

The development of urbanism in the northern Horn of Africa in ancient and medieval times

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Introduction

The aim of this paper is to outline the development of urbanism in the northern Horn of Africa from prehistoric to medieval times (*c.* 4000 BC–AD 1500) based on the available archaeological and historical evidence. This development is investigated as a ‘historical process’ in order to make evident the specific factors that affected the rise and collapse of urbanism in the region (see Fattovich 1990a).

The area under examination corresponds to the Tigrean plateau and the adjacent plains and is delimited by the Tekkeze river to the south, the Red Sea to the northeast, the Eritreo-Sudanese lowlands to north and west, and the Danakil depression to the east. It includes part of modern Tigray (Ethiopia), Eritrea, and the Eritreo-Sudanese borderland (Fig. 1). The northern Horn of Africa is an environmental mosaic, with a complicate intermingling of different ecozones. The region is cut to the west by the draining basins of the Barka, Mareb/Gash and the Tekkeze rivers. Four main physiographic zones can be distinguished (Wolde Mariam 1970; Wolde Mariam 1972):

- 1 Coastal plains with a hot climate and winter rains. The coastal zone is covered with halophytic vegetation and semi-desert scrub cut by seasonal streams. Quite fertile soils occur in the hinterland of the Gulf of Zula (Eritrea) and in the Barka delta. The wild fauna included species of economic importance such as gazelles, ostrich and python. Salt, and to a lesser extent obsidian and gold are the main mineral resources (Marazzani Visconti Terzi 1907; Fleming 1920; EMA 1988).
- 2 The eastern slopes of the plateau, up to 2000 m in elevation, have semiarid climate and winter rains. This zone is covered with steppe scrub and thorn woodland, supplying good pastures. The wild fauna included elephants and antelopes. Gum trees are the main natural

resource (Marazzani Visconti Terzi 1907; EMA 1988).

- 3 The Tigrean plateau, 1500–2500 m in elevation has a temperate climate and summer rains. Forest occurred above 2000 m and below to this the plateau was originally savanna woodland. The wild fauna included small size elephants, antelope, lion and wart hog. The soils are quite fertile and suitable for the cultivation of teff, wheat and barley. The main mineral resources are copper and gold (CTI 1938; Jelenc 1966; EMA 1988).
- 4 The Western lowlands are about 500–1500 m in elevation, with a semi-arid climate and summer rains. This region is covered with thorn tree desert grass savanna and dum-palm riverine forest in the alluvial plains and also thorn woodland and savanna along the slopes of the plateau. The soils are very fertile and suitable for the cultivation of sorghum and millet. Good pastures are available in the lower Gash and Barka alluvial plains. The wild fauna included large savanna mammals, e.g. lion, leopard, wart hog. Gums, resins, gold, and, in the past, ivory comprise the main natural resources (Munzinger 1890; Baldrati 1911; Monelli 1936; Barbour 1961; Jelenc 1966).

Catastrophic events are quite frequent throughout the region and these include earthquakes, draughts, famines, epidemics, and invasions of desert locust swarms (EMA 1988, pp. 6, 19–20; Pankhurst 1988; Zein & Kloos 1988; Pankhurst 1990). The climatic changes on the northern Horn of Africa most likely followed the general trend of moist and dry fluctuations known from northern Africa. The available evidence suggests that modern climatic and rainfall conditions were established by the second millennium BC. A minor humid pulse occurred between 500 BC and AD 500 (Gasse, Rognon & Street 1980; Butzer 1981; Adamson 1982; Williams 1982; Williams 1988).

The region is presently inhabited by peoples speaking Semitic (Tigrean, Tigré, Arabic), Cushitic (Beja, Agaw, Saho), and Nilo-Saharan (Kunama, Nera) languages (Pollera 1935; Conti Rossini 1937; Ullendorff 1973). The populations practice three main subsistence systems (see also Brandt 1984):

- 1 The ‘plough and cereal complex’, practiced by the Semitic- and Cushitic-speaking peoples of the plateau. They cultivate wheat, barley, teff and finger millet on terraces with a very primitive plough and sometimes artificial irrigation. The settlement pattern is characterized by widely scattered hamlets (Simoons 1960; Wolde Mariam 1972; Turri & Sauro 1974).

- 2 The 'hoe and cereal complex', practiced by the Nilo-Saharan populations of the western lowlands. Sorghum is cultivated with a hoe or digging stick, and cattle and small livestock are raised. Settlements consist of small villages located near the hills (Pollera 1913; Calciati & Bracciani 1927).
- 3 The 'pastoral complex', practiced by the Semitic and Cushitic-speaking tribes on the northernmost plateau, western lowlands, and eastern slopes. They breed camels, cattle, goats and sheep with seasonal movements from the lowlands to the plateau. These groups usually move between two main villages located at the ends of the transhumance routes (Pollera 1935).

The northern Horn of Africa is very rich in ancient remains. They cover the whole time span from Middle Stone Age to medieval times, and yet the region is still largely unexplored from the archaeological point of view (Brandt & Fattovich 1990). In particular, the later prehistory of the plateau is almost completely unknown (see e.g. Anfray 1990).

Although the picture emerging from the available evidence is very fragmentary, we have enough factual data to outline the main stages of the cultural history in the region (see Fattovich 1977a; Fattovich 1988; Fattovich 1990b) and generate hypotheses about the development of urbanism to be tested by future field research.

In this chapter towns and cities are identified by the following features: a) size, reflecting a quite large and dense population; b) craft, commercial, administrative and cultural functions, pointing to a complex social organization; c) monumental buildings and/or intended plan, stressing the authority of a central power (see Childe 1950; Mumford 1961; Weber 1976). However, the occurrence of masonry buildings with an intended plan is not a necessary feature. In precolonial Africa all typical activities of a town or city were sometimes performed in large camps without stone or mud buildings (Hull 1976).

Cultural history

The cultural history of the northern Horn of Africa is characterized by the spread of food-producing communities along the western Eritreo-Sudanese lowlands and the plateau in the fourth to second millennia BC, and this is followed by the rise of chiefdoms in the lowlands and perhaps on the plateau in the third to second millennia BC, and the rise of states on the plateau from the first millennium BC. The introduction of Christianity and Islam during the first millennium AD were two other crucial events in the history of the region (Fig. 2; and see Conti Rossini 1928;

Anfray 1968; Tamrat 1972; Fattovich, Marks & Ali 1984; Fattovich 1987a; Fattovich 1988; Anfray 1990; Fattovich 1990b).

In the fourth millennium BC, semi-nomadic hunter-gatherers, possibly cultivating some cereals, occupied the middle Atbara valley in the western lowlands (the 'Butana Group', *c.* 3800–2700 BC). They started to breed cattle at the end of the millennium. This population practiced some long-distance trade as we can infer from the occurrence of porphyry artefacts at some sites. In fact, the nearest sources of this stone are located in the Red Sea hills, about 300 km to the northeast of the Atbara. Some luxury and prestige items from the larger sites suggest the emergence of a social hierarchy (Fig. 3; Fattovich, Marks & Ali 1984; Marks, Ali & Fattovich 1986; Marks & Sadr 1988; Sadr 1991).

By the mid-third millennium BC, the descendants of this population settled in the Gash delta in the western lowlands (the 'Gash Group', *c.* 2700–1500/1400 BC). They were a pastoral people, who spread through the lowland areas from the Gash river to the Red Sea hill and the coast. In the second millennium BC they practiced the cultivation of barley. The 'Gash Group' people were included in a complex network of contacts and exchanges stretching from Egypt and Nubia to the Upper Nile, the Horn of Africa and southern Arabia. The evidence of administrative devices (impressed clay seals, tokens and clay sealings) at the major site, Mahal Teglinos, Kassala, and the clearly distinguished hierarchy in settlement size and wealth point to the rise of a complex society in the lowlands at this time (Fig. 4; Fattovich, Marks & Ali 1984; Marks & Sadr 1988; Fattovich, Sadr & Vitagliano 1988–89; Fattovich 1990b; Fattovich 1991a; Fattovich 1991b; Sadr 1991).

In the mid-second to early first millennium BC, the Eritreo-Sudanese lowlands were occupied by an agro-pastoral people cultivating sorghum. They originated through the mixing of the 'Gash Group' population with a northern people, culturally related to the 'pan-Grave Culture' of the Eastern Desert (the 'Jebel Mokram Group', *c.* 1500/1400–800/900 BC). They were only marginally involved in a network of exchanges with the neighbouring countries. Even though the hierarchy of settlement size and wealth suggests a quite complex society, no administrative device has been recorded, so far (Fig. 5; Fattovich, Marks & Ali 1984; Marks & Sadr 1988; Fattovich, Sadr & Vitagliano 1988–89; Fattovich 1990b; Fattovich 1991b; Sadr 1991).

Shorthorn cattle herders were moving long the western slopes of the plateau in the second millennium BC. They are identified by naturalistic and semi-naturalistic rock pictures of cattle, associated with figures in 'Iberic' style, in the upper Mareb/Gash valley and on the coastal plains. Longhorn cattle herders with Afro-Arabian cultural traditions were moving at the same time on the eastern plateau in Eritrea, as far as the Sudanese border. They are identified by rock pictures in the so-called 'Ethio-Arabian style' (Graziosi 1964a; Graziosi 1964b; Cervicek 1971; Cervicek 1979; Joussaume 1981).

A sedentary people, apparently with Afro-Arabian cultural traditions, was settled on the plateau around Asmara (Eritrea) in the late second millennium BC (the 'Ona Group A' with red pottery, *c.* 1500–1000 BC). They were in contact with the Jebel Mokram people of the western lowlands and the coastal ones along the Red Sea. Some finds from 'Ona Group A' sites suggest that this population was directly in contact with Egypt through the Red Sea maritime route. The same evidence, recording some chiefs of Punt, might suggest that a complex society arose on the eastern plateau in the mid-second millennium BC (Fig. 5; Tringali 1979; Tringali 1981; Fattovich 1988; Fattovich 1993).

