The westward wanderings of Cushitic pastoralists

Explorations in the Prehistory of Central Africa

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Introduction

The origin and homeland of the major linguistic groupings in Africa, has been a subject of controversy since the first tentative attempts to classify the more than 2000 languages of the continent. Although most scholars are now agreed on the assignment of most languages to one or other of the phyla present in Africa, the internal arrangement of the subgroups within each phylum is very much open to discussion. Models of internal structure influence the historical interpretation of ethnolinguistic diffusion; if one branch of a phylum is considered especially close to another then historical models must account for its speakers' contiguity at some time in prehistory.

Of particular interest in this respect is the Afroasiatic phylum, both because it is so widespread in Africa and the Near East and because its internal structure is as yet very unclear. Afroasiatic has a somewhat ambiguous status among the major language phyla of the world. As the grouping that includes not only several languages sanctified by major world religions, but also the earliest written language, it has benefited from a massive research and publication effort in certain rather specific areas. It also has old-established traditions of scholarship that have not always had a positive effect on innovative research.

One branch of Afroasiatic that presents a specific problem is Chadic, the family of 150 + languages centred on Lake Chad but spreading from the borders of Sudan to northwestern Nigeria. Chadic is clearly the most internally diversified subgroup of Afroasiatic and perhaps for that reason might be considered as the most ancient branching. However, linguistic geography suggests rather strongly that it is indeed an intrusive group reaching the region after the establishment of the Nilo-Saharan and Niger-Congo phyla (see maps in Perrot 1988; Crozier & Blench 1992; Blench 1993a, 1997a). Since its nearest relatives are geographically remote (Berber or Cushitic) it has often been suggested that speakers of the Proto-Chadic were mobile pastoralists of some type. This has never been substantiated either linguistically or archaeologically and no date has been proposed for such a movement.

The purpose of this paper[1] is to put forward a model to account for the position of Chadic within Afroasiatic and to suggest a time and a route whereby Chadic pastoralists could have arrived at the Lake Chad area. Linguistic support for this hypothesis is presently limited to livestock terminology; full confirmation of this idea could only come from much more detailed comparative work within Afroasiatic. The paper explores the history of ideas concerning the internal classification and membership of Afroasiatic and to a lesser extent of Nilo-Saharan, since the two phyla interpenetrate in the crucial region of Central Africa. It then considers the domestic stock in this region of Central Africa and sets out the linguistic evidence for connections between Afroasiatic subgroups. Finally, archaeological evidence that can be linked to the proposed migrations is reviewed.

[1] I would like to thank the organisers of Méga-Tchad for allowing me to present this long and somewhat complex paper, a preliminary version of which was given at SOAS in 1995. I would like to thank David Appleyard, Jean-Charles Clanet, Richard Hayward, Hermann Jungraithmayr and Kay Williamson who have commented on various versions of it. Lionel Bender has been the source of stimulating debates on the subject of the classification of Nilo-Saharan and Afroasiatic, while not commenting directly on the text of the paper.

Afroasiatic and Nilo-Saharan Classification

Historical Views of Afroasiatic

Ruhlen (1987: 87 ff.) gives a useful concise history of the classification of the languages that constitute the phylum. The kinship of Hebrew, Arabic and Aramaic was recognised as early as the 1530s, and Ludolf pointed out the affinity of Ethiosemitic with the near Eastern languages in 1702. The name "Semitic" was proposed in 1781 by von Schlözer. Berber and some of the Chadic languages, notably Hausa were added during the course of the nineteenth century. The earliest version of Afroasiatic as presently understood probably appears in Müller (1876-87) who linked Egyptian, Semitic, Berber, Cushitic and Hausa, the only known Chadic language at the period.

A phylum under the name Afroasiatic goes back to Joseph Greenberg (1963). Previously, the preferred name was "Hamito-Semitic", an unfortunate conjunction both clumsy and redolent of suspect racial theories. Hamito-Semitic is by no means expunged from the lexicon, hence the confusing titles of various collections of conference proceedings (cf. Bynon 1984). Even disregarding the "Hamitic hypothesis" Hamito-Semitic gives a primacy to Semitic that is entirely without linguistic justification[2]. Other proposed names include Afrasian, Lisramic (Hodge 1976) and more strangely, Lislakh. These have not been widely adopted and Afroasiatic will be used here.

