelains, Indian cloth and Islam, but of iron, honey, buttermilk, and poison. Trade beads and marine shells are found in coastal contexts and in rockshelter sites in the immediate hinterland that have been occupied since the Later Stone Age (Helm et al. 2012) and at Tsavo demonstrate regional contact with the Coast (e.g., Wood 2012; see also Mitchell 2005:27; Pikirayi 2001). Furthermore, the presence of refuge sites attests to the widespread insecurity and collapse engendered by the colonization of the East African coast and the rise in slave trade (Kusimba 2004, 2006).

How do we explain the rapid collapse of regional political economy that our data seems s to suggest? Despite their apparent success, Swahili state were connected to regional economies and were likely to be affected by events that were than occurring in the wider Indian Ocean rapidly globalizing world.

Political Stability, Trade Friendliness of Islamic Empires, and Climate Change

The 16th century witnessed the emergence of three powerful Islamic Empires: Mughal (1526 – 1857), Safavid (1501-1736), and Ottoman (1351 – 1917). These three empires consolidated and brought general stability to an area stretching from North Africa to South Asia (Gupta and Gupta 2001). Their political and economic networks encompassed both Islamic and non-Islamic states in Africa, South East and Central Asia, and Europe. The relationships between these three empires were that of 'peace under détente.' The Mughals and Safavids formed largely enduring alliances against their mutual enemies, the Uzbeks, while the Ottoman-Safavid conflict was mitigated by Ottoman-Uzbek alliances targeting the Safavids. The Ottoman-Uzbek alliance prevented the Mughals from allying with the Ottoman for any length of time (Allouche 1983; Barzegar 2000; Farooqi 1989). This generated a peer-empire interaction system in which long-term stability and a resurgence of urbanism led to demand for resources, goods, and services on an unprecedented scale. The abilities to fulfill these demands allowed key economic actors to invest in large-scale production and distribution complexes in the main economic centers within these empires. The political elite recognized the importance of trade revenues and responded with tax breaks, infrastructural support, and also began to invest in the ongoing activities, generating 'state mercantilism what Alam and Subramhanyam 1998).

This stability encouraged mass production, specialization, technological innovation, and expansion in maritime commerce. The political elite supported investments in overseas commercial production and distribution, and offered tax breaks, amenities, and protection to attract capital and entrepreneurial investment (Oka 2008). This trade-friendliness led to the rise of "great firms" like the British East India and Dutch East India Companies, controlled by a few families who had vast diversified portfolios and control over banking and brokerage systems across the Indian Ocean (Leonard 1998; Pearson 1998). This process is modeled in Figure 7 (A-B).