Peoples with similar pottery were living along the Eritrean and south Arabian coast of the Red Sea and the Gulf of Aden in the mid-second millennium BC (the 'Tihama Cultural Complex', *c.* 1500–1200 BC). Evidence for this has been recorded at Adulis near the Gulf of Zula in Eritrea, Sihi in the Saudi Tihama, Wadi Urq' in the Yemeni Tihama, and Subr near Aden. The pottery from these sites shows some similarities to that from the Kerma and 'C-Group' of the middle Nile valley. The lithic industry is similar to that of the 'Gash Group' at Kassala, pointing to a possible early influence from the African hinterland (Fig. 5; Paribeni 1907; Doe 1963, Doe 1971; Zarins, Al-Jawarad Murad & Al-Yish 1981; Zarins & Al-Badr 1986; Tosi 1986; Tosi 1987). Comparable pottery occurs in the lower strata at Matara on the eastern Tigrean plateau, suggesting that this region too was included in the area of cultural influence of the Tihama complex (see Anfray 1966; Fattovich 1980).

In the first millennium BC, cattle herders were moving on the Tigrean plateau in Eritrea and eastern Tigray. They are identified by rock pictures of cattle in Ethio-Arabian, semi-naturalistic, and very schematic styles. Some groups practiced milking and a rock picture of ploughing at Amba Focada rock shelter (eastern Tigray) might suggest that the 'plough and cereal complex' was already established on the plateau (Graziosi 1941; Conti Rossini 1948; Graziosi 1964a; Graziosi 1964b; Cervicek 1979). By the first millennium BC, also the Atbara and Gash alluvial plains in the western lowlands were occupied by cattle herders, practicing some cultivation of cereals (the 'Hagiz Group', *c.* 500 BC–AD 300/400) (Fattovich, Marks & Ali 1984; Marks & Sadr 1988; Fattovich, Sadr & Vitagliano 1988–89; Fattovich 1990b; Fattovich 1991b; Sadr 1991). The classical sources, however, suggest that in the Hellenistic times the hinterland regions towards the plateau were inhabited by peoples who hunted large savanna mammals, particularly elephants (Conti Rossini 1928; Fattovich 1987a; Fattovich 1990b).

During the first millennium BC, a state with Sabean characteristics appeared on the plateau in Tigray and Eritrea. It is archaeologically identified by the so-called pre-Aksumite culture (*c.* 1000/900 BC–100 BC/AD 100). This state is recorded in the inscriptions with the name of 'Kingdom of Da'amat'. It most likely relied on the 'plough and cereal complex'. The ruins of a stone dam, possibly going back to this period, at Safra in the Kohaito region (central Eritrea)

suggest that artificial irrigation also was practiced (Anfray 1967; Anfray 1968; Fattovich 1977a; Fattovich 1977b; Fattovich 1980; de Contenson 1981; Fattovich 1988; Anfray 1990; Fattovich 1990c). On linguistic, epigraphic and monumental evidence, the origins of this state have been usually ascribed to a south Arabian – more specifically Sabean – colonization of the plateau in the first half of the first millennium BC (see Conti Rossini 1928; von Wissmann 1975; Ricci 1984). At present, it seems that the kingdom originated from the contacts between an indigenous chiefdom and the southern Arabians, who deeply affected the local cultural pattern (Drewes 1962; Anfray 1968; Schneider 1976; Fattovich 1977b; Fattovich 1980; Fattovich 1990c).

So far, the pre-Aksumite culture has been divided into three main phases of development (Fattovich 1977b; Fattovich 1980; Fattovich 1990c):

- 1 The Early pre-Aksumite Phase (*c.* 1000–800/700 BC). In this phase, the pre-Aksumite cultural area was apparently divided into two regions: (a) central Eritrea and northern Tigray and (b) western Tigray. They probably reflected a cultural division of the plateau going back to late prehistoric times (see Fattovich 1988). It is possible that chiefdoms already existed (Schneider 1976), but no safe archaeological evidence of them is yet available. The people of western Tigray who were definitely in contact with the southern Arabians worked iron, as we can infer from slag found at Gobedra rock shelter near Aksum (see Phillipson 1977; Fattovich 1980; Fattovich 1990c). The late ‘Jebel Mokram Group’ people in the lowlands were in contact with those of western Tigray (Fig. 5).
- 2 The Middle pre-Aksumite Phase (*c.* 700/600–300 BC). The kingdom of Da’amat appeared in this phase. Its territory stretched from western Tigray to central Eritrea. Most likely, the capital was located at Yeha (western Tigray) and monumental and epigraphical evidence stresses a direct link with the kingdom of Saba in southern Arabia. Some rock inscriptions recorded in Eritrea point to contacts with other south Arabian peoples and there were also contacts with the Nubian kingdom of Kush, the Achaemenian Empire, and the Greek world. The nomads living in the Atbara and Gash alluvial plains were included in the area of Ethiopian influence (Fig. 6; Drewes 1962; de Contenson 1981; Anfray 1990; Fattovich 1990c).
- 3 The Late pre-Aksumite Phase (*c.* 300 BC–100 BC/AD 100). In this phase, the kingdom of Da’amat collapsed, but petty kingdoms probably survived on the plateau. The pre-Aksumite cultural area was again divided into two main regions as in the early phase, and the northern plateau (Rore region) was included in the eastern cultural area. The southern Arabian

influence practically disappeared and local traditions emerged again in this phase (Fig. 7; Conti Rossini 1928; Anfray 1968; Fattovich 1979; Anfray 1990; Fattovich 1990c).

In the early first millennium AD a new state, the kingdom of Aksum (*c.* 100/200–800/900 AD) arose on the Tigrean plateau. It included most of Tigray and Eritrea (Conti Rossini 1928; Kobishchanov 1979; Munro-Hay 1991). This kingdom was characterized by a new cultural pattern (the so-called Aksumite culture, *c.* 100–1000 AD) (Fig. 8; Anfray 1981; Anfray 1990). The origins of the Aksumite kingdom and culture are still obscure. Most likely, Aksum was a petty kingdom of the western Tigray, that imposed its dominion on the neighbouring ones in the third century AD. Military expeditions were also sent to southern Arabia at this time (Conti Rossini 1928; Mazzarino 1974; Robin 1989). The Aksumite culture emerged from local traditions, including partly the pre-Aksumite one. A typical feature of this culture was the large funerary stelae, up to 33 m high, probably deriving from the stelae marking the ‘Gash Group’ burial grounds, suggesting a cultural link with the late prehistorical chiefdoms of the lowlands (Fattovich 1987b; Fattovich 1988).

In the fourth to sixth centuries AD, Aksum was one of the most powerful kingdoms in the periphery of the Byzantine empire. Aksum, which had its own coinage, controlled the trade from the African hinterland to the Red Sea and Adulis was the main port of the kingdom. The introduction of Christianity as a state religion in the early fourth century AD was the most crucial event of the history of the kingdom. From the seventh/eighth centuries AD, the kingdom declined, mainly as a consequence of the Islamic expansion along the Red Sea. According to Ethiopian traditions, Aksum was destroyed by southern invaders in the early tenth century AD (Conti Rossini 1928; Hable-Selassie 1972; Kobishchanov 1979; Munro-Hay 1991). Three main phases can be distinguished in the development of the Aksumite culture (Anfray 1967; Anfray 1968; Fattovich 1977a; Fattovich 1988; see also Munro-Hay 1989; Munro-Hay 1991):

- 1 The Early Aksumite Phase (*c.* AD 100–400). This phase corresponds to the formation and initial expansion of the kingdom, up to the introduction of Christianity. At this time, the eastern plateau (central Eritrea and eastern Tigray) and the western plateau (western Tigray) were distinct regions of the Aksumite cultural area. The western region was characterized by the use of carved stelae to mark royal and elite cemeteries. The kingdom was already included in a network of contacts with the Roman Empire, and coinage was introduced in the third century AD (Conti Rossini 1928; Anfray 1968; Anfray 1973b; Fattovich 1988; Anfray 1990; Munro-Hay 1991).
- 2 The Middle Aksumite Phase (*c.* AD 400–700). This phase corresponds to the period of major expansion of the kingdom. The western and eastern plateau shared the same material

culture, except for some slight differences in the pottery. Coinage was widely used. Churches were widely scattered over the territory of the kingdom. Syrian influences can be recognized in the architecture of this period (Anfray 1972; Anfray 1974; Anfray 1981; Anfray 1990).

- 3 The Late Aksumite Phase (c. 700–900 AD). This phase corresponds to the decline of the kingdom. Coinage was probably no more in use and some important towns, such as Matara and Adulis, were apparently abandoned. Aksum was quite reduced in size (Anfray 1974; Anfray 1990; Michels 1990; Munro-Hay 1991).

The so-called post-Aksumite period (c. 900–1500 AD) is still quite poorly known from the archaeological and historical point of view (Conti Rossini 1928; Tamrat 1972; Anfray 1990). It seems that by the seventh century AD, the centre of the Christian kingdom progressively shifted southwards to the Lasta and Angot regions. In the ninth century the capital was located at Ka'bar or Ka'ban, according to the Islamic sources, or Soper, according to the Coptic ones. The kingdom, however, was still powerful. It dominated the Muslims settled on the coast from the Dahlak islands to Zeila in northern Somalia (Conti Rossini 1928; Mordini 1949; Tamrat 1972).

By the eighth century, Islamic communities settled along the Red Sea coast. A sultanate was established at Dahlak Kebir in the early ninth century. A port was also founded at Baadi, on the er-Rih island, immediately to the south of the Barka delta. At the same time, Islamized groups penetrated from the Eastern Desert into the western lowlands along the Barka valley (Conti Rossini 1928; Trimingham 1952; Tedeschi 1969; Fattovich 1987a; Tedeschi 1987; Cuoq 1981). In the ninth century, Beja peoples occupied most of the plateau in Eritrea. They formed three 'kingdoms': (1) Baclin on the Rore, (2) Jarin between the Barka valley and Mitsiwa on the coast and (3) Cata'ah to the south of Mitsiwa (Conti Rossini 1928; Vantini 1975; Fattovich 1987a).

