Types and typologies of African urbanism

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This article responds to the rapid urbanisation of sub-Saharan Africa. It laments the loss and deterioration of its pre-colonial urban artefacts due to neglect and even war, and pleads for their conservation and the recognition of relevant characteristics as contemporary urban solutions. Part one outlines the conceptual framework and highlights four theoretical considerations pertaining to definitions, preconceptions, methodology and sources of information. Part two contextualises the origins and nature of African urbanism with a brief historical perspective. Part three analyses the morphology of urban space, while part four concludes by discussing some seemingly intrinsic urban characteristics and their compatibility with current urban theories.
Key **words:** Pre-colonial African urbanism, African settlement history, contemporary African cities

Tipes en tipologiee van Afrika-stedelikheid
Hierdie artikel reageer op die vinnige verstedeliking van sub-Sahara Afrika. Dit betreur die verlies en agteruitgang van sy stedelike artefakte as gevolg van verwaarlosing en selfs oorlog, en pleit vir hul bewaring en die erkenning van toepaslike eienskappe as hedendaagse stedelike oplossings. Deel een beskryf die konseptuele raamwerk en beklemtoon vier teoretiese oorwegings wat verband hou met definisies, vooropgesette idees, metodologie en inligtingsbronne. Deel twee kontekstualiseer die oorsprong en aard van Afrika-stedelikheid met 'n kort historiese oorsig. Deel drie ontleed die morfologie van stedelike ruimte, terwyl deel vier afsluit deur 'n aantal klaarblyklik intrinsieke stedelike eienskappe en hulle versoenbaarheid met hedendaagse stedelike teoriee te bespreek.
Sleutelwoorde: Voor-ko;oniale Afrika, stedelikheid,Afrika nedersettingsgeskiedeni's, Afrika-stede

The rate of urbanisation of sub-Saharan Africa far exceeds that of the Western world, even during industrialisation. Africa's urban population is growing faster than that of any other region in the world. In the 1950s a fifth of its population was living in urban areas, but in 2000 about 40 per cent was urbanised. It is still a rural continent, but within a few decades more than half its population is expected to be living in urban centres (Burton 2002: 22; Harsch 2001: 30). Africa's emerging urban fabrics are mostly characterised, not only by uncontrolled slums, but also by Western-style Modernist single-zone town planning that is now generally considered to be unsustainable. European and American countries applied the same Modernist dogma after the Second World War and the unfortunate results include pollution, stress, sprawl, and social and economic fragmentation. In the United States, United Kingdom and Europe the New Urbanism, Urban Village Movement and Leon Krier's Les Quartier philosophy are examples of theories conceived since the 1970s to address these urban problems. Considering globalisation and universally shared consumerism, could these not be implemented in sub-Saharan Africa? No! These theories are based on ecology, regionalism and history, and it follows that appropriate African urban solutions should be informed by context and African urban precedent.

But many seminal publications on towns and cities ignore or dismiss the existence of African urban phenomena south of the Sahara before European colonisation. For example, A.E.J. Morris' informative and lavishly illustrated *History of urban form before the industrial revolutions* of 1994 (413 pages) offers no African examples. This article hopes to make built environment professionals aware, not only of their existence, but also, and especially, of the conceptual relevance and rich diversity of some of these indigenous urban forms, in order to encourage conservation and the consideration of a wider range of generative concepts for contemporary urban solutions.

The first major theoretical issue concerns the definition of African urbanism and cities. There seems to be two schools. One focuses on function: Bronowski's dictum that "In the step from the village to the city, a new community organization is built, based on the division of

labour and on chains of command" (1973: 60), was an early post-positivist position, followed by others who also stressed social and economic diversification, but who specifically refrained from specifying population thresholds or size (Reader 2004: 16).

The other school focuses on form: Robert Patton writes that the permanence provided by the first villages resulted in two qualities that became the prerequisite of good urbanism - it provided a sense of community and allowed its inhabitants to experience a sense of place, made manifest by "the composite built form of an urbanized area". He maintains that "the concepts of permanence and compactness (or density) are common to all cities throughout history, including those of today" (2004: 247-248). Two authoritative authors writing in the African vernacular context share this view. Peter Garlake believes that if buildings are sufficiently compact and close together, a settlement can be ranked as urban (1977: 92), and Graham Connah states that if the population is sufficient, a settlement can be called a town or even a city (2001: 136). Since this study explores form rather than function, it adopted this simplistic, inclusive approach: If it is compact, relatively big and with a substantial permanent population, it is urban and it is a city.

Based on those assumptions, the study focuses on Timbuktu and Zaria in the West African Sahel, Oyo and Kumasi in the West African forest zone, and Lamu on the East African coast (Figure 1). The cities of Kanem-Bornu in the Chad Basin and those of the Bantu-speaking kingdoms of Buganda in present-day Uganda, Mapungubwe, on the Limpopo River (present-day Mpumalanga) and Great Zimbabwe in the Zambezi Valley, as well as the Tswana capital of Latakoo, were significant urban entities, but whereas the five case studies are functioning urban centres (Timbuktu and Lamu are also World Heritage Sites), the latter are now uninhabited archaeological sites (Anderson & Rathbone 2000: 3). Most African cities grew from migrations, displacements and conquests, and that would justify inclusion of the settler towns of the Cape Colony (1652—) and Omani towns such as Zanzibar (1780—), but the lack of an indigenous contribution excluded that option.

The second theoretical issue concerns the nature of analysis and the need to eliminate Eurocentric preconceptions of African place-making as esoteric - much of the published work is on the assumed anthropomorphic and cosmological aspects of African homesteads and we still do not have a consistent typology for African settlements. Anderson and Rathbone, both historians, suggest that "the vastness of Africa and its cultural pluralism defies a typology of human settlements, and over so long a span of history ... it would be futile to attempt any classification" (2000: 1-2). They mention market, mining and trading towns, and religious and administrative centres, which are in a constant state of flux due to the complex layering of histories. Enrico Guidoni, an anthropologist, rejects what he calls the "over-used and abused typological method of classification", which, he maintains, cannot reflect the "internal complexity" or history of a culture (1975:17). Architects and planners, however, work with form and precedent. And in this discipline the systematic analysis of African urbanism has been neglected. For example, although Susan Denyer, an extremely popular and authoritative source, devotes fourteen pages to settlement (1978:16-20, 31-39), she avoids any systematic classification. Julia Robinson identifies four ways to classify environments (Table 1), and although this study recognises the critical impact of climate, culture and economic activities on urban and building form, the focus is on the physical properties; form and layout ... those aspects that could contribute to broad-based contemporary conceptual solutions.