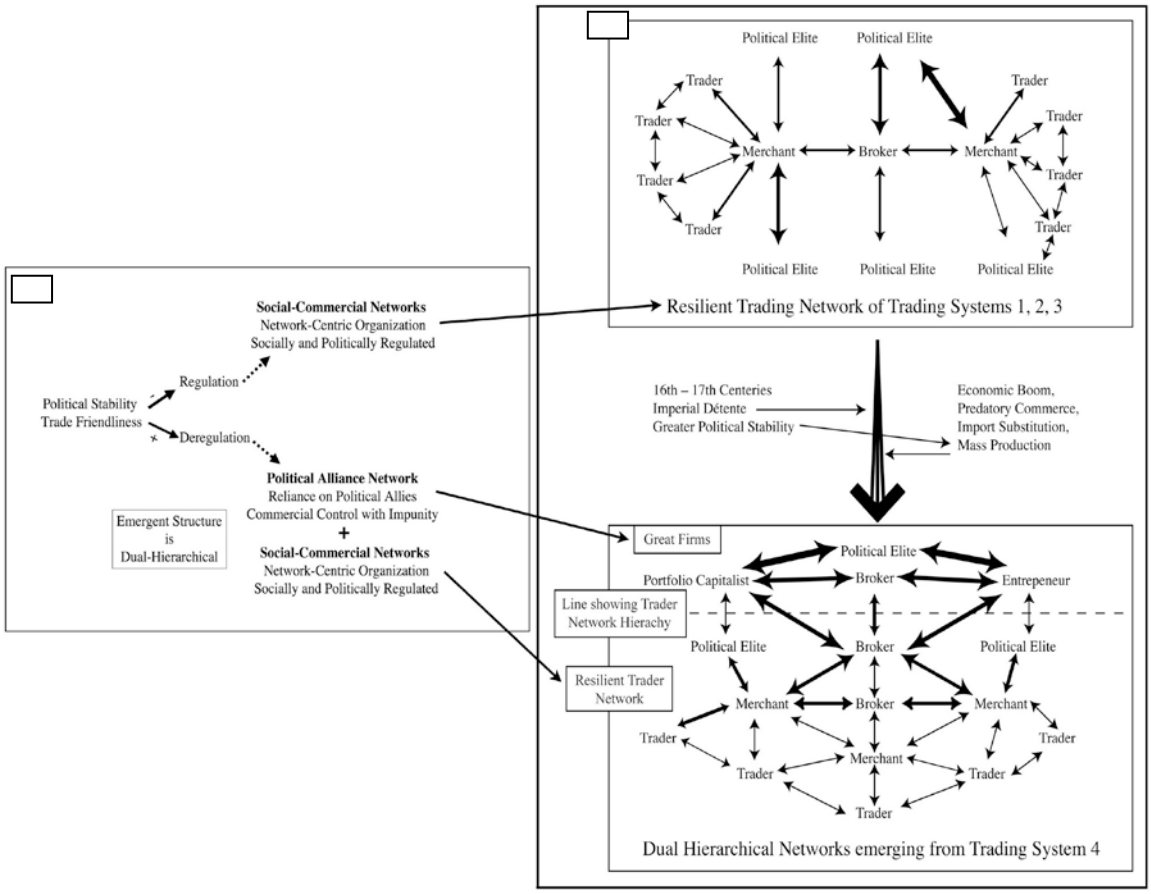


Figure 7:

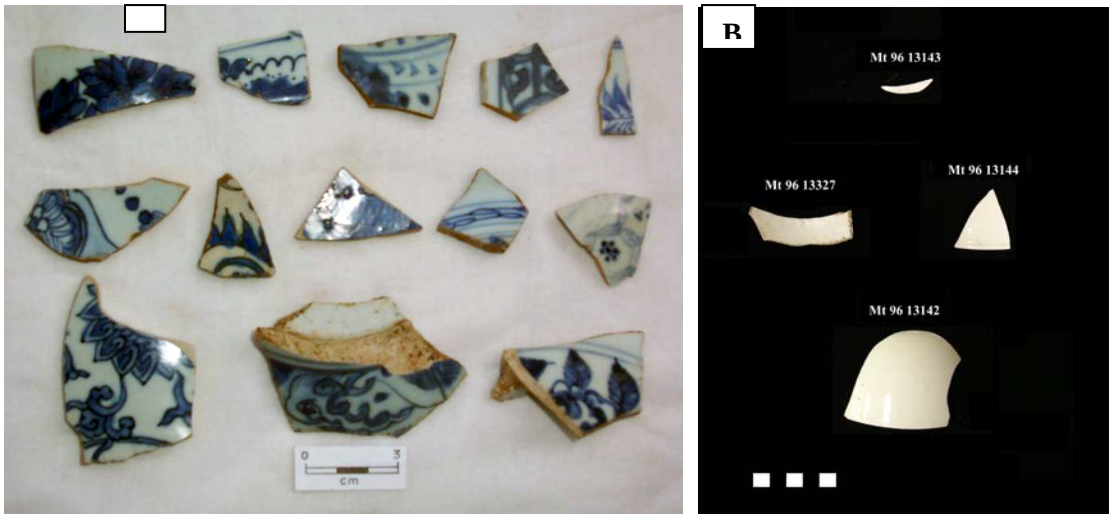
In these conditions, the hitherto self-restraining and limiting trader network was no longer beneficial or necessary for "great firms," who could rely on their political patronage for protection, continuity and expansion (Leonard 1998). Members of trading families enhanced and bolstered their social and political status gaining appointments to become economic counselors, state treasurers, ministers, and fiscal policy makers. The status and clout of trading groups, in particular, the "great firms" were further enhanced by European aggression and the effects of the Little Ice Age (Oka et al 2009:201).