Afroasiatic has been the subject of a number of overviews, beginning with Müller (*op. cit.*). Historically, the most important of these have been Cohen (1947) and Diakonoff (1988). Hodge (1971, 1976) represents a summary of the situation in the early 1970s. In 1995, two very different perspectives on Afroasiatic were published, both accompanied by substantial data tables (Ehret 1995; Orel & Stolbova

[2] Much the same has been the case with Sino-Tibetan, where the written record of Chinese came to be regarded as evidence for its primary split with the largely unwritten Tibeto-Burman languages. As Van Driem (1995) has recently shown, this is not supported by the linguistic evidence, which suggests that Chinese should be classified with Bodic.

1995). The implications of these works have yet to be fully absorbed, but the contrast between them is that Ehret is concerned to justify a particular view of Afroasiatic phylogeny (Fig. 2, p. 43), while Orel and Stolbova are oriented towards etymologies. Ehret argues for a particular version of Afroasiatic phonology while Orel and Stolbova take for granted that proposed by Diakonoff.

An aspect of Afroasiatic that is worth noting is the important role played by scholars whose focus has been text. Interpretations have been, even more than usual, a mirror to the intellectual preoccupations of each scholarly generation. Ancient Egyptian has always been interpreted by Mediterraneanist scholars and this is reflected in the interpretations of the sound-system. The undoubted African contribution has been largely ignored or implicitly denied.

Despite this, it is fair to say that there has been a revolution in the treatment of Afroasiatic largely brought about by the massive growth in studies of African languages. Greenberg (1963) was responsible for the establishment of this phylum in its present form. His particular contribution was the dethronement of Semitic from its formerly central position, and the emphasis he placed on its relations with the languages of Africa.

The Internal Phylogeny of Afroasiatic

Greenberg's hypotheses marked an important development, but in one way they remained resolutely old-fashioned; they left the internal structure of Afroasiatic unexplored. Greenberg's classification allowed five co-ordinate branches, with Cushitic subdivided into five further co-ordinate branches. This is represented in Figure 1.

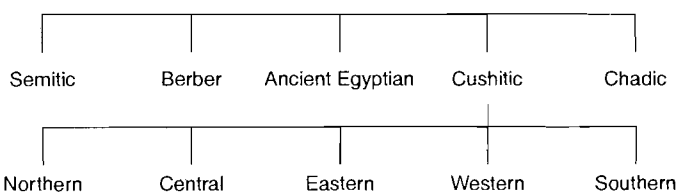


Figure 1
The principal subdivisions of Afroasiatic in Greenberg (1963).

This scheme broadly follows Cohen (1947) although Cohen included only Hausa as an example of a Chadic language and offered no specific hypothesis about Cushitic. Greenberg was undoubtedly the first researcher to outline Chadic as a distinct language family, eliminating the typological elements that had confused Lukas' classification.

The most significant development since this period has been the recognition that Greenberg's "Western Cushitic" is quite distinct from other branches of Afro-Asiatic. To mark this, it has been renamed Omotic (Bender 1975, 1988). Most scholars have accepted the coherence of Omotic as a group and agree on its assignment to Afroasiatic. Some researchers would prefer to retain Omotic within Cushitic, but these are now in a minority. In the case of the other branches of Cushitic, there has also been considerable discussion about whether it really constitutes a family and Beja, Ethiopian Cushitic and Southern Cushitic are often treated as distinct branches. Ehret (1987) has proposed a "proto-Cushitic" making explicit the hypothesis that these branches form a unity. New data on Dahalo have made its usual classification with South Cushitic less evident and some writers now wish to make it an independent branch of Cushitic (Tosco 1991).