Table 1
Ways of classifying environments (Robinson 1994: 185)

CLASSIFICATION	RELATED TERMINOLOGIES
Physical properties	Epistemic mode, formal or configural type
How environments are made	Genetic code
How environments are used	Functional mode
How environments are understood	Symbolic/associational mode

Such an approach requires appreciation of the underlying principle that, although lifestyles and cultures differ, there is such a phenomenon as "universally shared humanity" because of what Van Peursen describes as the "cross-links between all cultures, whether past or present" (1974: 11). Today, people even in the remotest village people drink Coca-Cola, dream of owning Nike shoes or a Toyota, and discuss international football results ... they are part of a global communication and consumer market. In spite of the views of some social scientists to the contrary, contemporary cities are no longer expressions of culture - in the narrowest sense - but of economic realities, existential necessities and choice. Cultures may differ, but many fundamental values are the same: the need for a secure and comfortable existence - and future - in a secure and comfortable environment.

The third theoretical concern, therefore, is the identification of a broad system of classification to allow settlement forms to be compared with examples outside Africa. Paul Oliver, a noted architect and anthropologist, recognising that spatial, demographic and social aspects of settlement overlap between economics, geography, anthropology and planning theory, developed a morphological classification of the form of "typical settlement patterns", which he admits are "broad generalisations" (1987:44-46). He identifies nucleated settlements (the walled ksour of the Maghreb), linear (Asante houses along a main street) and molecular (walled Tallensi compounds, linked with pathways). Finally, he also identifies dispersed settlements, which are essentially the scattered homesteads of much of rural Africa.

Although the terminologies differ, Oliver's classification is compatible with Christian Norberg-Schulz's taxonomic system (Table 2). His cluster consists of structures grouped closely together without any kind of order. In a row the structures are placed along a free-flowing line. The structures of an enclosure are arranged in a closed configuration around a space. He states, significantly, that vernacular settlements tend to be "topographically organised", which implies a great sensitivity to the demands of the site. In planning situations, the topological patterns are transformed into geometrical organisations. The cluster now becomes a grid, the row an axis and the enclosure a circle (1985: 33-48).

Table 2
Comparison of settlement taxonomic terminology and examples

NORBERG-SCHULZ	OLIVER
Cluster	Nucleated
Bierbergen, Germany	Walled ksour of Maghreb
Row/axial	Linear
Schonwalde, Germany	Asante houses along main street
Enclosure/centralised	Molecular
Brugge, Germany	Walled Tallensi compounds

The fourth theoretical consideration is the availability of information. Scholarly sources are available for an in-depth investigation into African urbanism in its historic context, such as

the eight volumes that make up The UNESCO general history of Africa, first published in 1989. But since this study relies on a broad-brush overview of critical events and timelines, the historical perspective was fused from more general literature, especially Catherine Coquery-Vidrovitch's *The history of African cities south of the Sahara* (2005), a remarkable book that consolidates history and form. An analysis of form, however, relies on graphic material, and since it regrettably lacks adequate illustrations, it was necessary to consult specialised literature.

Plans were redrawn using a South African computer-aided draughting program called Caddie (Version 9), from graphics in a number of sources. Of Timbuktu from Enrico Guidoni's *Primitive architecture* (1975), of Old Oyo and Zaria from Douglas Fraser's *Village planning in the primitive world* (1968), of Kumasi from Richard Hull's *African cities and towns before the European conquests* (1976) and Andrew Rutter's *Ashanti vernacular architecture* (1971), and of Lamu from Francesco Siravo and Ann Pulver's *Planning Lamu* (1986). Drawings were also sourced from and descriptions cross-checked with Graham Connah's *African Civilizations: An archaeological perspective* (2001), Nnamdi Ellen's *African architecture: Evolution and transformation* (1997), Paul Oliver's *Dwellings: The house across the world* (1987) and Peter Garlake's *The kingdoms of Africa* (1978).

Many published drawings have been recycled from the work of 19th century explorers and are notoriously unreliable, often not properly dimensioned, scaled or orientated, lack crucial information and are illegible. In a typological study this is obviously not as problematic as in historical investigations, since drawings are typologically reduced in any case, with unnecessary detail omitted. It is very important, however, to strive for accuracy where things are to be measured, such as the areas of cities. In spite of care, measurements should be regarded with great circumspection - they are "ballpark" figures indicating trends, rather than absolutely exact, substantiated values. All quantitative findings were calculated from these computer-generated diagrams.

The analysis of form is done at the three urban scales, using the systematic approach of Christian Norberg-Schulz (1985: 26, 33-48). Settlement is first described in terms of spatial organisation, or topology (shape, size, edges, paths and nodes). At neighbourhood scale the typology is the synthesis of built form and organised space, involving the nature of streets, public space and building fabric. And finally, at dwelling level, the three-dimensional forms of the building blocks that make up the urban fabric are examined to determine the morphology, or "particular local character" of an environment.

Origins and nature of pre-colonial settlements in sub-Saharan Africa

Sub-Saharan Africa is huge - about 18,3 million square kilometres, compared to western Europe at 4,94 million (Reader 1999: 686). An extremely diverse range of cultures, climates, geography, technologies, commerce and communications and methods of producing food all contributed to the emergence, locality and nature of its villages and, subsequently, towns and cities. In addition, the incidence of disease and climate change, conflict, external impacts and the diffusion of peoples shaped and reshaped settlement. Since many areas existed independently, or with varying degrees of contact, Africa's histories are overlaid and overlapping (Figure 1).

In sub-Saharan Africa, the first villages apparently appeared in the West African bush country where the Bantu speakers practised agriculture, rather than pastoralism (Oliver 1999: 84). Sub-Saharan Africa had no Bronze Ages and its Iron Age emerged with the iron-working Nok culture (in present-day central Nigeria) about 700 BC. The use of iron tools for clear-

ing land accelerated agriculture and the establishment of large settlements. This caused two phenomena. First, population growth and settlement development in the area, and second, the associated need for farmers to continuously occupy new land (due to the practice of shifting agriculture), primed a migration from their cradle land.

While some Bantu-speaking societies migrated east and south, speakers of other related languages remained in West Africa and started to establish what would subsequently become sub-Saharan Africa's densest political and urban conglomerations. These developments were intrinsically linked to events north of the Sahara. By 25 BC all of North Africa was under Roman control and by AD 700 under Muslim occupation. The Muslim armies then moved north against Spain and south against the Berbers, the inhabitants of the region to the north of the Sahara, through which they gained access to the first known sub-Saharan state, the Soninke kingdom of [Old] Ghana (AD 700-1200). Here salt, transported by the Berbers on camels, was exchanged for gold. More Sahelo-Sudanese kingdoms with trade links across the Sahara would follow, including Mali (1200-1500) that absorbed Ghana, and Songhai (1350-1600), which gradually usurped the territory of Mali.