According to Islamic sources, different populations were living along the Eritrea-Sudanese borderland at the end of the first millennium AD (see Vantini 1975). The Kunama and the Nera, farmers breeding cattle and small livestock, inhabited the Gash and eastern Barka lowlands from the plateau to the Atbara valley. The Taflin, semi-nomadic cattle and camel breeders, lived in the middle Gash valley. Semi-nomadic Beja and Tigré tribes (Kabdam, Kasa) occupied the Barka valley and the slopes of the plateau. Beja tribes were moving along the plains to the north and east of the Barka valley (Fattovich 1987a; Fattovich 1990b).

In the twelfth to thirteenth centuries, a Christian kingdom, stretching as far as Shoa, arose in the Wollo region under the so-called Zagwe Dynasty. The capital was located at Adafa near Lalibela in Lasta (Wollo). At this time, only western Tigray and part of central Eritrea were part of the kingdom (Conti Rossini 1928; Tamrat 1972). Finally, in the fourteenth to fifteenth century these regions were provinces of a new kingdom that arose in Shoa (central Ethiopia) under the so-

called Solomonic Dynasty (Tamrat 1972). The archaeological evidence of this period is very scarce (see Anfray 1990). It consist mainly of rock-hewn churches, dating back to the tenth to fifteenth centuries. They confirm a basic continuity of the Aksumite cultural traditions up to the Zagwe period, and they enable to follow the progressive southwards expansion of Christianity (see Buxton 1970; La page 1975).

External contacts

The northern Horn of Africa had a key position at the junction between two interchange circuits, namely (1) the Nile valley and Red Sea circuit, connecting Egypt and Palestine to the Horn of Africa and southern Arabia and (2) the Afro-Arabian circuit, connecting the Horn of Africa to India. Therefore, the socio-economic and cultural history of the region was affected by its progressive inclusion within the exchange network between the Mediterranean Sea and Indian Ocean from late prehistoric times (Fattovich 1988, Fattovich 1990d; Fattovich 1993). This process culminated in the Roman times with the establishment of the Erythrean sea route from Rome to India and east Africa (Miller 1969).

An obsidian trade network between the Horn (Tigray, Eritrea, Djibuti) arose as early as the seventh to fourth millennia BC. This trade continued up to the first millennium BC with an inter-regional pattern involving eastern Sudan, the Eritrean coast, the Red Sea islands and the Arabian Tihama (Zarins 1988; Zarins 1989).

The Egyptian commercial expansion southwards started in the fourth millennium BC. At this time, the Butana, the middle Atbara valley, and the Horn were already included in an exchange network with the lower Nile valley, and some maritime trade probably occurred along the Red Sea. In the early third millennium BC, the peoples of Lower Nubia were the main commercial partners of Early Dynastic Egypt (Trigger 1976; Fattovich, Marks & Ali 1984; Zibelius Chan 1988; Zarins 1988, Zarins 1989; Fattovich 1993). During the Old Kingdom (*c.* 2700–2200 BC), the Egyptians extended their direct commercial activity to Upper Nubia and a proto-state arose at Kerma. The Gash delta was included in a network of contacts with the middle Nile valley and through it with Egypt (Herzog 1968; Kitchen 1982; Zibelius Chan 1988; Fattovich, Sadr & Vitagliano 1988–89; Fattovich 1990d; Bonnet 1990; Fattovich 1993).

In the late third to mid-second millennia BC, Kerma was the main intermediary between Egypt and the southern regions of Upper Nile, the Horn and possibly southern Arabia. The ‘Gash Group’ people were apparently important commercial partners of Kerma. They extended their radius of action as far as the southern Red Sea hills and coast, southern Arabia, and possibly eastern Ethiopia. During the Middle Kingdom (*c.* 2000–1800 BC), a few Egyptian naval

expeditions reached the shores of eastern Sudan and Eritrea. They probably landed at Aqiq, to the south of the Barka delta (Fattovich, Sadr & Vitagliano 1988–89; Bonnet 1990; Fattovich 1993).

In the times of the New Kingdom (c. 1550–1100 BC), the Egyptians asserted their dominion on the whole of Nubia, as far as the fourth cataract and Kerma disappeared as a political and economic power. At this time, Egyptian naval expeditions probably reached Adulis and the peoples of the eastern Tigran plateau become the intermediaries between the hinterland and the coast. The peoples of the western lowlands, on the contrary, were more and more marginalized from the main exchange circuit. In the same period, the southern Arabians expanded their commercial activities northwards along the western Arabian peninsula (Säve-Söderbergh 1946; Saleh 1972; Kitchen 1982; Zibelius Chan 1988; Fattovich, Sadr & Vitagliano 1988–89; Fattovich 1990d, Fattovich 1993).

The late second and early first millennia BC were marked by the decline of Egyptian power, and the rise and expansion of the kingdom of Kush in Nubia, and the kingdoms in southwestern Arabia. Trade along the Red Sea was under the control of the southern Arabians, but it is possible, however, that the Phoenicians sporadically visited the Horn (Doe 1971; Adams 1977; Groom 1981; Liverani 1988). In the mid-first millennium BC, the south Arabian commercial expansion was at its peak under the control of the kingdom of Saba. At this time, the pre-Aksumite kingdom of Da'amat was surely an important partner of Saba. In the late sixth to early fifth centuries BC, the Persians most likely explored the Red Sea from Egypt to the northern Horn. It is possible, as well, that the Eritreo-Sudanese lowlands were exposed to a military pressure by the kingdom of Kush (Doe 1971; von Wissmann 1975; Desanges 1978; Priese 1978; Ricci 1984). In the late first millennium BC, the Sabean power declined. The Ptolomies sent naval expeditions as far as the Indian Ocean. They used several ports along the African coast of the Red Sea, including Aqiq and Adulis in the northern Horn. The kingdom of Kush apparently maintained control of the land routes along the Nile valley (Conti Rossini 1928; Doe 1971; Adams 1977; Desanges 1978).

In the early to mid-first millennium AD, the Red Sea was the main route connecting Rome and Byzantium to the Indian Ocean. At this time, the kingdom of Kush declined. Aksum became the main African intermediary within this circuit, through the port of Adulis. The land routes to Egypt continued to be used, as Kassala was still a possible transit station between the plateau and the Nile valley (Conti Rossini 1928; Kobishchanov 1979; Munro-Hay 1982; Munro-Hay 1991). The late first millennium AD was marked by the progressive Islamic expansion in northeast Africa, after the conquest of Egypt (647 AD). At this time, most likely, the northern Horn was not yet completely isolated, as Arab traders were the intermediaries in the trade with the Mediterranean region (Conti Rossini 1928; Trimmingham 1952; Hassan 1973; Sherif 1981).

A new trade circuit arose in the Indian Ocean in the first half of the second millennium AD. It directly involved the Arab traders of Aden and the Persian Gulf, and the Swahili ones of east Africa, isolating the Horn. At the same time, Islamic sultanates arose along the Ethiopian Rift valley, as far as Shoa, as a consequence of the Arab trade in the interior of the Horn (Tamrat 1972; Horton 1987).

Development of urbanism: archaeological and historical evidence

The available evidence from the northern Horn of Africa suggests that the earliest steps in the development of urbanism in the region occurred in the western Eritreo-Sudanese lowlands.

Nine 'Butana Group' sites have been recorded so far. Three are quite large settlements, 7 to 10 ha in size. They probably were residential villages. The evidence of daub durable structures and prestige objects made of imported raw materials suggests a sedentary occupation and some trade activity by an emerging elite at these sites (Marks, Ali & Fattovich 1986; Sadr 1991).

Twenty-seven 'Gash Group' sites are presently known in the Gash delta. They include temporary camps and semi-permanent villages located in the marginal cultivable areas, and two residential villages, 10–12 ha in size, in the more fertile areas (Fattovich, Sadr & Vitagliano 1988–89; Fattovich 1991a; Sadr 1991).

Most likely, a quite isolated proto-urban settlement occurred at Mahal Teglinos (Kassala) at this time. It was characterized by size, sedentarism, ceremonial functions, craft activities, trade and administration (Fattovich 1989; Fattovich, Sadr & Vitagliano 1988–89; Fattovich 1991b; Sadr 1991).

A quite large settlement, up to 10 ha in size, developed at this site in the mid-third to mid-second millennia BC. The late 'Gash Group' occupation (*c.* 1800–1500 BC) was characterized by large mud brick buildings, probably used as stores. In the middle and classic 'Gash Group' phases (*c.* 2300–1800 BC), a formal cemetery marked by monolithic stelae arose to the south of the settlement. This might suggest that it was also a ceremonial centre related to an ancestor cult, ideologically stressing the right of occupation of the territory by the leadership (see e.g. Hayden 1993, pp. 267–311). Different craft activities were practiced at this site (pottery, flake and ground stone tools, lip-plugs, ostrich eggshell bead manufacture). The pottery evidence suggests that Mahal Teglinos was a crucial node in a complex network of contacts and exchanges stretching from Egypt and Nubia to the Upper Nile, the Horn of Africa and southern Arabia. Finally, administrative devices have been found in the middle, classic and late 'Gash Group' levels (*c.* 2300–1500 BC) at this site.

A few other residential settlements, culturally related to the late 'Gash Group', were located at Agordat in the middle Barka valley (Arkell 1954). They can be dated to the mid-second

millennium BC. The size of these sites is uncertain. Some potsherds similar to 'C-Group' and Kerma specimens and Egyptian-like earrings suggest contacts with the lower and middle Nile valley. The occurrence of fragments of jars like the 'Ona Group A' ones points to contacts with the plateau.