The Portuguese, the English and the Dutch entry in the 16th and 17th centuries militarized maritime trade and altered traditional alliances and commercial relationships (Kusimba 1999a; Mbuia-Joao 1990). Indian Ocean commerce underwent drastic transformation, resulting in decline of elite control of commerce. The challenge and weakening of the maritime détente imposed by the Islamic peace and stability fragmented the regional polities while creating opportunities for local traders and politically empowered "great firms." (Chaudhuri 1990). As the political elite lost power, land and sea commerce became heavily dependent upon traders who acted as intermediaries during conflicts between naval and land-based groups and in return secured commercial quid pro quos from both sides ((Chaudhuri 1996).

From the late 15th century, the effects of the Little Ice Age are seen in the strong to moderate El Niño/Southern Oscillation (ENSO) events, low Nile floods, and deficient Southwest Monsoon precipitation in South Asia/East Africa (Anderson et al 1992; Cole et al 1992; Dhavalika 1996; Quinn 1992). Afrasia underwent periodic droughts and

drought-related famines approximately once every four years. In response to these hardships, Afrasian rulers sought famine relief through redistribution (Alin and Cohen 1992; Allen 1993; Cohen et al 1997; Habib 1999; McAlpin 1983; Nicholson 1979). Top-down disaster relief is often problematic due to corruption, hoarding, smuggling, and inefficient transport and redistributive infrastructures (Kean 1994). Merchants are far more efficient in directing resources from surplus areas to the deficit zones (Oka 2008, Oka et al 2009). But their services are usually more expensive. One outcome beyond just price gouging is the hoarding of relief goods for speculation. Political regulation is difficult and state organs are co-opted through bribery and corruption (Dunstan 2006). Thus the Little Ice Age famines that ravaged East Africa provided opportunities for quick profits that were reinvested into the already booming commercial production and distribution sector. The affected communities migrated to cities feeding the need for cheap and unskilled labor (Habib 1999).

In a paper published in 2009, we proposed that commercial deregulation, European-induced maritime commerce, and the profits from famine ventures were catalysts for socio-political ascendancy of trade specialists, who increasingly grew impervious to political control in the 17th century C.E (Oka et al 2009). We showed that the increase in import substitution, imitative production, outsourcing, market monopolies, and capture through dumping of cheap commodities characterized post seventeenth century commerce in the Indian Ocean. The archaeological evidence was indicated by a) an increase in trade in raw materials, b) market monopolization through production c) the rise in imitative production of commodities, d) a boom in trade, e) growing inequalities in distribution of prestige goods, and f) the collapse of small-scale production. The primary materials we used to test our model were prestige ceramic wares given by traders to elites to ensure smooth commercial relationships. These included blue-and-white and white porcelains, celadons, and soft-fired glazed ceramics, recovered from archaeological contexts at the ports of Chaul and Mtwapa (Figure 8.