Here the Sahelo-Sudanese cities emerged, with the most prominent ones those on the northern fringe of the desert areas, including Audoghast, Qulata, Timbuktu, Gao and Agadez . The Sudanese towns supplied, among other things, gold for currency in the Mahgreb and Europe, as well as pepper and slaves, often originating in the forest zone. Goods and slaves were moved through the towns on the southern edge of edge of the Sahel, including Jenne on the Niger and the Hausa cities of Katsina, Kano and Zaria about 300 km west of Lake Chad, north of the Niger-Benue confluence and at the ends of the international trade routes. There towns emerged before the 11th century AD, but started to flourish in the early 15th century, coinciding with the introduction of camels into the area and the adoption of Islam by its rulers (Denyer 1978: 34). The Hausa states seem to have had specialist functions. Zaria, for example, was the chief slave supplier, Gobir had to defend Hausaland from attackers such as the Tuareg, and Kano and Katsina were the main trading centres. Islam gradually became established among all the people of the Sahel from west to east, in all the cities mentioned above.

The development of non-Islamic states in the Forest Zone far away from the trans-Saharan routes, after the 15th century, coincided with trade with Europeans and especially with the Muslim areas to the north. The most elaborate urbanism in pre-colonial Africa occurred in Yorubaland (Fraser 1968: 41), where the Yoruba towns all exhibit a remarkable similarity of plans and it seems likely that they were all conscious imitations of Ile-Ife or Oyo. Portuguese navigators were struck by the beauty and organisation of the cities in this region. Here the oldest city was Ife, dating back to the 10th century, and Benin City and Old Oyo, dating to the 12th century. The latter was abandoned in 1837 and New Oyo built 120 km to the south.

The first European contact with sub-Saharan Africa was when the Portuguese reached Sierra Leone in 1460, and forced the Songhai, then the dominant power of the middle Niger, to share control of its goldfields, and 20 years later established a fort at Elmina, Ghana, Europe's first foothold in "black Africa". By the early 1700s as many as 50 000 slaves were being shipped across the Atlantic every year, most of them from what came to be known as the "Slave Coast", now southern Nigeria. This was the most populous part of Africa and the Yoruba kingdom of Oyo now provided the slaves for sale. On the Gold Coast, the Akan states, in what is now Ghana, already existed by the late 15th century, with Asante their last major state in the 18th and 19th centuries, building Begho and Kumasi among others. While the Akan states were initially part of the gold trade, the slave trade became the major Asante economic base.

The East Coast of Africa has been visited by merchants from the Arabian Peninsula and the Persian Gulf- travelling with the seasonal monsoons - since the early centuries AD, trading in slaves, leopard skins, tortoiseshell and ivory. The Swahili culture emerged in the course of the 10th century and probably originated in the Lamu region. It was predominantly African, Islamic, mercantile and urban, and was concretised by its distinctive Afro-Arab stone houses and towns. Settlements included Pate, Malindi, Gedi, Mombasa, Pemba and Zanzibar. By the 13th century, Muslim Swahili city states thrived and Denyer notes that all literature comments on the grandeur of the Swahili buildings (Denyer 1978: 36). By 1498, Vasco da Gama reached the East African Coast and before 1600 the Portuguese controlled the Swahili states. Their supremacy was finally ended by the Omani Arabs in 1698 and in 1840 the sultan of Oman moved his court to Zanzibar (McEvedy 1995: 98).

In 1652 the Dutch established a supply station for their merchant ships at the Cape of Good Hope, followed in the 1800s by migration inland by white settlers from the Cape, now occupied by the British. The region was extremely vulnerable and by 1880 colonisation relegated the African to a secondary role in the continent's history. The "scramble for Africa" now commenced and for the next 70 odd years the Europeans dominated this part of the world. Their towns and cities were mostly conceived to exploit the region in support of European-based industrialism and include Lagos, Nairobi, Johannesburg, Harare and others (Ward 1976: 27).

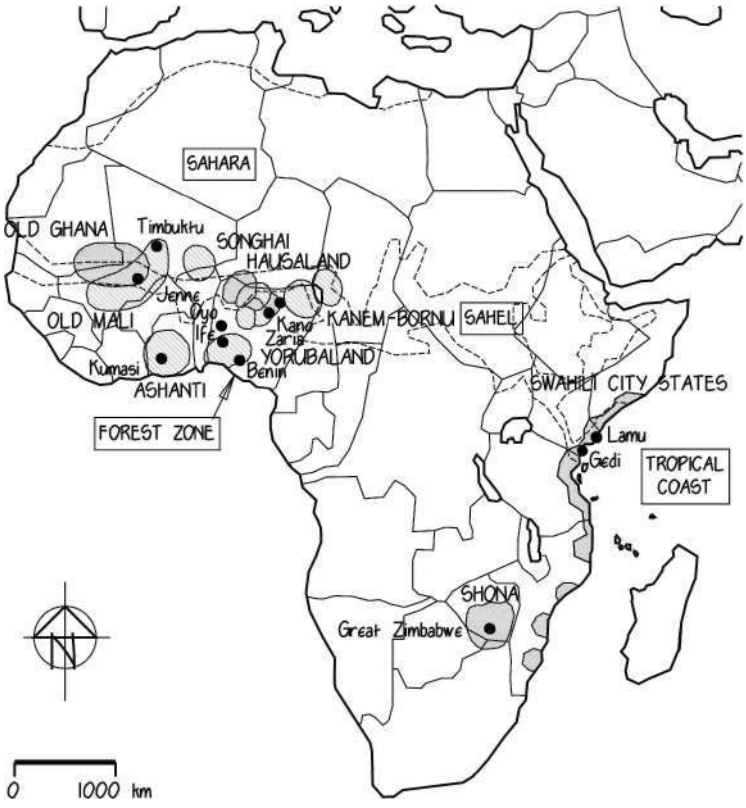


Figure 1:
Map showing locality of major states and urban centres

Settlement shape, size and organisation

All the cities under study are roughly circular to elliptical. Timbuktu and Lamu are clusters with labyrinthine alleys, what Norberg-Schulz would have described as structures grouped closely together without any kind of order (Norberg-Schulz 1985: 41). As we shall see, the apparent

lack of order is misleading. Zaria and Oyo have radial and concentric streets, very similar to a spider's web, while Kumasi is a modified grid (Figure 2).

Timbuktu, a city in the Niger Bend in present-day Mali, is well documented. It peaked in the 16th century under the Songhai Empire, with an Islamic university, and was the intellectual centre of the western Sudan. Timbuktu is not a walled city like Jenne to the south. It has no streets but lanes and alleys, although less defined than in the *ksour* across the desert, or even in Lamu, where the Middle Eastern Arab pattern is evident. A colonial fort, the market and some mosques, including the monumental Sankore mosque, are the major nodes. One part of town was reserved for the five thousand camels and their crews that constituted the salt caravan. The business class was primarily Arabs, originally from North African states like Morocco. They, the local Songhai and Tuareg slaves all lived in separate quarters and only mixed in the market (Denyer 1978: 32-33). Illustrations from that time show a large number of domed grass huts between the square mud houses.