Forty-nine sites can be ascribed to the 'Jebel Mokram Group'. They were temporary camps, semi-permanent villages, and residential villages. The residential villages, 7–8 ha in size, are smaller than in the previous period. Mahal Teglinos dramatically reduced in size (4 ha) and was no longer a regional centre. The present evidence does not confirm any specific trade and/or administrative function of the larger sites. Only seven sites are datable to the late Jebel Mokram times and they suggest a dramatic drop in the population number in the early first millennium BC (Fattovich, Sadr & Vitagliano 1988–89; Sadr 1991).

Ten 'Ona Group A' sites have been recorded so far. The settlement pattern is practically unknown. The sites include settlements and cemeteries. The former are sometimes quite large, with an archaeological deposit up to 100 cm in depth and could be ascribed to residential villages. One settlement in particular, at Sembel Cuscet near Asmara, was about 25 ha in size. It was located at the opening of the Anseba river that was traditionally a caravan route to the lowlands. Some hundreds of small bull-skulls from this site might suggest that it was a ceremonial centre. The occurrence of jars similar to late 'Gash Group' and 'Jebel Mokram Group' specimens points to some trade activity with the lowlands (Tringali 1979; Tringali 1981).

A sedentary settlement, ascribable to the Tihama cultural complex, was located at Adulis, on the Gulf of Zula. The size is unknown, as the site is completely covered by a more recent Aksumite settlement. The archaeological deposit, 7 m thick, suggests a quite long and continuous occupation. Some trade activity with the plateau and possibly Egypt can be inferred from the pottery evidence and two fragments of glass vessels comparable to XVIIIth Dynasty specimens. The occurrence of copper slags at the base of the deposit suggests that metallurgy was practiced at this site (Paribeni 1907).

An urban society appeared on the plateau in the pre-Aksumite times (Fattovich 1990c). Ninety pre-Aksumite sites are presently known. They include towns, ceremonial centres, villages, and/or camps (Godet 1977; Godet 1980–82; Michels 1988; Fattovich 1990c). Towns have been made evident at Matara in central Eritrea and Yeha in western Tigray (Anfray & Annequin 1965; Anfray 1970), and another town was probably located at Kaskasè in central Eritrea (Littmann, Krenker & von Lupke 1913). They are located in open plains suitable for agriculture.

The evidence from Matara is still quite scarce. The size of the pre-Aksumite settlement is uncertain, as it has been only partly investigated. In the early pre-Aksumite times, the site was occupied by a sedentary village, with an archaeological deposit about 2 m deep. The pottery points to contacts with southern Yemen. In the middle pre-Aksumite times, a proper town with stone

buildings arose at this site. A cemetery developed to the south of the town in this phase. In the late pre-Aksumite times, the settlements was characterized by buildings made of schist (Anfray & Annequin 1965; Anfray 1966; Anfray 1967; Fattovich 1980).

Yeha was inhabited mainly during the pre-Aksumite times. The town was practically abandoned in the Aksumite times. In the early pre-Aksumite times, a settlement with sedentary inhabitants, with an archaeological deposit about 70 cm deep, arose at this site. The pottery suggests contacts with different south Arabian peoples. In middle pre-Aksumite times, the town was about 50 ha in size. A south Arabian-like temple and a 'palace', together with other stone buildings, were built at this time. A 'royal' cemetery was located to the south of the temple. In the Late pre-Aksumite Phase, the town reduced in size. The temple and the 'palace' were apparently destroyed by fire (Littmann, Krenker & von Lupke 1913; Anfray 1973a; Fattovich 1980).

Kaskasè has never been carefully explored. A huge south Arabian-like temple was built at this site at the end of the Early pre-Aksumite Phase or in the very beginning of the Middle pre-Aksumite Phase (Littmann, Krenker & von Lupke 1913; Fattovich 1980).

The early pre-Aksumite settlement pattern is unknown. The evidence from Matara and Yeha suggests that sedentary villages, involved in trade with southern Arabia, were located in the eastern and western plateau. In the middle pre-Aksumite times, large ceremonial centres were located at Yeha and Kaskasè. Small ceremonial centres were located at the opening of the valleys descending towards the lowlands. In western Tigray, the settlement pattern was characterized by regularly spaced villages (*c.* 1–3 ha in size) and hamlets (less than 1 ha in size), about 2 to 3 km apart, dominated by a major town at Yeha, and a few minor ceremonial centres at Hawlti, Adi Atero and Seglamien (Michels 1988). In the late pre-Aksumite times, an urban society probably survived in Eritrea, as we can infer from the Matara evidence. In western Tigray, Yeha was still an important ceremonial centre. Minor ceremonial centres occurred at Hawlti and Melazo, near Aksum. The settlement pattern in this region was characterized by scattered regularly spaced hamlets and villages (Michels 1988; Fattovich 1990c).

The rise of the kingdom of Aksum marked a new stage in the development of urbanism on the plateau. About one hundred and fifty Aksumite sites have been recorded, so far, in Eritrea and Tigray. They are scattered over the whole plateau, from Amba Alagi in the south to the Rore in the north. They include the remains of towns, villages, isolated hamlets, churches, cemeteries and single tombs (Godet 1977; Godet 1980–82; Michels 1988).

Only three towns were more extensively investigated: Adulis, Matara and Aksum. Adulis was the port of the kingdom. A settlement already occurred at this site in early Aksumite times, as we know from the classical sources (see Casson 1989). A proper town with masonry buildings, about 21 ha in size, arose at the beginning of the Christian period. It was suddenly abandoned in the eighth century AD, probably because of a Muslim raid or a catastrophic event (Paribeni 1907;

Anfray 1974; Munro-Hay 1982). The urban plan is uncertain. It seems that churches were located in the northeastern sector of the site. Small houses, separated by narrow streets, were found in the western sector. No elite 'palace' has so far been recorded. The occurrence of many Roman and Byzantine objects confirms the mercantile function of the site (Paribeni 1907; Anfray 1974). In the late Aksumite times, Adulis was just a small village with a church and round huts (Paribeni 1907; Conti Rossini 1928, pp. 213–14).

Matara was inhabited in the early and middle Aksumite times. The town was suddenly abandoned not later than the eighth century AD (Anfray 1963; Anfray & Annequin 1965; Anfray 1966; Anfray 1967; Anfray 1970; Anfray 1974). The town, about 20 ha in size, was characterized by a concentration of elite 'palaces' and churches in the eastern sector, and 'middle class' and ordinary houses in the western one. The occurrence of many Mediterranean amphoras of the seventh to eighth centuries, confirms that trade was practiced (Anfray 1974). The town was surrounded by many small sites, ascribable to farms (Anfray 1974).

Aksum was the capital of the kingdom. It was occupied along the whole Aksumite period (Littmann, Krenker & von Lupke 1913; Puglisi 1941; de Contenson 1959; de Contenson 1963; Anfray 1972; Chittick 1974; Munro-Hay 1989; Anfray 1990; Michels 1990). According to traditional Ethiopian sources, the earliest settlement was located at Mazaber and later at Aseba. The settlement at Aksum was established only in early Christian times (Monneret de Villard 1938). The location of Mazaber and Aseba is still uncertain. Recent excavations, however, suggest that a proto-Aksumite settlement was located on the top of Bieta Ghiorgys hill, to the northwest of Aksum (Bard & Fattovich 1993).

In the early Aksumite times, a residential area, about 32 ha in size, was located in the western sector of the site. It was associated with three elite cemeteries marked by monolithic stelae to the northeast, east and west. At this time it was probably a ceremonial centre connected with the cult of the royal ancestors. A skin and/or ivory working area was possibly located in the western sector of the town (Anfray 1972; Michels 1990). In middle Aksumite times, the town was about 100 ha in size. The church of Maryam Tsion, in the eastern sector of the site, became the focal centre of the settlement. At this time, the town consisted mainly of elite 'palaces' including the royal one. Eventually, ordinary houses were located along the cliffs of Bieta Ghiorgys hill. Another town, about 21 ha in size, was located on the top of the same hill (Monneret de Villard 1938; Anfray 1972; Michels 1990). In the late Aksumite times, the settlement was only 49 ha in size. It was located in the western sector of the site. The area around Maryam Tsion was inhabited, as well (de Contenson 1959; de Contenson 1963; Michels 1990).

The Aksumite settlement pattern is still poorly known. Only the region from Yeha to Aksum in western Tigray has been carefully investigated (Michels 1988).

In the early Aksumite times, towns appeared on the eastern and western plateau. In western Tigray, at least three towns arose at Aksum, Adi Asaso and Misfad Meru. They were surrounded by small villages and isolated elite residences (Michels 1988). In the towns of the middle Aksumite times, villages and isolated hamlets were scattered over the whole territory of the kingdom (Godet 1977; Godet 1980–82; Michels 1988). Towns consisted of a number of elite ‘palaces’, ordinary houses and some churches. Villages are the majority of the Aksumite sites, but no one is, so far, excavated extensively. Sometimes, isolated churches were recorded. On the whole, they reflect a settlement pattern similar to the traditional one of the modern Tigreans. The late Aksumite settlement pattern is virtually unknown. The scarce available evidence suggests a heavy drop in the population of the plateau. Aksum was apparently a large village with few elite residences, surrounded by smaller villages and hamlets (Michels 1988; Michels 1990). It was still the residence of a ‘prince’ (Conti Rossini 1928).

In the late first millennium AD, Islamic urban settlements arose along the coast. Some evidence was recorded at the er-Rih island and Dahlak Kebir (Crowfoot 1911; Puglisi 1969). Large settlements occurred also on the northern plateau (Rore) at this time, as we can infer from Arab sources (Fattovich 1987a). No proper town probably existed on the Tigrean plateau in the post-Aksumite times. Very few settlements of this period have been recorded and are mostly scattered small villages. In particular, about twenty villages, less than 1 to 3 ha in size, were clustered around Aksum (Michels 1988). The occurrence of many masonry and rock-hewn churches possibly dating to eleventh to twelfth centuries AD, mainly in the eastern Tigray, might suggest that this was an important political and religious region at this time (see La page 1975).