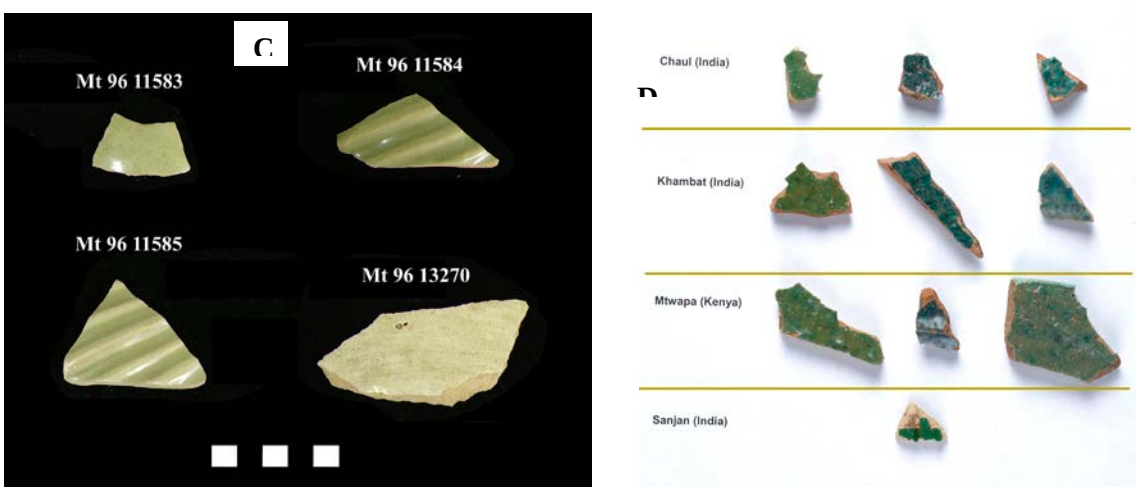
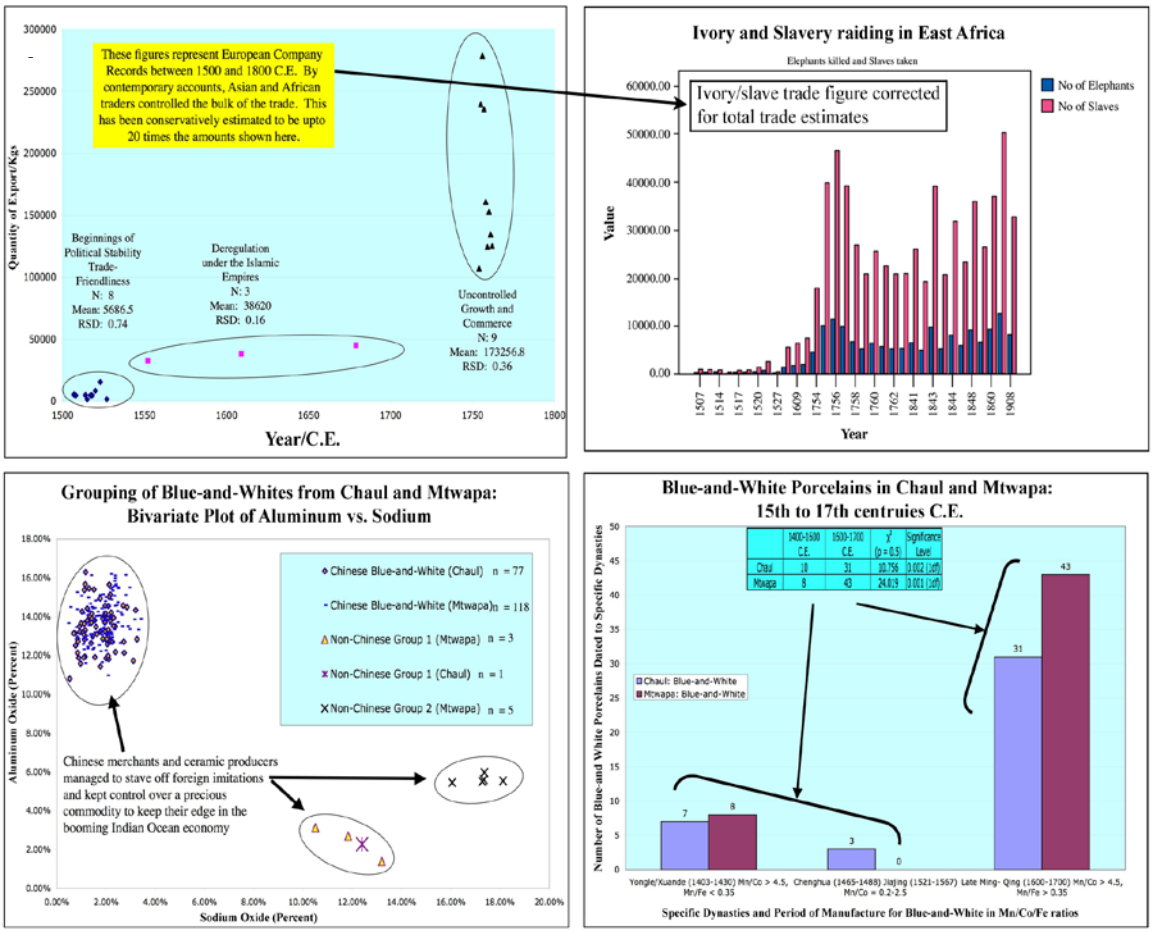