Zaria, like all other early Hausa cities, is enclosed, and its walls were apparently up to 15 m high. Gates allowed access via broad avenues to the centre of town. It was made up of radial residential sectors centralised on the three main institutions; the Emir's palace, the mosque and the market. Hausaland was united by a common language and Islam, and the mosque was the most important building, being used for both religious and educational purposes. Hausaland, however, attracted many people from North and West Africa and the various groups usually had their own quarters. In addition, the town was also divided into occupational zones.

Like many Yoruba towns, Old Oyo was enclosed with walls, earthen banks and ditches, but the areas inside were not completely built over. Old Oyo was abandoned in the 1830s as a result of Fulani attacks and present-day Oyo built 120 km to the south. While the Oba's compound closely resembles that of Old Oyo (Connah 2001: 156), the new city was not walled. Like other Yoruba cities, Oyo's form is essentially radial with a number of principal roads, 10 metres or more wide, connecting it to adjacent market towns. They converge into three arteries that meet at about right angles in front of the Oba's palace ground, which is walled and contain vast open spaces for civic ceremonies, adjacent to the principal market and the main mosque. The minor roads divided the town into quarters, arranged around the palace "in a sort of satellite formation". In present-day Oyo, Fraser observes that there is some ribbon development along arteries, but the general pattern is towards clustering in quarters, making each area of the town fairly homogenous (Fraser 1968: 44; Denyer 1978: 36). Oyo, like all Yoruba cities, lacks specialist quarters with all craft work being carried out in houses, and no grouping of people practising the same craft.

The origins of the Asante city of Kumasi, in modern Ghana, remain controversial. Portuguese or Western influence on the modernity of the Asante city of Kumasi's urban structure is, however, questionable, since it functioned in relative autonomy due to its inland locality. But certainly as early as 1848 a visitor commented that "Kumasi is very different in its appearance from any other native town that I have seen in this part of Africa ... The streets are generally very broad and clean" (Rutter 1971: 154). It is a grid with very large urban spaces. The four main avenues were each between 15 and 30 metres wide and edged with the decorated two-storey houses of the local dignitaries. The palace compound is eccentrically located, while its residential areas were compartmentalised into 77 quarters according to crafts.

Before the Portuguese conquest, Swahili towns, including Lamu, were undefended apart from some low town walls, probably because the inhabitants relied on cooperation with the hinterland. They were essentially clusters and not tightly defined by these walls. Archaeological evidence shows that thatched huts also occupied space within the walls, but the towns were

clearly too small for agriculture. Of these, only Lamu retains its historic character and has been continuously inhabited for five hundred years, the longest in the region (Siravo & Pulver 1986: 29), although only isolated ruins of its walls are visible. Recent evidence is increasingly suggesting that the development of the Swahili culture owes more to African origins than to external sources (Connah 2001: 182).

Although Lamu is situated in a hot-humid zone, its labyrinthine topology is similar to that of an Arab-Islamic city in a hot-dry region, with many alleys often only 1,0 to 1,5 metres wide. It has no great mosque like the Sudanic cities, and its many mosques are nearly indistinguishable from the surrounding houses. In fact, as opposed to Middle Eastern settlements, Lamu, like all Swahili settlements, had no central market *(suq* or bazaar), public bath-house, caravanserai (a hostelry for visiting merchants), palace or fort before Omani occupation. Visiting merchants could have been guests in patrician homes and could have conducted their business from there.

The waterfront, the market square and fort, and the "main" street, one block away from the waterfront and parallel to it, were built after Omani occupation. This street is about 2,0 metres wide and lined with Indian-type shopfront buildings, the legacy of the Gujarati merchants who took advantage of the opportunities offered by Omani rule. In the older part the result of Islamic social patterns is made manifest in the vertical layering; at ground level men interact, with many areas excluding women, who can move freely at upper levels; even sometimes from house to house by means of galleries, called *vikio,* over alleys. Lamu, with its permanent stone houses surrounded by thatched mud huts, was the setting for a highly stratified society. It had 11 wards, called *mtaa* in Swahili, which is a social ordering system that allowed groups with different cultural and economic backgrounds to co-exist. But settlements also had *mkao* (plural: *mikao),* which were "demes" that separated newcomers from longer-established groups (Allen 1993: 224).

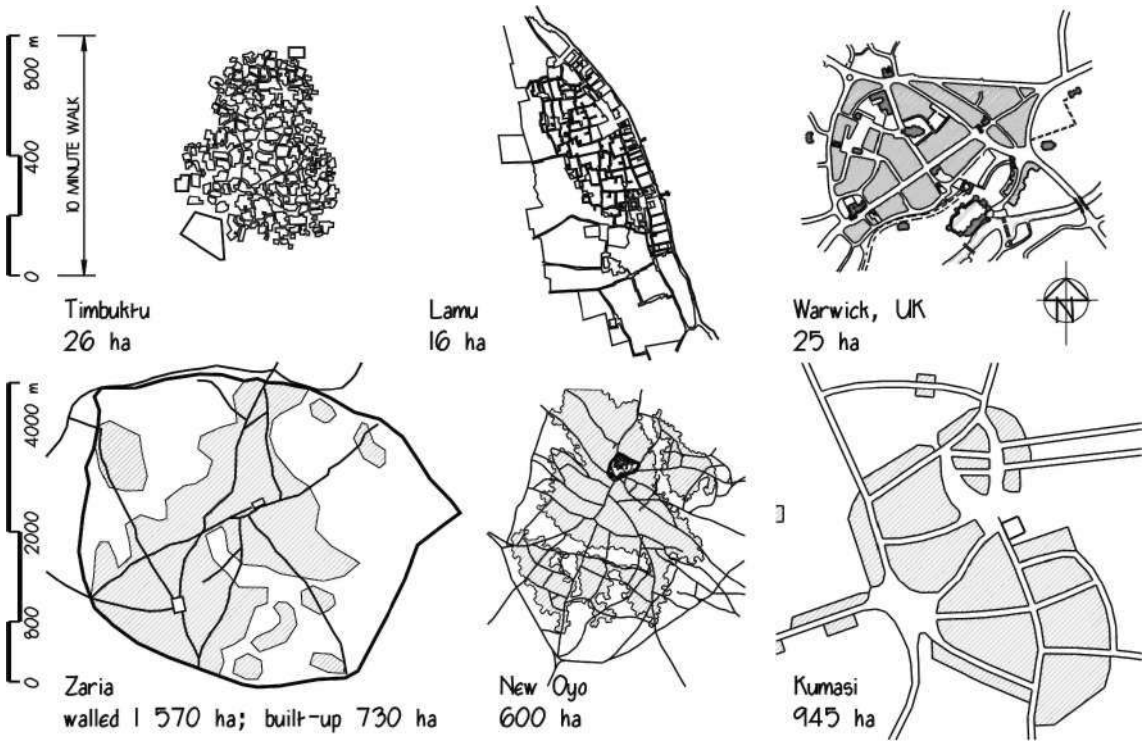


Figure 2:
Layout of urban centres under discussion.