Despite a wealth of documentation, attempts to put a structure to the groupings within Afro-Asiatic have been relatively few. Within Chadic, the internal classification of the most ramified of the subgroups of Afroasiatic has proved particularly complex. Greenberg (1963) left Chadic with nine rather ill-defined subgroups, but Newman and Ma (1966) made a major breakthrough in proposing three divisions. Newman (1977) later expanded this to four with the separation of the Masa group, although Tourneux (1990) has argued that Masa should be re-incorporated in Central Chadic. Barreteau and Jungraithmayr (1993) in a study combining lexicostatistics with proposed lexical innovations, have split West Chadic into two co-ordinate groups, opposing Hausa and the Plateau Chadic languages, such as Ron, with the Miya-Warji and other northeastern languages such as Ngizim.

It is interesting to note from the point of view of intellectual history that the first proposal to specifically link Cushitic and Chadic seems to have been made in 1909 by Leo Reinisch, the great Austrian scholar of the languages of the Horn of Africa. Reinisch noted that these languages were linked with Semitic and Egyptian and concluded on

ground of linguistic geography that Afroasiatic ("Chamitische" in his terminology) must have originated in Africa. Reinisch's conclusions are rarely cited and were probably far more unwelcome in 1909 than Greenberg in the 1950s and even Greenberg had to face considerable opposition. A related and challenging view of the Afroasiatic homeland was put forward by Behrens (1985) who used linguistic evidence, especially livestock terminology, to suggest that the homeland of Berber was far from its present centre of gravity. Behrens argued for a region of Western Sudan with subsequent diffusion both west and north some 6000 years BC.

Most recently, there have been a number of developments that have yet to be fully evaluated. The most important of these are:

a) The proposal that Ongota, a moribund language [3] of southwestern Ethiopia constitutes a valid seventh branch of Afroasiatic (Fleming *et al.* 1992).

b) Blažek (in press) has proposed that Elamite, an extinct language of the Ancient Near East, either constitutes a seventh branch of Afroasiatic or is co-ordinate with it. Elamite is usually classified with Dravidian, spoken in South India, but does show clear resemblances with Afroasiatic. Blažek proposes a structure where Afroasiatic is related to Dravidian at a higher level and Elamite forms a bridge between the two. Whether the links between Elamite and Afroasiatic reflect a genetic relationship or are simply a case of extensive loanwords, remains to be explored.

Ehret's (1995) schema of the internal structure for Afroasiatic is fairly similar to the models proposed formally or informally by other researchers and I have adapted some of his proposed names for the nodes (e.g. North Afroasiatic and Erythraic). Figure 2 shows a composite view of Afroasiatic incorporating my own views and some of the recent proposals made concerning Elamitic, Ongota etc.

Bender (1997) has also proposed a radically new structure for Afroasiatic ("upside-down Afrasian" in his terminology). His revised tree is as follows (Figure 3).

[3] Ongota has only 6 speakers as of 1997, down from the 15 reported in 1992.

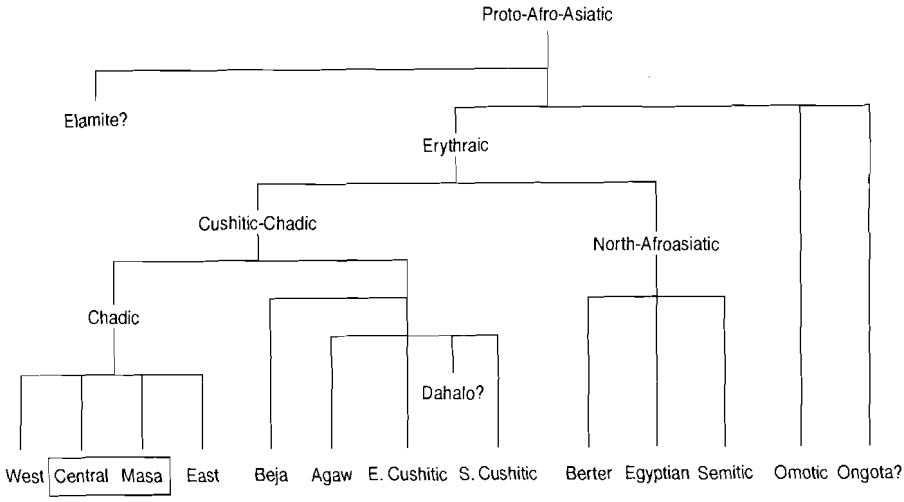


Figure 2
Proposed Revised Afroasiatic Classification.