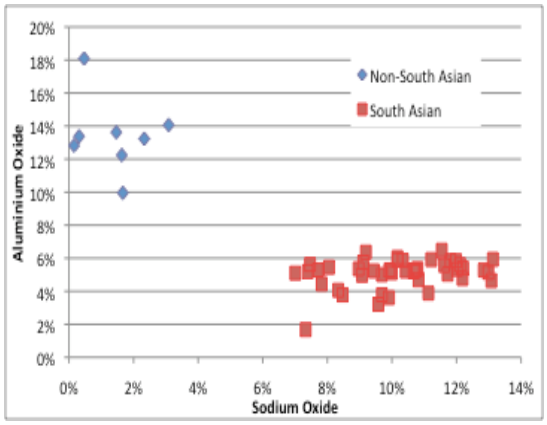
Figure 8

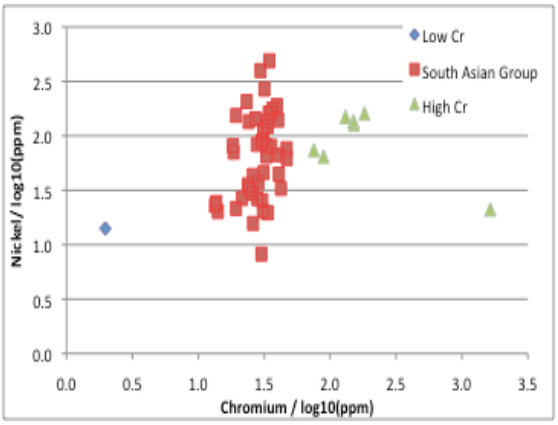
Between C.E. 1500-1800, there was a significant increase in Asian investment in peripheral extractive economies, mainly in the ivory and slave-raiding economies in East Africa. First, Ivory was mainly exported to Asian markets whiles slaves were deployed to Asian-merchant backed plantation economies in coastal East Africa and the islands (Cooper 1973; Alpers 1975 Groucher 2006; Marshall 2012). Second, South Asian entrepreneurs invested in the popular monochrome glazed Islamic and Blue and White Chinese wares which they produced Khambat, West India and exported in large volumes to East Africa. Third, the Chinese counter these imitation attempts by Southeast and Southwest Asian producers of blue-and-white porcelains to continue their domination of the porcelain trade into the Western Indian Ocean.

The evidence from Mtwapa showed a significant increase in the number of prestige goods and luxury commodities after 1600 C.E. in the form of blue-and-white porcelains. The same time shows elite divestment in local crafts production including weaving and iron production. Wealth disparities become more apparent as fewer households could afford prestige goods. We illustrate this in Figure 9 and 10, below.