Timbuktu and Lamu, the two with the most Arab-like forms, are, at 0,26 km^2 and 0,16 km^2 respectively, considerably smaller than the other examples, but roughly the same size as a typical medieval British town. In fact, Timbuktu, the larger of the two, is only five per cent of the size of Oyo! A comparison with other African forms based on Arab models reveals that all are compact and in the 9 to 27 ha range (Figure 3). It should, however, be noted that if the surrounding areas with thatched dwellings in Lamu are considered, its size is closer to 35 ha. Jenne, on the other hand, an isolated, enclosed walled area in the landscape, is only 9 ha large. But the Jenne-Jeno Complex as a whole occupies 205 ha in about 30 villages and hamlets, with the largest being 42 ha and the smallest just 1,1 ha, with the most extreme two about 6 km apart. Each village is specialised according to commercial activities and the whole must be considered a dispersed city. Interestingly, the 1891 German plan of Dar es Salaam occupies 204 ha, albeit in a compact, articulated gridiron configuration (Figure 4).

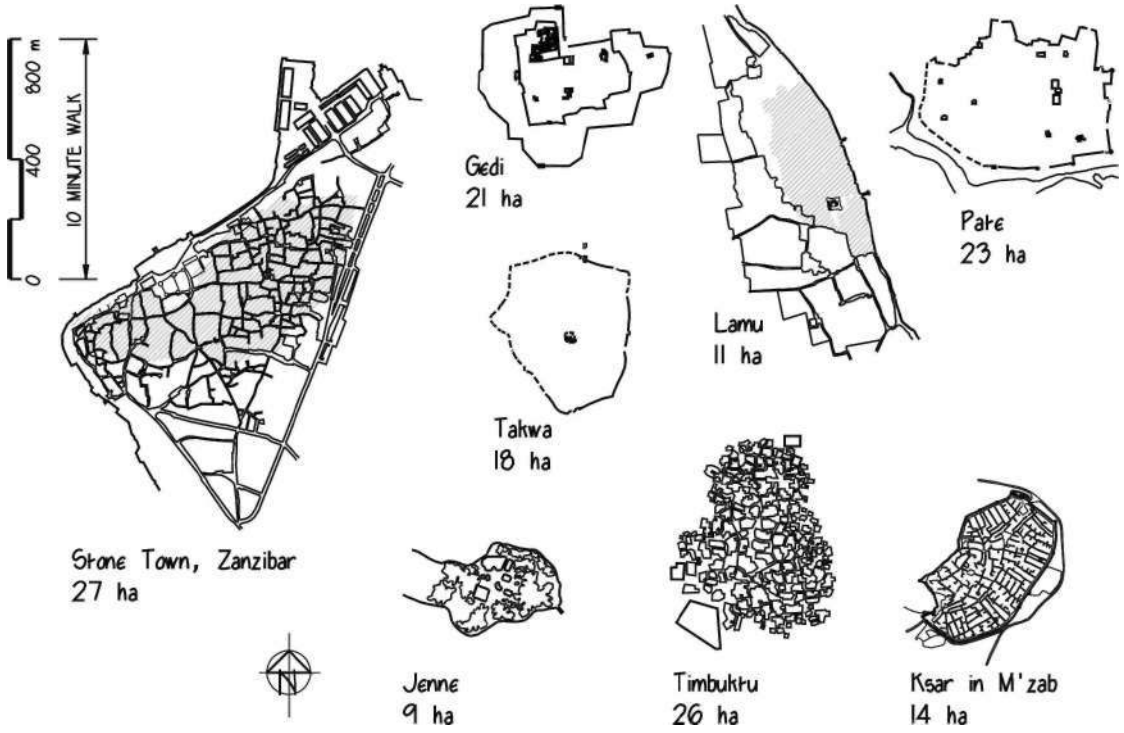


Figure 3:
A comparison between some Islamic African cities.

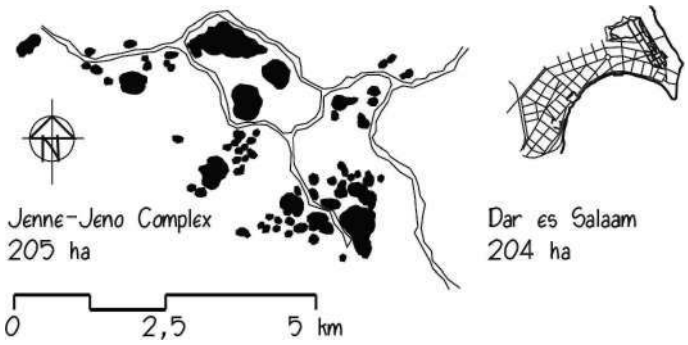


Figure 4:
The Jenne-Jeno complex compared to the 1891 plan of Dar es Salaam.

Zaria (15,7 km^2), New Oyo (6,0 km^2) and Kumasi (9,5 km^2) are in the same range as notable Hausa cities such as Kano (19 km^2), and Yoruba cities such as Ile-Ife (15 km^2) and Benin City (Figure 5). The latter is of special significance. It has a walled core of 7,2 km^2, but a footprint of 127 km^2 if the surrounding adjacent villages are included. These were all demarcated

with earthen banks and ditches, and since it seems reasonable to assume that only those adjacent to the core were relatively dense, Benin City must be considered a suburban city.

It was first occupied by the 13th century, but then grew with "substantial post-European contact" (Connah 2001: 160). The Benin City walls consisted of a massive earthen bank and ditch, from bottom of the ditch to top of surviving bank as much as 17,4 m and a circumference of 11,6 km - an enormous effort clearly showing a centralised authority. The network of enclosures surrounding Benin City points to a process of the union of several towns or villages under one capital city (Connah 2001: 162). Slave traders in the 17th century described a rectangular plan, crossed by "thirty large very straight roads ... and a plethora of small side roads", which all led to nine gateways (Figure 6). A great avenue, or esplanade, separated the city from the royal palace, which was an actual citadel with many apartments for the king, his family and the great dignitaries (Cissoko 1986: 16). Non-Muslim cities in Africa, most of which were subject to centralised political control, had such ceremonial esplanades, while Arab-Muslim cities had a more amorphous street system (Coquery-Vidrovitch 2005: 98).