Synthesis

The development of urbanism up to medieval times in the northern Horn of Africa can be divided into three main stages. They correspond to different phases of state formation in the region:

- 1) The proto-Urban Stage (third–second millennia BC), represented by the ‘Gash Group’ in the lowlands and perhaps the ‘Ona Group A’ on the eastern plateau. It corresponds to the rise of chiefdoms in the region.
- 2) The Early Urban Stage (first millennium BC), represented by the pre-Aksumite culture in Eritrea and Tigray. It corresponds to the development of the Sabea-like kingdom of Da’amat on the plateau.

- 3) The Mature Urban Stage (first millennium AD), represented by the Aksumite culture on the plateau. It corresponds to the development of the kingdom of Aksum.

This process was characterized by a progressive shift of 'urban' settlements from the lowlands to the plateau and from the eastern plateau to the western one. It was probably interrupted in the late second/early first millennia BC. We cannot exclude a continuity in urban development in Eritrea from the late second millennium BC to the mid-first millennium AD. In the late part of this millennium, urban society collapsed on the plateau. At this time, Islamic towns appeared on the coast. Proper towns reappeared on the plateau in the fifteenth century AD (see Pankhurst 1982).

The development of urbanism in the northern Horn of Africa was surely marked by demographic fluctuations. These fluctuations are uncertain because of the lack of factual evidence. However, the results of the investigations in the Kassala area in the lowlands and the western Tigray on the plateau can supply some suggestions. The evidence from the Kassala region points to changes in the relative nucleation and dispersal of the population rather than a true demographic growth in the region from the fourth millennium BC to early mid-first millennium AD. The increase in the number of sites in the 'Gash Group' times might suggest a population growth in the mid-third to the mid-second millennia BC. In turn, a remarkable drop in the number of late 'Jebel Mokram Group' sites might suggest a demographic crisis in the early first millennium BC (Fattovich, Sadr & Vitagliano 1988–89; Sadr 1991). The evidence from western Tigray dating to *c.* 700 BC–AD 1000, suggests that the population was quite constant in pre-Aksumite times. It increased in the Aksumite period, with a peak in the fourth to seventh centuries AD, and decreased in the late Aksumite times (Michels 1988).

The development of urbanism was related to an improvement of agricultural production. In particular, the introduction of the plough on the plateau in the first millennium BC enabled the local populations to exploit the habitat more intensively and rationally. The proto-urban settlements were located in areas with good soils for agriculture (fluvisols in the Gash delta and luvisols on the eastern plateau). Cattle-breeding was probably the main component of the subsistence economy in this stage. The occurrence of barley seeds in the late 'Gash Group' level (*c.* 1800–1500 BC) at Mahal Teglinos, confirms that the cultivation of cereals sustained the proto-urban development in the lowlands.

The pre-Aksumite towns were located on the plateau, over 2000 m in elevation, in areas with good soils for agriculture (luvisols on the eastern plateau and andosols on the western plateau). In this stage, agriculture was improved by the use of plough and possibly artificial irrigation. The Aksumite towns were located on the plateau, between 1000 and 2500 m in elevation. They were concentrated mainly in areas with good soils for agriculture (luvisols in the

eastern plateau and andosols in the western plateau). In this stage, areas with lower quality cambisols were occupied as well. The subsistence economy surely relied on the 'plough and cereal complex'. In the coastal plains, towns were located only in areas with some water supply. In particular, Adulis was located in an area with soils with a limited agricultural value (regosols).

Finally, proto-urban and urban settlements were located along the routes connecting the plateau to the Nile valley and the Red Sea coast, or in crucial areas to control the local resources. The proto-urban settlement at Mahal Teglinos was located along the traditional route from the Nile valley to the plateau. It occupied a strategic position to control the resources of the Eritreo-Sudanese lowlands and western slopes of the plateau (Fattovich 1990d). Sembel Cuscet was located along the traditional route from the lowlands to the coast, in a region very rich in gold. Adulis was located at the mouth of the Haddas valley, connecting the plateau to the Red Sea coast. In the pre-Aksumite times, Yeha was located close to the Mareb/Gash valley, connecting the lowlands to the western plateau. The town occupied a favourable position to control the resources of the western lowlands. In turn, Kaskasè and Matara were located along the traditional route from the coast to the hinterland. In the Aksumite times, most recorded towns were located along the route from Aksum to Adulis. Towns were also located along the routes connecting the eastern plateau to the western lowlands and eastern Sudan. Aksum, particularly, occupied a strategic position as a gateway to the African hinterland (see also Butzer 1981).

Conclusions

Any interpretation of the development of urbanism in the northern Horn of Africa is still speculative. In my opinion, however, some factors affecting this process can be identified.

The main factor was probably the progressive inclusion of the region in the interchange circuit between the Mediterranean and Indian Ocean countries. This gave rise to chiefdoms and states since the mid third millennium BC. In particular, the south Arabian expansion in the late second to early first millennia BC, stimulated the emergence of a state on the plateau. In turn, large residential settlements arose in strategic positions to control the local resources and trade routes. Eventually, they were the major markets in the local exchange network, as well. On the contrary, the Arab political and commercial activity in northeast Africa at the end of the first millennium AD, caused the progressive isolation of the plateau. This probably affected the collapse of urbanism in late Aksumite times.

The development of complex societies and states improved the agricultural production to sustain more nucleated populations and specialized activities. This possibly caused the selection of more fertile areas as a location for the larger settlements within the range of areas suitable to control the local resources.

The improvement of agricultural production probably caused an increase in the ‘Gash Group’ population in the lowlands, and in the pre-Aksumite and Aksumite ones on the plateau. This increase could have generated a dispersal of the single populations to exploit other areas suitable for cultivation and grazing. In such a way new large settlements arose as markets and administrative centres in the peripheral regions.

Political factors surely affected this process. The need to control the local resources and trade routes most likely stimulated the territorial expansion of the pre-Aksumite and Aksumite states. This might have caused the disappearance of some residential settlements with political functions and the establishment of new administrative centres. Moreover, ideological factors connected with the legitimation of the elite might have affected the ceremonial function of the main settlements (e.g. Mahal Teglinos, Yeha, Aksum).

Environmental factors were less significant than the economic and cultural ones. The moister climate of the region in the mid first millennium BC to the mid first millennium AD probably facilitated the establishment of the ‘plough and cereal complex’ on the plateau. It is possible that the generally reduced rainfall in the seventh to tenth centuries AD, together with the progressive exhaustion of the soils and deforestation by human activity in Aksumite times, caused draughts and famines with consequent epidemics. They might have affected the progressive depopulation of the plateau, pushing the population to move southwards. Moreover, the sudden abandonment of Adulis and Matara in the eighth century AD might point to a catastrophic event.

On the basis of the above, the following tentative explanation of the development of urbanism in the northern Horn can be suggested:

- 1) The inclusion of the ‘Butana Group’ people in an interchange circuit with predynastic Egypt in the fourth millennium BC, gave rise to a hierarchical society at the confluence of the Gash and the Atbara river. In turn, this stimulated the transition to cattle-breeding and cultivation of cereals, and the founding of large sedentary settlements.
- 2) In the late fourth to early third millennia BC, the Gash progressively shifted from the original confluence with the Atbara river into the present bed (see Sadr 1991). This opened a more direct route from the Nile valley to the Horn of Africa than the Atbara valley. The descendants of the ‘Butana Group’ people followed the shift of the river and settled in the present southern delta. In such a way they occupied a strategic position to control the land route to Nubia and Egypt. At the same time, they were able to exploit better the resources of the western lowlands during the seasonal movements from the Gash to the plateau (see Fattovich 1990d).

- 3) In the mid-third millennium BC, the 'Gash Group' people played a crucial role as intermediaries between Nubia and the regions of the Horn of Africa and southern Arabia. They were directly in contact with the kingdom of Kerma. This stressed the transition from a hierarchical society to a chiefdom and increased agricultural production. Mahal Teglinos was the residential centre of the elite and a crucial node in the trade network from Egypt and Nubia to the Horn and southern Arabia, becoming a proto-urban settlement.
- 4) In the early second millennium BC, the 'Gash Group' people spread through the western lowlands, as far as the Red Sea coast. Residential villages appeared in the middle Barka valley, along the way from Kassala to the plateau.
- 5) In the second half of the second millennium BC, the Red Sea became the main trade route from Egypt to the Horn and southern Arabia. This isolated the lowlands from the circuit, with a regression in social complexity and proto-urban settlements. An Afro-Arabian coastal interchange circuit arose. A port, possibly frequented by the Egyptians, appeared at Adulis. At the same time, the southern Arabians started their commercial activity northwards, along the land routes of western Arabia.
- 6) In the same period, the 'Ona Group A' people living on the plateau along the route from Kassala to Adulis became the intermediaries between the hinterland and the coast. It is possible that they also were in direct contact with Egypt. A complex society perhaps arose in the eastern plateau and a quite large settlement appeared at Sembel Cuscet.
- 7) By the late second millennium BC, the Egyptian trade with the southern regions was interrupted. This facilitated the south Arabian commercial expansion, with the rise of kingdoms in the region. The eastern Tigrean plateau was probably included in the Arab area of commercial activity. A residential settlement appeared at Matara.
- 8) In the early first millennium BC, the southern Arabians penetrated in the western Tigrean plateau, most likely to get a direct access to the resources of the western lowlands, particularly ivory. Quite soon the region was included in the area of political and commercial influence of the kingdom of Saba. The contacts with the Sabeans gave rise to the local kingdom of Da'amat. An urban society, reflecting the south Arabian pattern, appeared on the plateau. Yeha became a very important ceremonial centre and the possible residence of the kings. The agricultural production to sustain the new state was improved by the use of plough. The need to control the routes to the Red Sea caused the eastwards territorial

expansion of the kingdom. Kaskasè become another important ceremonial centre. An urban settlement arose at Matara.