Figure 9: Archival and Archaeometric analysis



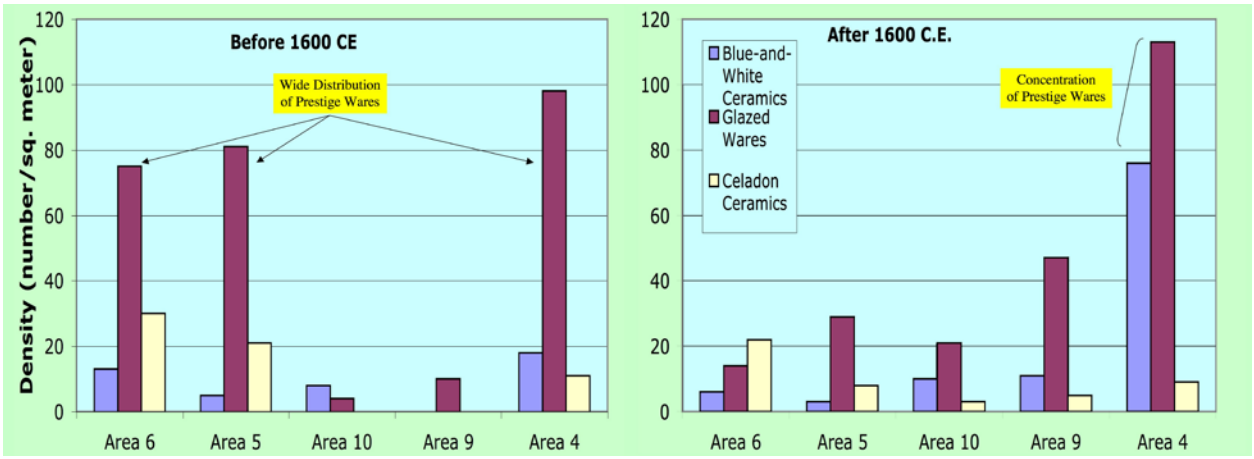




So it appears that socioeconomic transformations in South and Southwest Asia between 1600 and 1700 had major negative consequences for East Africa. First, Asians steadily increase investment in raw materials and extractive economies, primarily in the ivory and slavery exports in East Africa (Figure 10). Increased demand fro ivory led to significant decline in elephant populations. As a key stone species the declining of elephants had the direct consequence of reducing the savanna grassland, which are habitants for livestock and sustained large herds of other fauna. The bushveld that replaced this elephant maintained ecosystems were recolonized by the tsetse fly, *Glossina* sp., which spread trypanosomiasis in livestock and sleeping sickness in humans. Consequently, this once thriving habitants become inhospitable to both and suffered from low productivity and abandoned (Kusimba 2009). When we take into account the losses incurred in terms of labor and innovation during the nearly 200 years of slavery and the slave trade, the impact on culture is staggering (Kusimba 2004, 2006, 2012; Nwulia 1975).