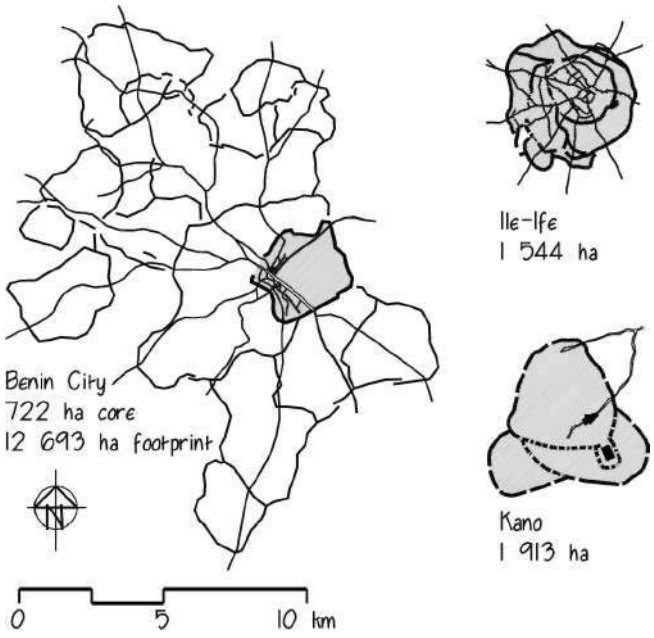
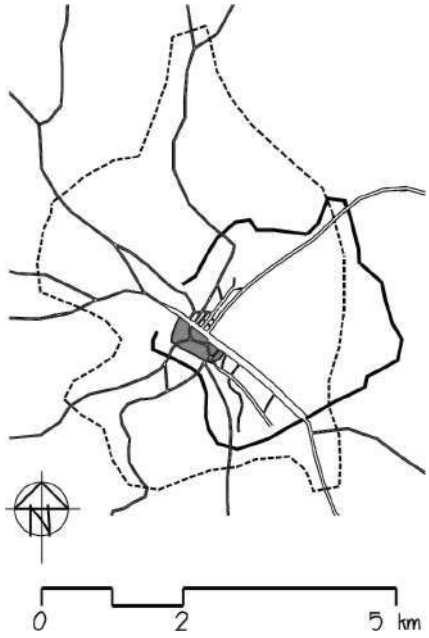


Figure 5:
Major Yoruba cities compared to the Hausa city of Kano.

Neighbourhood structure and fabric

Four hundred meters is the distance equated with a walking time of five minutes, and fragments of 400 x 400 metres were chosen to give an indication of scale to study street patterns and permeability; the more intersections, the higher the permeability. In Timbuktu, the fine grain of the fabric offers 115 intersections and in Lamu, 73 intersections (Figure 7). Such high levels of pedestrian movement through and between buildings require a more flexible attitude by building owners to providing public access onto or across their land, and although both consist of a number of wards, they are Muslim and arguably more tolerant towards other members of the resident Muslim community. Zaria, also Muslim, with its much larger compounds, has only 20 intersections, nearly the same as for Kumasi's gridiron blocks of typically 100 by 50 metres. Oyo is different. Nowhere on the town's map could more than five intersections be found in a 400 x 400 metre fragment. Here streets demarcate blocks of between 3,4 and 37,8 ha, with the average being in the 8-10 ha range. Streets define the boundaries of wards, which seem highly

territorial. Delineating the circulation routes also revealed that the street patterns of both Timbuktu and Lamu are distorted grids, rather than labyrinthine patterns.



Benin City with the historic core and its esplanade.
The boundaries of the present-day city are shown dotted.

Comparison of representative 100 x 100 metre urban fragments of each case study served to calculate percentage built-up areas, private outdoor spaces and right of way in order to quantify the nature of the fabric. In spite of their common Arab roots, Timbuktu displays a lower built-up proportion than Lamu, and a larger percentage of open space between buildings. While thatched buildings surrounded the stone-house cores of Swahili cities, 19th century illustrations clearly show a large number of grass domed huts dispersed among the permanent mud-brick buildings in Timbuktu. Quantitatively, land-use patterns in Oyo and Kumasi are nearly identical, and would today be classified as suburban. Those of Zaria, however, are distinctly rural, with the footprint of a typical compound as big as that of three or four individual houses in Timbuktu.

Population density is only hesitantly discussed here. Figures should be regarded with great circumspection because of the disparate data found in literature, and should be considered as relative trends. Timbuktu, by the end of the 19th century, had a population of about 6 000 people. The resulting density of 270 p/ha was considerably lower than that of a typical ksar in the M'zab, its closest North African neighbour across the Sahara, which is about 495 p/ha. This could be ascribed to the high proportion of open space earlier occupied by huts. Lamu's density, because of its denser fabric, is similar to that of the Arab cities of the Middle East; about 350 p/ha. Zaria's density is quite low at about 24 p/ha within its walls, but increases to also about 50 p/ha if only the built-up areas are considered. The population density of Kumasi is estimated at round 50 p/ha, the same as for Old Oyo, but at 100 p/ha for New Oyo, since most Yoruba towns densified dramatically in the 19th century, as many farmers fled to towns for safety and built houses for themselves between existing ones.

Dwelling types and style

The large number of urban architectural types in Africa can be attributed not only to urbanisation in general - and to North African influences in the Sudanic region and to the impact of trade

with the Arabian peninsula on the Swahili coast in particular (Figure 8) - but certainly also to climate and geography (desert fringe), the vegetation available for building (palm fronds in forest regions), or customs (anthropomorphic and cosmological, Islam).