- 9) In the late first millennium BC, after the decline of the kingdom of Saba in southern Arabia, the kingdom of Da'amat collapsed. The plateau was probably divided into petty kingdoms, including Aksum. Towns seem to disappear in the western plateau. Yeha remained an important ceremonial centre, but much reduced in size. The eastern plateau was progressively included in the Greek-Roman trade circuit along the Red Sea. This probably enabled the local populations to maintain a form of urban society.
- 10) By the first century BC, the western Tigray was included, as well, in the Roman trade circuit. Aksum probably become a gateway in the trade with the hinterland. An urban settlement arose at this site since the first century AD. Initially, it was a ceremonial centre connected with the funerary cult of the elite ancestors.
- 11) In the second to third centuries AD, with the progressive conquest of the other petty kingdoms, Aksum become the dominant state on the plateau. The kingdom was at this time the main African commercial partner of the Roman empire along the Red Sea route. An urban society, reflecting a local pattern, arose again on the plateau and agricultural production was surely improved.
- 12) In the mid-first millennium AD, after the introduction of Christianity, the kingdom reached its maxim expansion. It was an important political and commercial partner of the Byzantine empire. The population increased remarkably and urbanism reached its peak.
- 13) The increase in population and agricultural production probably caused the exhaustion of the soils and the deforestation. Rainfall also reduced, which might have caused draughts and famines, and the depopulation of the plateau in the late first millennium AD. At the same time, the Arab political and commercial expansion through northeast Africa and along the Red Sea isolated the kingdom from the main interchange circuits. The Christian kingdom survived, but its centre shifted southwards.
- 14) In the first half of the second millennium AD, towns apparently no longer existed on the Tigrean plateau, but a few Islamic ports, connected with the Arab commercial activity along the Red Sea, occurred along the coast.

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Captions

- 1) The area under examination corresponds to the Tigrean plateau and the adjacent plains and is delimited by the Tekkeze river to the south, the Red Sea to the northeast, the Eritreo-Sudanese lowlands to north and west, and the Danakil depression to the east. It includes part of modern Tigray (Ethiopia), Eritrea, and the Eritreo-Sudanese borderland.
- 2) The cultural sequence and the social complexity of the northern Horn of Africa, 4000 BC–AD 1000.
- 3) The rise of complex societies 4000–2500 BC.
- 4) The rise of complex societies 2500–1500 BC.

- 5) The rise of complex societies 1500–800/700 BC.
- 6) The rise of complex societies 800/700–400/300 BC.
- 7) The rise of complex societies 300/200 BC–AD 100/200.
- 8) The rise of complex societies AD 300–400.

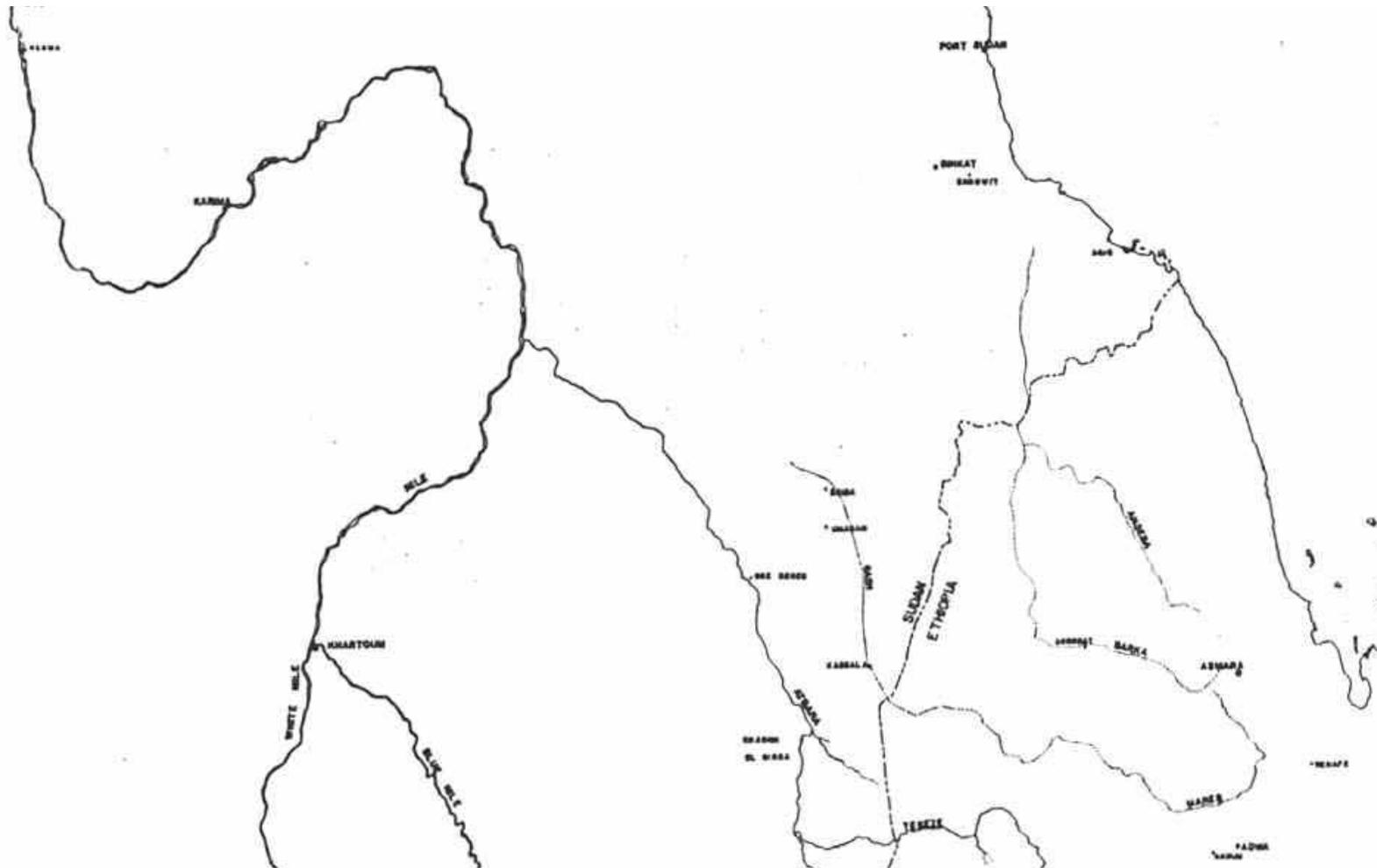


Fig. 1. The area under examination corresponds to the Tigrean plateau and the adjacent plains and is delimited by the Tekkeze river to the south, the Red Sea to the northeast, the Eritreo-Sudanese lowlands to north and west, and the Danakil depression to the east. It includes part of modern Tigray (Ethiopia), Eritrea, and the Eritreo-Sudanese borderland.

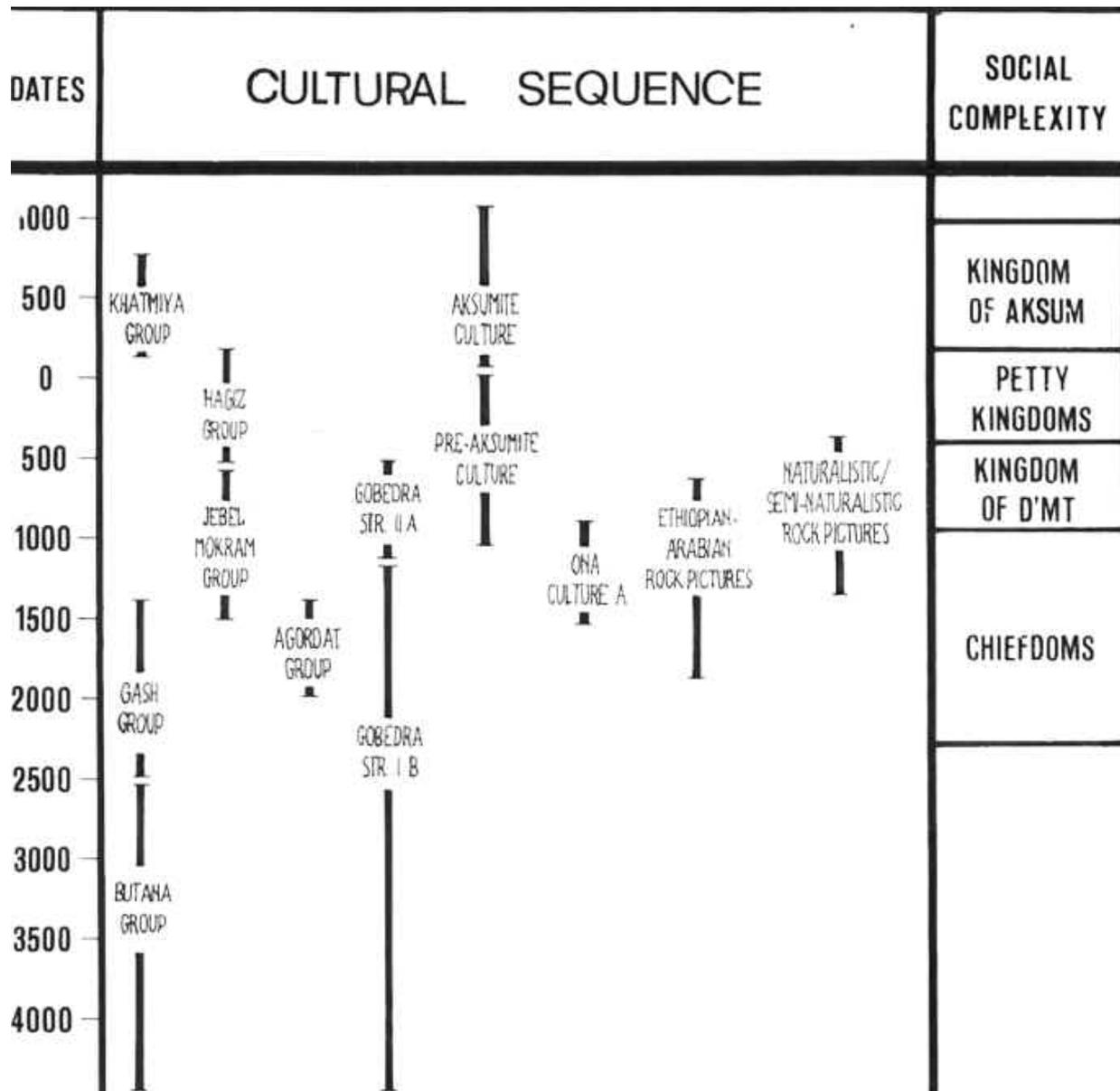


Fig. 2. The cultural sequence and the social complexity of the northern Horn of Africa, 4000 BC–AD 1000.