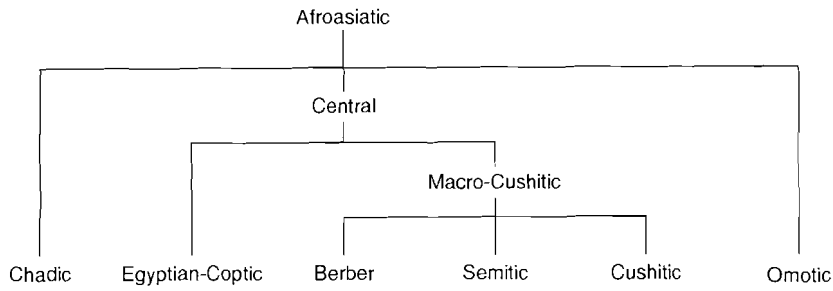


Figure 3
The Internal Structure of Afroasiatic according to Bender (1997).

Bender proposes a homeland for Afroasiatic (the region where Chad, Sudan and Libya meet today) and a date (10,000 BP). Perhaps even more startlingly, he canvases the possibility that Indo-European is somehow an offshoot of his "Macro-Cushitic". Whether these suggestions will be taken on board by the scholarly community will depend on the presentation of fuller evidence than is given in his short article.

Nilo-Saharan

The Nilo-Saharan language phylum remains the least-known and most controversial of African language groupings. Since its initial delineation by Greenberg (1963) there have been a series of studies, principally by Bender (1991b, 1996a, b) and Blench (1995a). An unpublished classification by Ehret is reviewed in Bender (1996a). Figure 4 shows one model of the relationship between the various branches of Nilo-Saharan; quite different structures are given in some of the literature cited. This is a much more controversial topic, but for the present argument, this is marginally relevant: all that needs to be taken on trust is that there are large numbers of fragmented Nilo-Saharan languages presently in the region between Chadic and Cushitic.

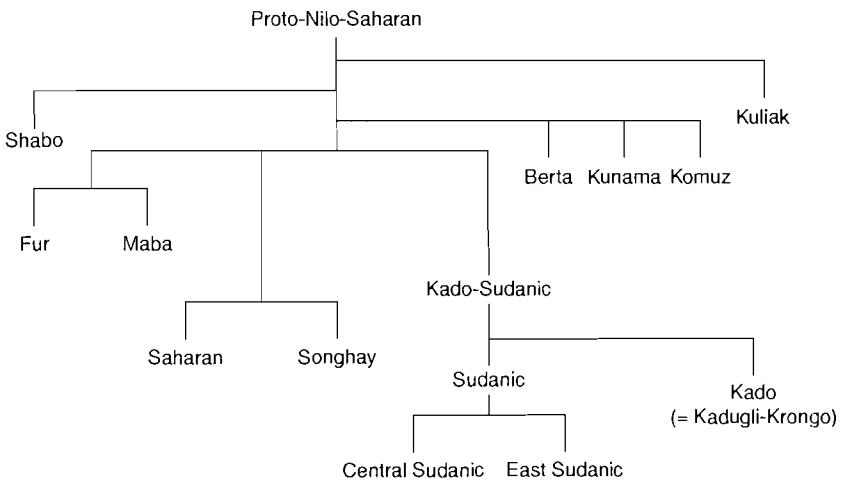


Figure 4
Internal Phylogeny of Nilo-Saharan: Minimal Hypothesis.

Trees, Peoples and Origins

This paper treats non-phylogenetic views with limited sympathy. Languages are spoken by people and communities split and diversify in real historical time for a multiplicity of reasons. Although the interplay of factors that underlie these processes remains only partly understood, it is only by seeking to apply sociological models of known processes that we can hope to model the past. Historically speaking, divisions in communities are a common process. A pastoral society divides as one group goes to seek pasture and water elsewhere. An agricultural community divides as one body of villagers go to seek new agricultural land.

Languages usually spread by two complementary processes, language-shifting and physical expansion. The Hausa and Fulfulde languages of West Africa are good examples of these processes at work. Hausa has largely spread in historical time through the Hausaization of agricultural populations, a process still at work today. Fulfulde, however, has spread across West-Central Africa through the physical movement of pastoralists with their herds. There is no reason to suppose these processes were not as common in the past as they are today.