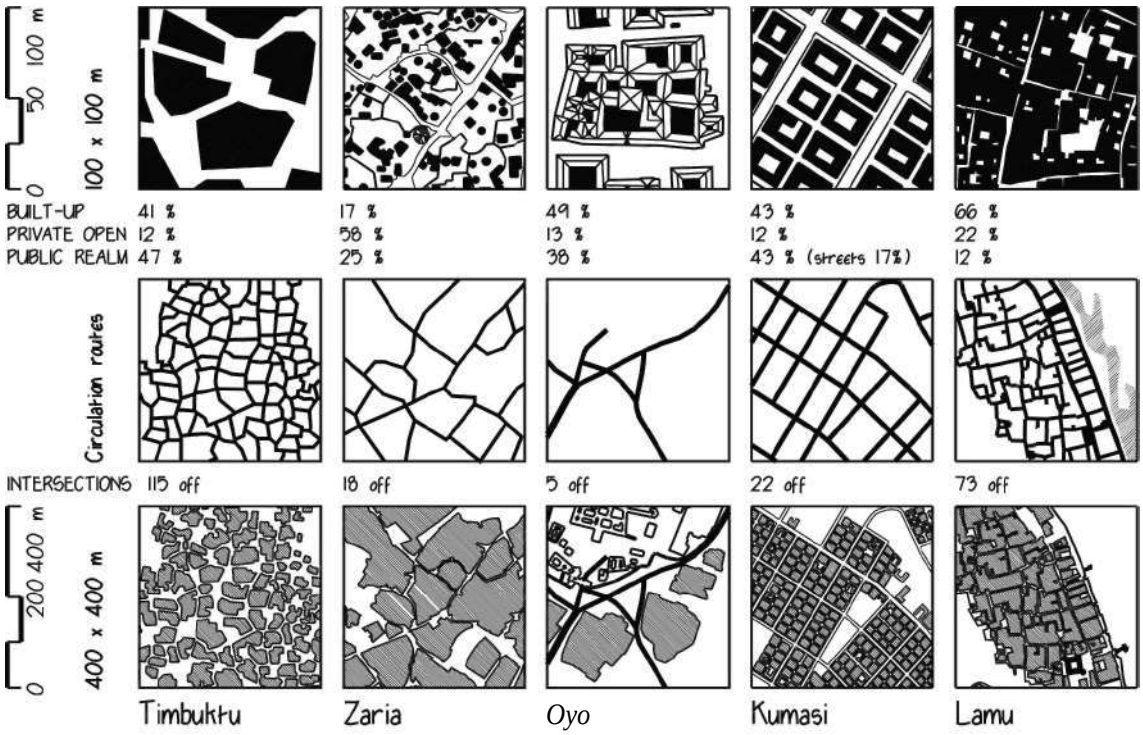


Figure 7:
Fragments of the urban centres under discussion

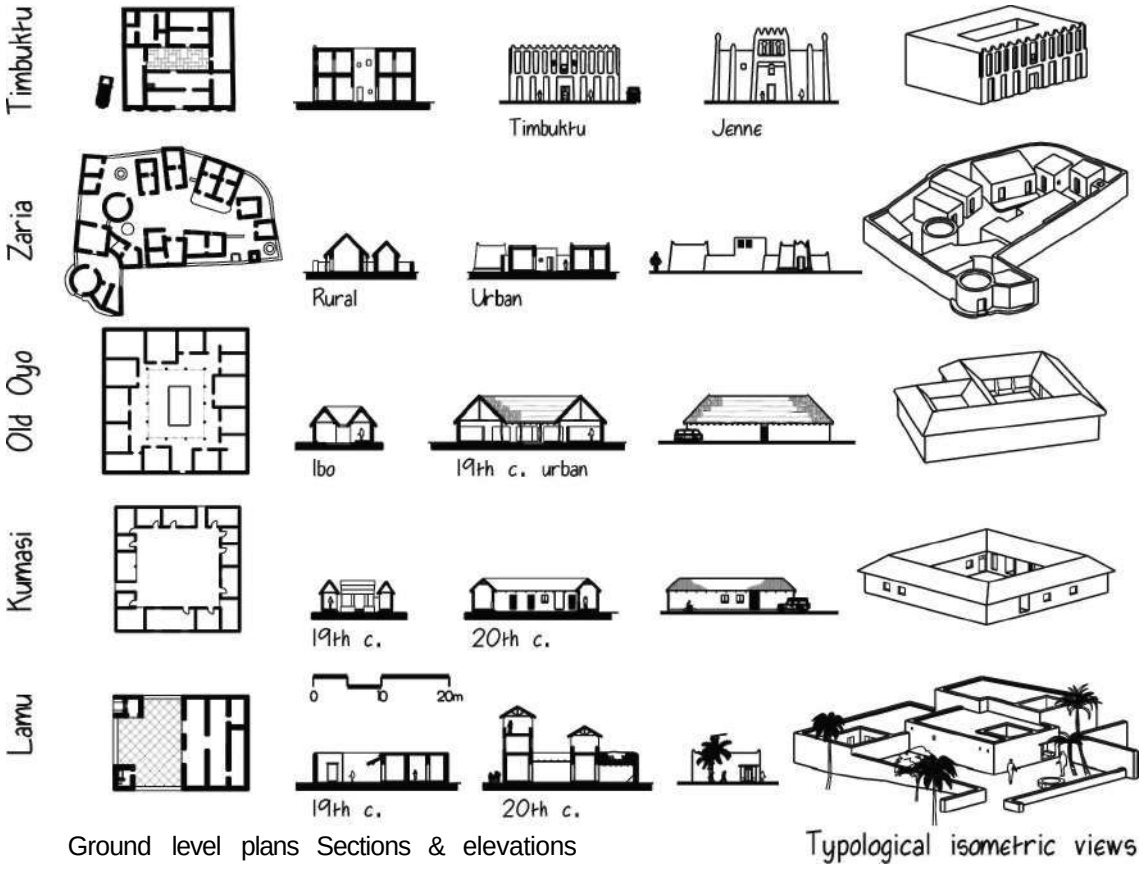


Figure 8:
Morphological comparison of building types.

In Timbuktu the Maghrebi traders built classic two-storey Arab courtyard houses with mud bricks, which gradually became aggregated and Africanised with truncated articulations, which remind of the Lobi and Dogon architecture further south.

The development of a compound in Zaria, as recorded by Schwerdtfeger (1971: 58-79), demonstrates that, in Hausa town architecture, rectangular forms with flat and domed roofs, and house and boundary walls in mud, emerged as the urban alternative to the thatched, predominantly round huts of the surrounding rural areas (Figure 9). While this gradual transformation coincided closely with the spread of Islam, this Sudanese style could also have emerged to reduce the risk of fire in the towns, and could have been an urban, rather than an Islamic, form (Denyer 1978: 35).

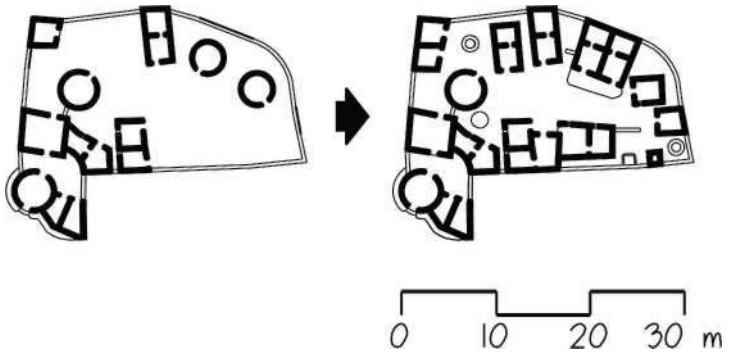


Figure 9
The evolution of a compound in Zaria.

Yoruba compounds were, like the towns as a whole, inward-focusing, and consisted of square courtyards enclosed by perimeter walls, rooms and loggias. Cooking, socialising and craft industries all took place in the courtyards. This form already existed before the British conquest, after which the thatched roofs were generally replaced with corrugated iron sheeting.

The Asante houses consist of four thatched-roof buildings usually facing one another across the courtyard, connected by screen walls, while those in Yoruba had a continuous thatched roof around the courtyard. When the courtyard is configured to collect rainwater, it is called the impluvial style, with rooms were arranged around a series of rectangular courtyards. The houses of the early Swahili, typical of Lamu, were linear courtyards, aggregated in patterns resembling those of Arab settlements (with whom they traded) and were true urban forms.