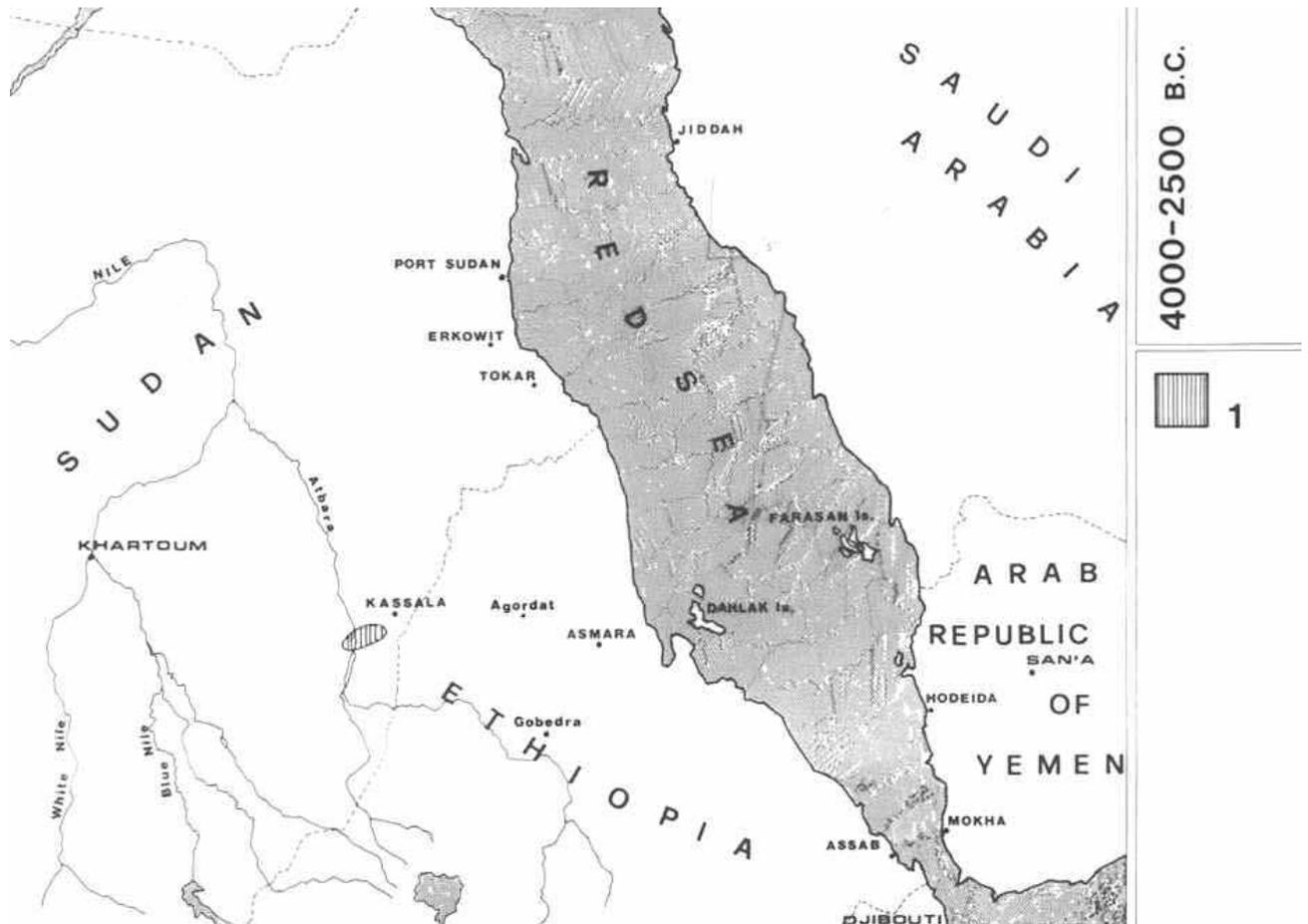


Fig. 3. The rise of complex societies 4000–2500 BC.

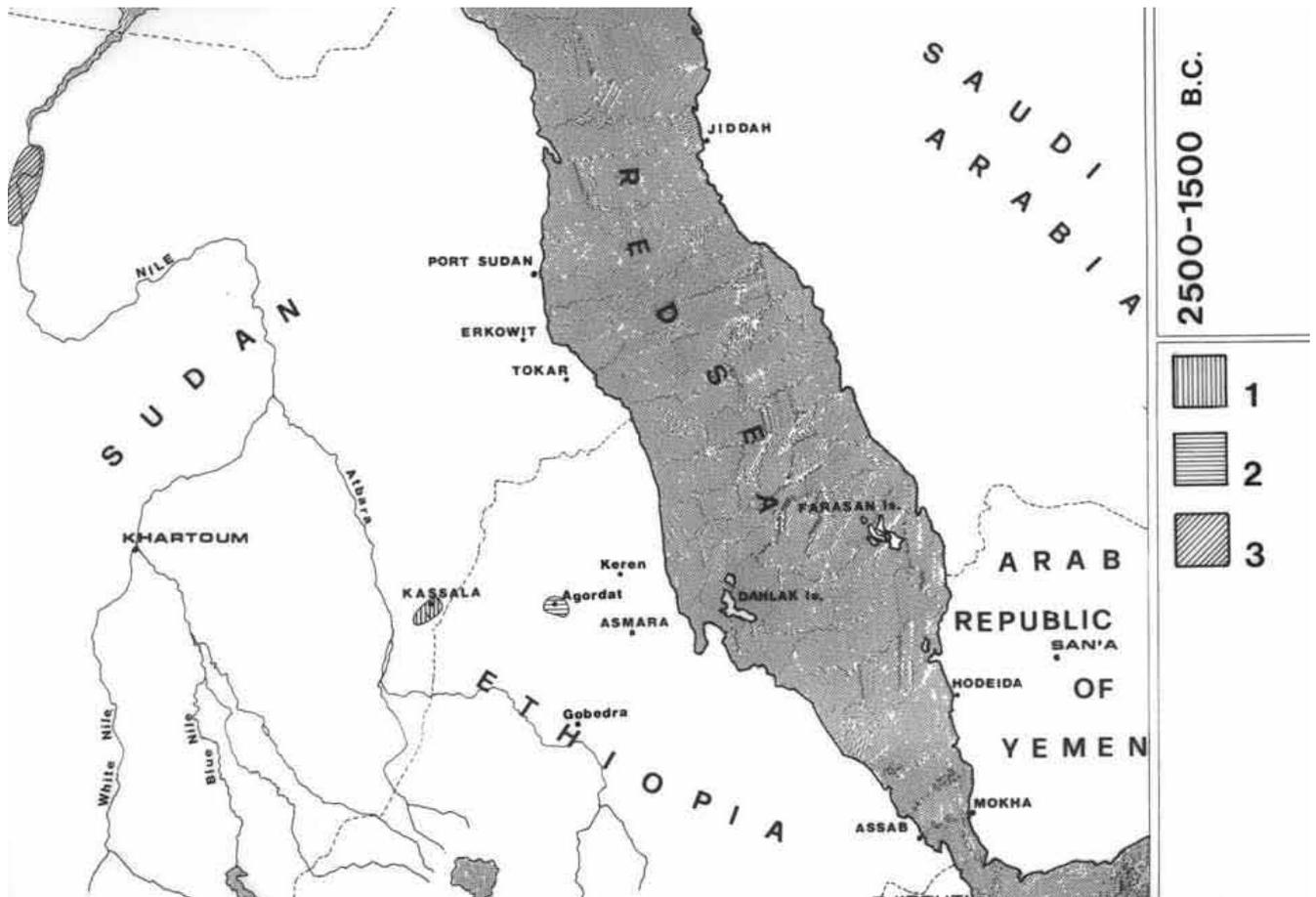


Fig. 4. The rise of complex societies 2500–1500 BC.