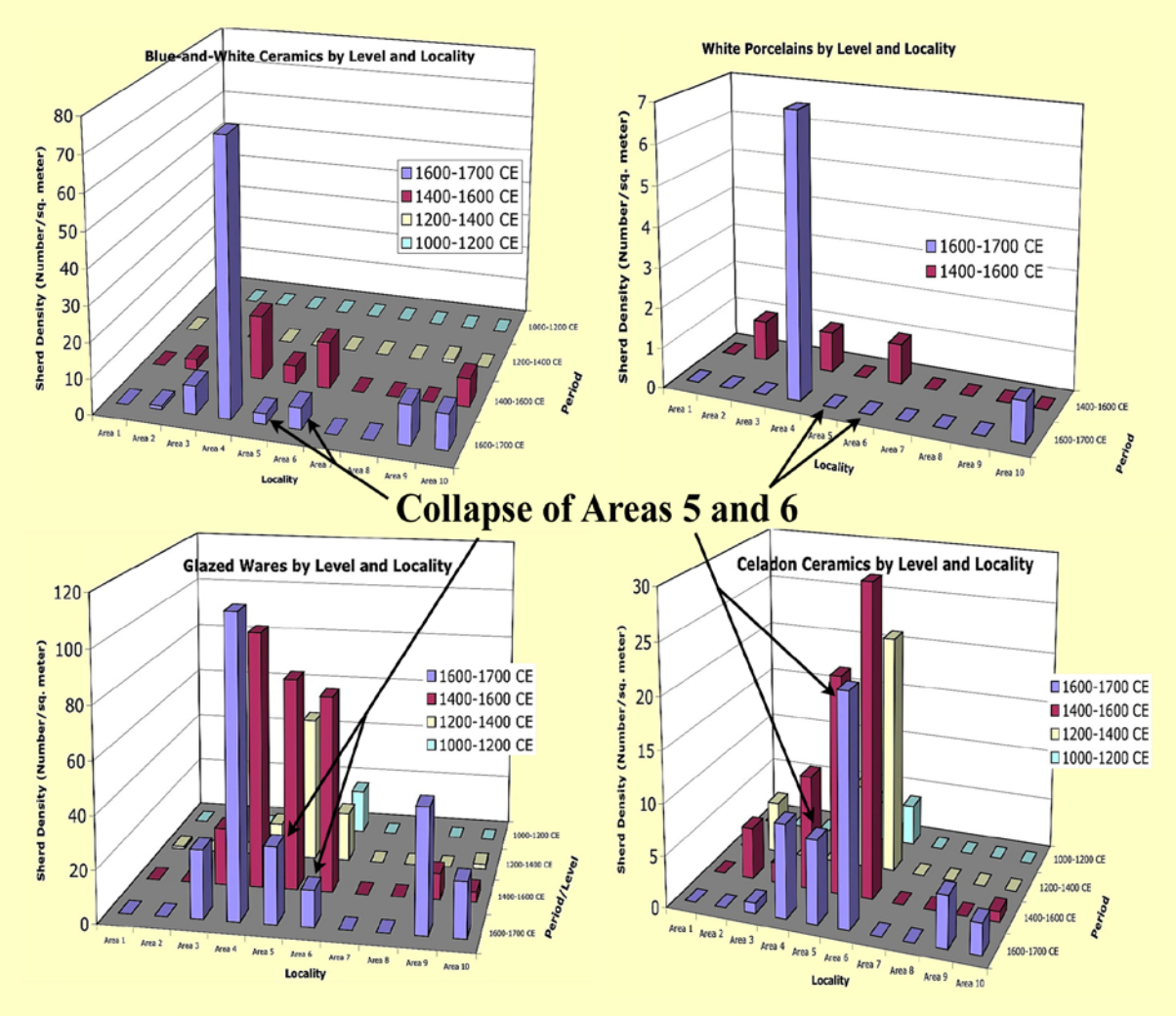
But viewed from the perspective of the mercantile and political elites, the period was one of a huge economic boom (Figures x (C-E). Despite stiff competition from Southeast and Southwest Asian imitative producers, Chinese production continued to dominate the porcelain markets as witnessed in the tremendous growth in the quantity of blue-and-white porcelains after 1600 C.E. South Asian entrepreneurs exploited cheap vast amounts of skilled/unskilled labor to successfully imitate and corner the East African markets in export of monochrome glazed wares. However, due to the increasing inequalities in East Africa, only wealthy families could afford these prestige wares. These results are illustrated in Figure 11.

Figure 11: Ceramic Analysis at Mtwapa Port



The distribution of the prestige ceramics at Mtwapa show radical changes in elite behaviors as well as a transition in elite infrastructure before and after 1600 C.E. (Figure 6(A). Prior to 1600 C.E., prestige ware were distribution in the elite quarters 5, 6, 9 and 10 as well as areas 4 (the Friday Mosque Complex-FMC). The FMC is the central focal locale point for sacred, political, social, and economic interaction and decision-making.

It was an arena for communal feasting and other philanthropic activities, intended to display status as well as wealth. After 1600 C.E., most of the coveted blue-and-whites are concentrated in Area 4 whereas Areas 5 and 6 importance declines, while Areas 9 and 10 gained in access to prestige goods. This is further clarified by the results in Figures 12 below wherein we can clearly see how the two crafts-production areas, Areas 5 and 6 declined after 1600 C.E.



We are convinced that the decline of Areas 5 and 6 is directly related to disinvestment in local crafts-production, given that Area 5 was a center for cloth manufacture and Area 6 was an iron production locality. The growth in Areas 9 and 10, specifically with respect to access to blue-and-whites is correlated with a lack of any production complex associated with these areas, suggesting the growth of a commercial elite. However, the most interesting result is that of the growth of prestige wares in Area 4. The FMC provides direct evidence of a change in feasting behaviors, away from the communal feasting observed prior to 1600 C.E. towards competitive feasting between elites. Philanthropy through public feasting was both for displaying status within the city while simultaneously proving piety and reputation in the Islamic world. Such such

competitive feasts emerged as the primary mechanism in which the elites of Mtwapa sought to build and cement allies with their Asian partners. In return for the largesse flowing into their coffers, the elites divested in local production economies and allowed the growth of ivory-slavery-based extractive economies.