African urban characteristics and their relevance to current urban theories

From this study five pertinent urban characteristics can be identified. The first concerns the classification and study of African vis-a-vis Western urbanism. It is clear that African urban conditions can be evaluated using the same taxonomic and iconographic principles as those conventionally used to analyse Western urbanism. Thus, we find organic clusters, rows and enclosures, as well as geometrical derivatives - grids, axes and circles. Most are, like Western cities, hybrids containing more than one of these. They can also be described in terms of the classic criteria of edges, paths and nodes. This introduces the concept of the universal nature of place-making. As Mauritz Naude, historian, anthropologist and authority on the African vernacular, writes: "… homo sapiens will always organise itself spatially and only a fixed number of possibilities are available to create the basic logical framework for such an artefact (town or village) to sustain itself and survive over time" (2006). This clearly implies that morphological differences are the result of the layering of specific social, economic and environmental

settings, as well as of regionally-historic events. This is substantiated by the historian Sekene Mody Cissoko's premise that there are essentially only three types of African cities: the Muslim Sudanese city, the Yoruba-Benin city and the Swahili coastal settlements. The first and third types were cities linked to long-distance external trade and are examples of an invasive form of urbanism, totally independent of their rural surroundings. The Yoruba-Benin city type developed *in situ* as an adaptation of the territory and demonstrates considerable continuity with the rural countryside as regards appearance and functions (1986: 17).

The second characteristic is that pre-colonial African urbanism is, therefore, specific to site and circumstances. There is no such thing as a pan-African city. They are all uniquely shaped by geography, climate, commerce, culture and construction technologies. But because of rapid urbanisation, Africa's urban legacy is under threat and there is now a need to record and preserve it. As Paul Bahn writes (2000: 137):

> Only a few African countries, however, have the institutional facilities for active research programs, which many regard as a luxury on a continent plagued by poverty, famine and war ... There is, however, a pressing need to inform a wide, often illiterate public about their heritage if Africa's unique past is to be protected and preserved in the face of rapid population growth, environmental destruction and increasing urbanization.

The remaining characteristics offer lessons for improved contemporary African cities, with the third attribute being the provision of streets and squares for commerce. Timbuktu, Zaria, Oyo and Kumasi had identifiable marketplaces, while early Swahili towns did not; business was conducted from home. The Indian merchants who accompanied Omani occupation introduced the bazaar streets of Lamu, Zanzibar and Mombasa with their shops below - living above buildings.

The fourth is that African cities are compact and limited in size. Even a large city such as Oyo consists of quarters that are about the same size as the Arab-orientated towns. Their dimensions are compatible with contemporary neighbourhood planning principles, which are associated with higher densities and a measure of self-sufficiency within an identifiable neighbourhood from 300 metres to 800 metres across (Duany & Plater-Zyberk 1994: xvii; Alexander et al. 1977: 84).

The fifth is that African urbanism is an urbanism of villages. The rural village is the fundamental unit of the way Africans inhabit space and Cissoko found that many African peoples do not have words to distinguish a city from a village (1986: 3). Cities such as Zaria and Oyo are composed of clustered villages, albeit in a more compact and territorially more defined form. The Arab-inspired cities of Timbuktu and Lamu consist of interlocking aggregated wards, which function like villages in terms of their societal organisation.

While a morphological analysis is simply a way of ordering form, the contemporary city is so complex and dynamic that a neatly packaged taxonomy as applied to the historical case studies above is now simply impossible, and Robert Baron's approach is obviously now much more appropriate (1994: 253): "Urban morphology is every material substance, artificial or natural, that makes up the urban artefact". How can the relatively simple typologies constituting African urban precedent then be reconciled with, say, Shane's "benchmark concepts" for urban modelling that emphasise a fuzzy, unstable nature and include the city as a patchwork of heterogeneous fragments in a layered structure of "heterotopic nodes and networks" (2005: 8-10)? The key is the concept of "village".

Daniel Penrice suggests that "people need to be part of a community that they can understand". He adds "there is no small community that can be self-sufficient in this global system we have now. And the way to have the best of both worlds - the localism of the neighbourhood and the cosmopolitism of a global economy and a global culture - is to think about cities and

regions as networks of urban villages" (2000). This approach allows African urbanism to be perfectly aligned with current paradigms, conforming to the contemporary premise that neighbourhoods make a village and a collection of villages is a city (Duany & Plater-Zyberk 1991: 14). Today it is recognised that "good" cities consist of a number of such "urban villages". Western examples include Paris, London, Edinburgh and Boston.

The fundamental fact is that many parts of contemporary African cities, even "good" ones, will not feel like Africa at all. Highway systems, business districts, commercial nodes, apartment buildings, institutional campuses, gated and golf estates ... they tend to look alike all over the world. Douglas Kelbaugh's theory explains the phenomenon of the 21st century global city. Apart from what he calls conventional "market" urbanism (low-density suburbs), he identifies three "self-conscious" schools of urbanism: Post Urbanism, New Urbanism and Everyday Urbanism", noting that these three "cover most of the cutting edge of theoretical and professional activity in architecture and urbanism", and adding that "all three are inevitable and necessary developments in and of the contemporary human condition" (2002). While Post Urbanism is mostly characterised by disconnected, hypermodern buildings and shopping malls, New Urbanism strives for compactness, walkability and a measure of self-sufficiency, exactly the characteristics of all the case studies. Everyday Urbanism, on the other hand, has "little pretence about the possibility of building a perfectible or ideal environment", and would include shantytowns, which are unquestionably interpretations of the rural village in found materials. Kelbaugh suggests that such environments that people create for themselves "may make sense in developing countries where global cities are mushrooming with informal settlements that defy government control and planning". Again the lessons learned from African urban precedent can allow that to happen in an enabling spatial framework, while the urban village concept allow these urban forms to connect, penetrate and overlap.

Conclusions

Too often architects and planners are oblivious to the true nature and potential of African urbanism: clustered pavilions around open activity spaces; a responsiveness to climate and place; the simple, straightforward, honest use of materials and articulation of forms; a hierarchy of spaces, thresholds and circulation routes; subservience to, and respect for, the natural environment; a disregard for European Renaissance-like uniqueness; respect for neighbours, the fabric and custom; a quiet composition, and colours and textures that blend rather than compete. African urbanism should be aligned with current theories by focusing on economically and culturally appropriate spaces (streets and squares) and compact typologies, to which must be added reliable sources of energy, appropriate building materials and techniques, innovative climate control measures and recycling systems.

It is puzzling that First World schools of architecture and planning should instruct students to design "an inspiring, humane and sustainable living environment" for Africa's poor. Such well-intentioned curricula tend to entrench romantic, Rousseauian attitudes towards African urban issues and perpetuate an obsession with image and aesthetics. Pre-colonial African urban typologies conform in many respects to contemporary Western perceptions of sustainable cities, clearly suggesting that many of their urban solutions are embedded in the deep structure of their historic urbanism.

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