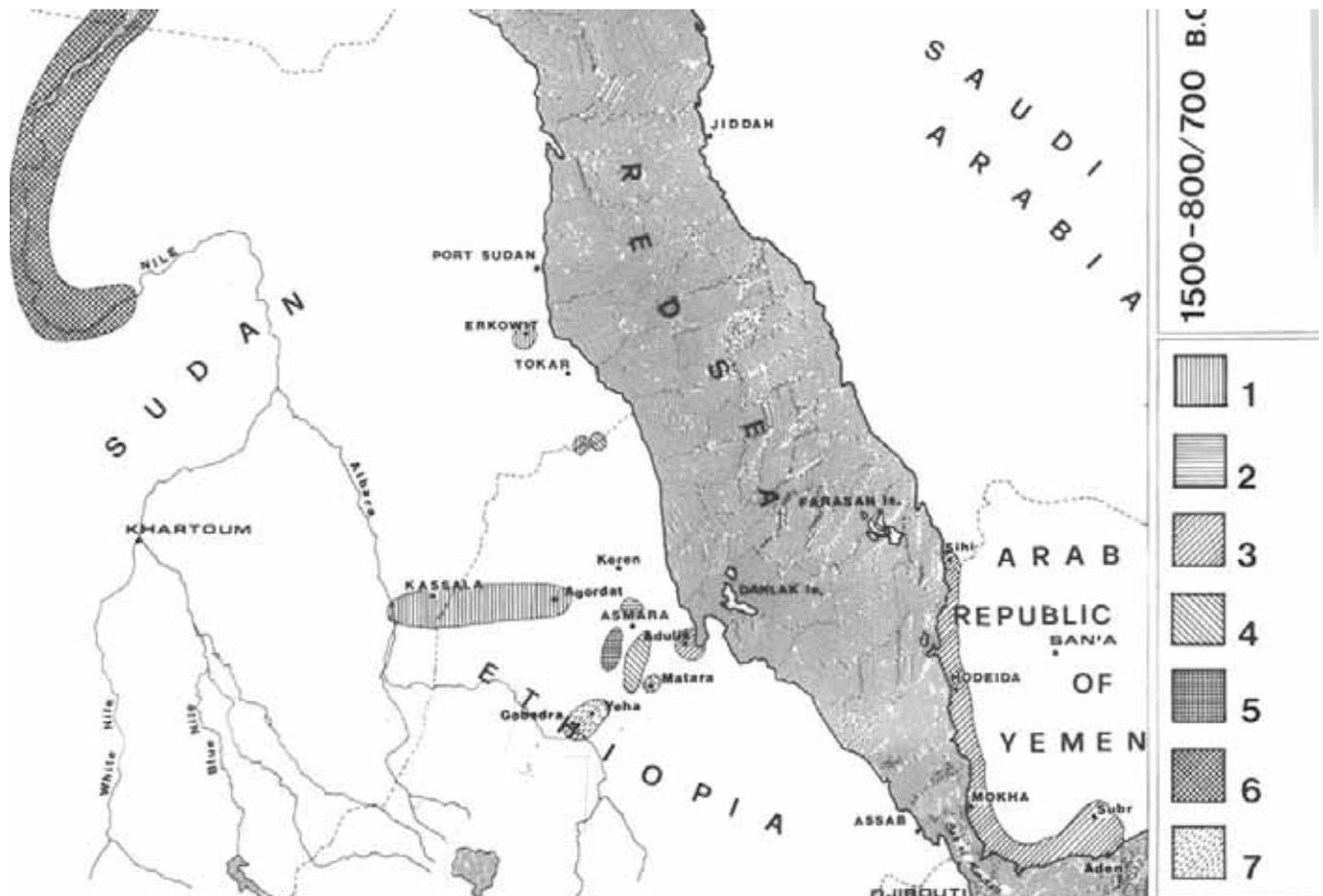


Fig. 5. The rise of complex societies 1500–800/700 BC.



Fig. 6. The rise of complex societies 800/700–400/300 BC.

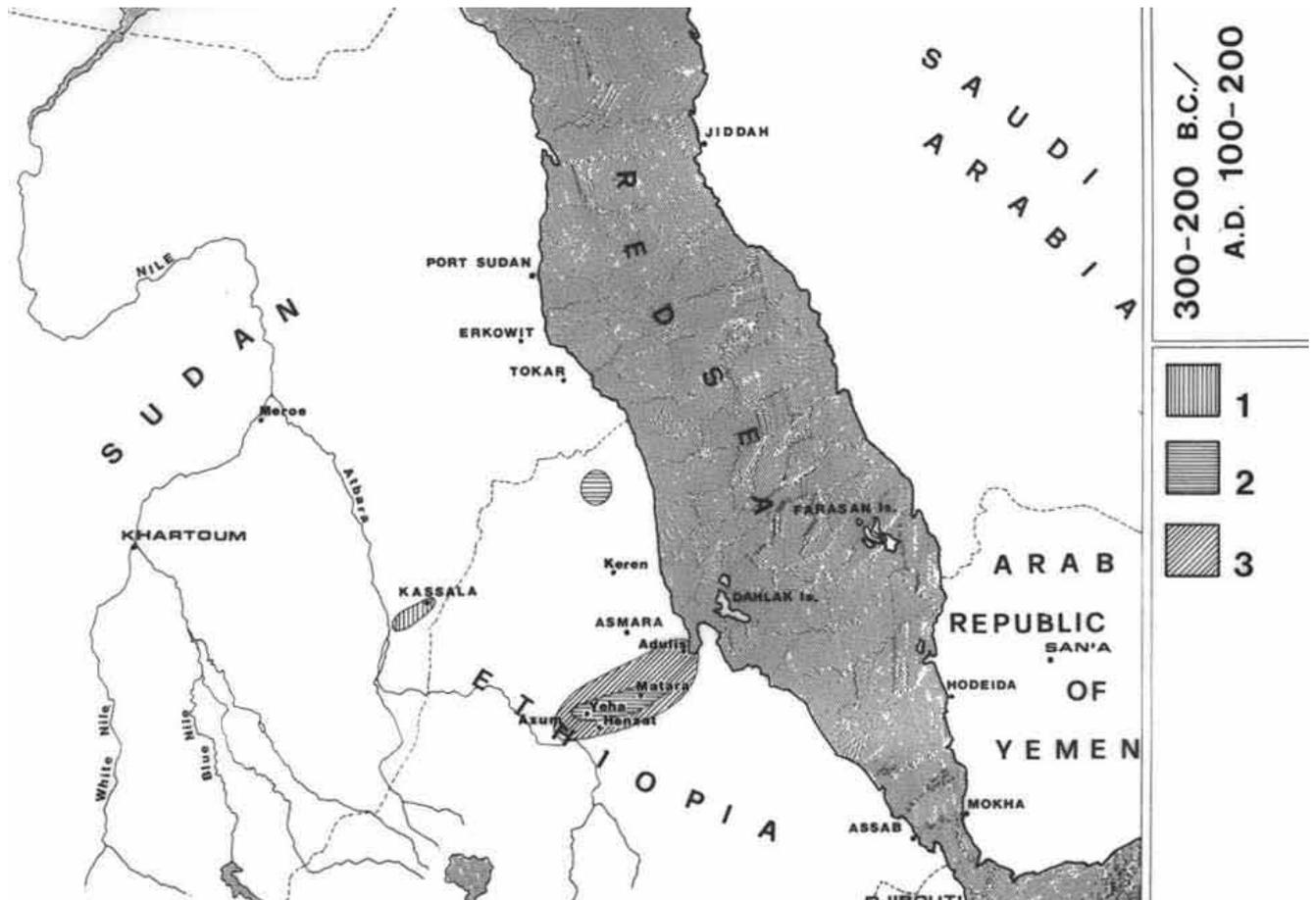


Fig. 7. The rise of complex societies 300/200 BC–AD 100/200.

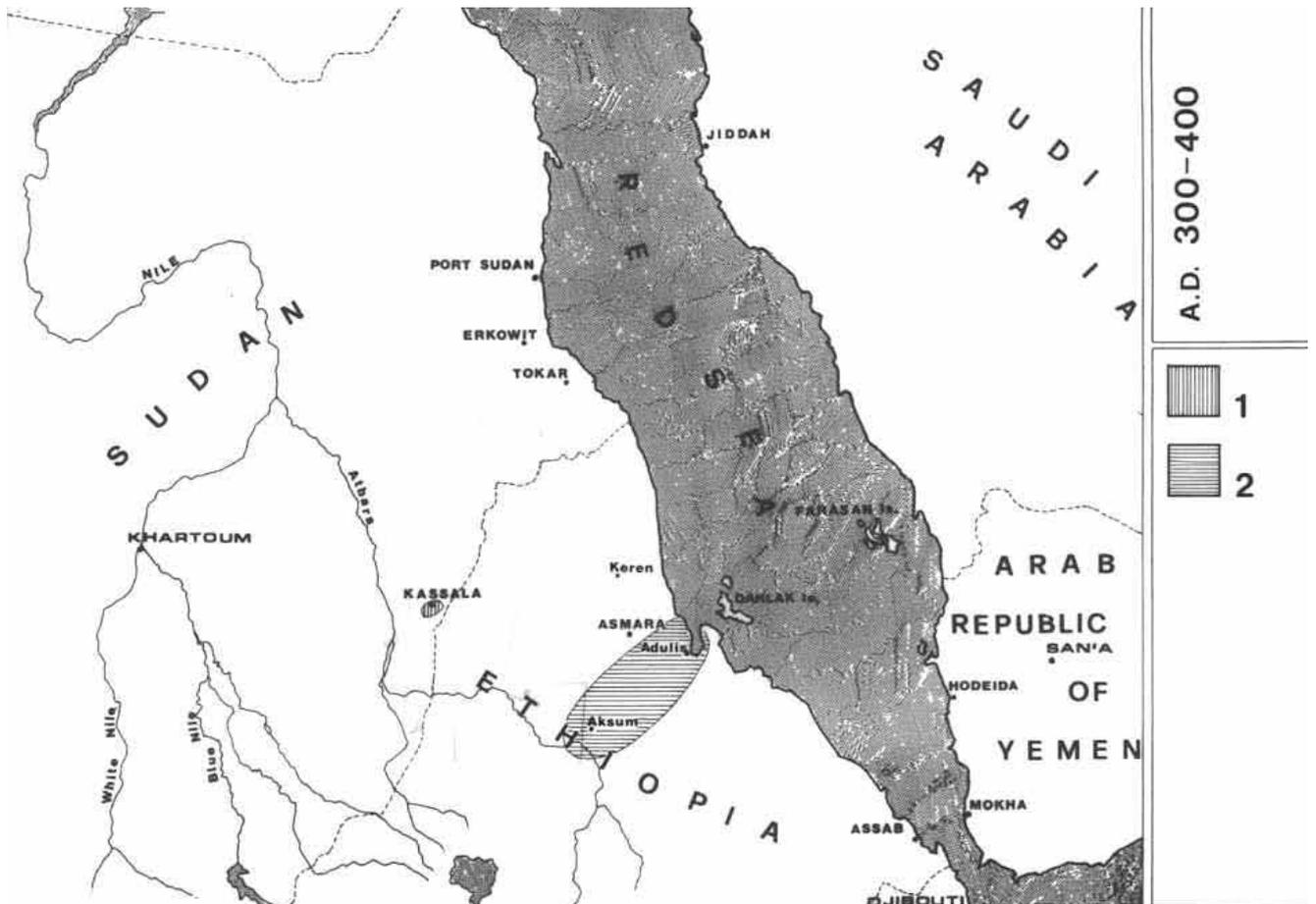


Fig. 8. The rise of complex societies AD 300–400.