Conclusions

The rapid urbanization that followed the consolidation of the three Islamic empires and the growth of elite populations created a great demand for luxury commodities and staple commodities from the core areas in Asia and Europe. The main demand for African ivory was from South and East Asia. The main use for ivory was to offset the silver flow from Europe and South Asia into China. East African ivory procurement paralleled the growth of slaves to feed the emerging plantation economy on coastal East Africa. In diversifying their portfolios, businessmen invested in plantation economies as well as the slave-raiding ventures and the ivory trade, illustrate in Figure 5A-B. By the late 18th century, coastal slave-raiders and ivory traders had reached the Great Lakes region in Central Africa (Alpers 1969, 1975).

Cloth was the main commodity desired in East Africa. In order to corner both the ivory and slave supply routes, traders dumped cheap South Asian cloth in East African markets and out-competed local cloth producers. Through gifts and alliances, they encouraged local elites divest from production of commodities that could be supplied cheaply from the vast production cores of Asia. As this maritime trade became essential for the Asian polities and the commercial lobbies, exports of prestige goods such as porcelains and glazed ceramics was intensified as illustrated in Figures 9, 10, 11, and 12. In the competition for East African products, Chinese merchants were able to use their access to vast labor resources to maintain their monopoly over the highly desired blue-and-white porcelains despite Middle Eastern and South East Asian imitations (Figure 5A). On the other hand, using the same advantages of cheap labor as the Chinese, Indian merchants successfully imitated monochrome glazed wares originally made in Southwest Asia and North Africa.

The vast supplies of prestige goods gifted to port elites to ensure their participation in the new commercial infrastructure were concentrated in fewer hands. At Mtwapa, most post-1600 C.E. ceramics ended up in the Friday Mosque complex, the primary locality where local and foreign elites gathered and engaged in philanthropic activities such as alms giving to the poor and public feasting. As elites competed amongst each other for greater participation in the economy and increased access to the foreign traders, they neglected the investments that were the original sources of wealth—iron working and cloth production.

The increased competitive public feasting and the loss in revenues from declining local production had an attritional effect on the economy of Mtwapa in particular and regional economy in general. Such attrition eroded the competitive ability of Mtwapa as a commercial port with the result that the traders and "great firms" shifted to larger ports, such as Mombasa, that could handle larger volumes and provide additional service infrastructure (e.g., warehousing, wholesaling, and large-scale banking and credit facilities). The ruined ports and cities that dot the Indian Ocean, Persian Gulf, and Red Sea coasts bear witness to the consequences of post sixteenth century predatory commerce.

So it appears that the evolution of Swahili states arose and thrived during periods of social and political instability and low levels of political patronage. Continual censure and frequent scapegoating enforce traders' self-restraint, limit growth, and sustain global trade networks in all their dimensions and scales. With the growth of empire in the 16th century, traders seized a role in the political process and worked for their own interests promoting mass production with an emphasis on high turnovers. As political patronage blurred the roles between the political and economic elite and eroded the mechanisms for restraint and regulation. Traders ingratiated and reinvented themselves as part of the political elite and gained control and influence over state fiscal policies. Using their economic and political capital, the newly empowered portfolio capitalists aggressively undermine elite attempts to regulate commerce. Without regulation, the domination of the trading systems created very wealthy predatory economic elites who controlled the economic aspects of the state.

The drawback with trader patronage is that their loyalty was to their bottom lines and not to the state. Trade specialists often shifted their alliances and relocated towards better opportunities as they arose. The activities of the Portuguese and the Little Ice Age droughts/famines exacerbated the Imperial trade boom and boosted the role of trade specialists to one of dominance in both the hinterland and maritime economies, with the smaller trading centers brutally out-competed or bypassed in the drive towards centralization and mass-production and distribution.

In this paper, we have examined an ancient complex society from local, regional and trans-continental scales. For each scale the issue of quality and nature of archaeological materials found creates unique problems for interpretation; integration of these scales remains the major challenge in the study of complex ancient societies, which, like the Swahili, were authentically cosmopolitan at any scale.