The Inter-Saharan Hypothesis

Much of the conventional literature on the diffusion and spread of Afroasiatic assumes, implicitly or explicitly, a trans-Saharan route for the development of Chadic. Links with Berber and Egyptian abound in the literature and the analogy with the medieval Islamic trade-routes is extended into an unknown past. This paper argues, that while trans-Saharan routes were of importance, the present-day distribution of Chadic languages and their immediate affinities in Afroasiatic can best be understood by assuming that speakers of the proto-language migrated from east to west, from the Nile to the Niger, to exaggerate slightly. To distinguish this from the conventional view I propose to call this the "inter-Saharan" corridor.

If Chadic and Cushitic languages do have a privileged relationship, then this is best explained by the assumption that Chadic speakers

broke away from a branch of Cushitic and moved westwards. In view of the internal diversification of Chadic this must have been several thousand years ago. Given the long distances involved, it seems likely that this migration took place in the context of a pastoral subsistence system. In other words, a group of Cushitic speakers, herding cattle, sheep and goats, began to drift westward (Blench 1995b).

The inter-Saharan corridor is today largely in the Republics of Sudan and Chad. Today and presumably in the past it was inhabited by Nilo-Saharan speakers. If such a migration took place, then one confirmatory piece of evidence should be the scattered presence of livestock terms in Nilo-Saharan languages all the way between the Nile and Lake Chad. The data tables given below provide some evidence that this is indeed the case.

Leo Reinisch pointed out in the early part of the century that there are striking lexical correspondences between Nile Nubian and Cushitic. Work on the prehistory of Nubian and the languages of the Nile Valley by Bechhaus-Gerst (1984/5, 1989, 1999) has made this more historically probable. She shows that when Nobiin speakers reached the Nile Valley (by ca. 1500 BC) they encountered resident speakers of Cushitic languages from whom they borrowed a large number of words, most strikingly those connected with livestock production (goat, sheep, hen, pig, dung, stock enclosure, milk etc.). The languages that are apparently the source of these loanwords are Highland East Cushitic (Haddiya etc.) rather than Beja or the Agaw languages which are today geographically closer.

Pastoralism and Domestic Animals

Why Domestic Animals?

One approach to exploring the history of a language phylum is to examine in detail a semantic field that illuminates some aspect of the subsistence strategies of its assumed speakers. In the case of Khoisan, for example, it would be sensible to look in detail at animal names and hunting technology. In the case of Afroasiatic, livestock terminology provides a useful window, since it has long been observed

that many lexical items are widely distributed through the phylum. Livestock is also useful because:

a. it is probably older than cultivation in Africa: cattle, donkeys, cats and guinea-fowl are indigenous domesticates;
b. it is represented in rock-art and it is better attested archaeologically than cultivated plants;
c. many Afroasiatic speakers are still pastoralists.

Terms for domestic animals occupy a curious halfway house between cultural and basic lexicon. Domestic animals are ancient, but their exact antiquity is often in question. Therefore their presence at the period when a hypothetical proto-language is spoken remains doubtful.

The Principal Pastoral Species: Cattle, Sheep and Goats

Cattle

The ancestry of domestic cattle remains one of the most disputed topics in the broader debate over domestication. The most comprehensive overviews of the origin of the traditional cattle breeds of Africa are Epstein (1971) and Epstein and Mason (1984). Wild cattle seem to have been present in the Ancient Near East and Northeast Africa as late as 5000 B.C. and the earliest African cattle presumably derive from these. Muzzolini (1983b) has reviewed the evidence for cattle in Ancient Egypt and Gautier (1987) has synthesised the archaeological evidence for Northern and Middle Africa. Blench (1993b) represents an overview of the existing evidence from cattle breeds and races. MacDonald and MacDonald (1999) represents a comprehensive recent summary of the archaeozoological evidence for West-Central Africa.

Very early dates, before 9000 BP, are postulated for cattle in the Eastern Sahara (Gautier, 1981: 336, 1984: 69). Wendorf & Schild (1984: 420) note comparable domesticated cattle from Syria by the tenth millennium BP. Breunig *et al.* (1993) and Breunig and Neumann (1996) give dates of > 3000 BP (uncalibrated) for the bones of domesticated cattle in Borno.

Many early representations in rock-art of cattle in the Ancient Middle East, Egypt and the Sahara show cattle with some sort of hump.

Muzzolini (1983a, 1991) concludes that there are some apparently early images of humped cattle in Saharan rock-art which do not fit with the late introduction of zebu and therefore advances the hypothesis of an independent evolution of humpedness in the Sahara. The present-day humped breeds of West Africa almost certainly combine genetic material from the indigenous breeds and the incoming zebu. Recent work on the cattle DNA does appear to suggest a dual domestication in the Indian and NE Africa/ Near Eastern regions (Loftus *et al.* 1994).

Goat

The goat, *Capra hircus aegagrus*, evolved 7 million years ago, but it was probably not domesticated until 10,000 years ago in the Mesolithic period of the Ancient Near East (Gautier 1981: 336; Mason 1984b). Goats were certainly kept in Egypt after 5000 BC and presumably spread to sub-Saharan Africa shortly after that. The site at Haua Fteah, Cyrenaica in North Africa, has small ruminant bones dating from the 6800 BP with no associated cattle and Kadero, near Khartum, has both cattle and small ruminants at 6000 BP (Gautier 1981: 336).

Sheep

As with goats, sheep are descended from an ancestral Near Eastern wild sheep and domestic forms are recorded in Iraq as early as 11,000 BP. In Africa, they first occur as domesticates in the eastern Sahara at 7000 BP and at Haua Fteah in North Africa at 6800 BP (Gautier 1981: 336). Muzzolini (1990) has reviewed the evidence for sheep in Saharan rock art and his revision of the chronology placing the first appearance of sheep rather later, at 6000 BP, seems generally accepted.

Associated Species: Donkeys, Dogs and Guinea-fowl

Donkeys

The wild ass, *Equus asinus africanus*, is indigenous to the African continent and is usually divided into a chain of races of subspecies spreading from the Atlas mountains eastwards to Nubia, down the Red Sea and probably as far as the border of present-day Northern Kenya (Groves 1966, 1986; Haltenorth & Diller 1980: 109; Kingdon

1997). Four notional races, *atlanticus*, *africanus*, *taeniopus* and *somaliensis* are located approximately as shown in earlier studies (*e.g.* Haltenorth & Diller 1980). However, two of these, *atlanticus* and *taeniopus* have been rejected more recently and indeed the proposed *atlanticus* race turns out to have been based on misidentified zebra bones (Kingdon 1997: 311). The extent to which the wild ass penetrated the interior of Africa is controversial, but it is generally considered unlikely that it ever occurred in sub-Saharan regions. Groves (1986) argues that the wild ass extended into the Near East in ancient times and co-existed with the onager, *Equus hemionus*. Blench (1999 a) summarises the recent evidence for the history of the donkey in Africa.

The main features differentiating races of wild ass are the amount and type of stripes and the shoulder crosses. However, their characterisation may be somewhat blurred, since populations that survived into historical times have almost certainly crossed with feral donkeys, leading to a merger of characteristics. Civil war in both Somalia and Eritrea may mean that the fragile populations marked have disappeared or are severely threatened. There are two doubtful populations of wild ass near Siwa oasis in Egypt and further south towards the Sahara proper.

Records of domestic donkeys begin in Egypt in the fourth millennium B.C. with clear representations of working donkeys by the middle of the next millennium (Epstein 1971: 392). At about the same period there are textual records of extremely large herds of donkeys, many of which were apparently used for portage. The expeditions to Punt (Ethiopia) consisting of large trade caravans usually included numerous donkeys (Kitchen 1993). Donkeys from the second millennium BC occur at Shaqadud in the Butana grasslands of Sudan (Peters 1991). Donkeys were found in the faunal assemblages at Carthage in the Roman period (1-4th centuries AD) (Levine 1994).

The earliest record of a donkey in West Africa is at Siouré in Senegambia (MacDonald and MacDonald 1999). The stratigraphy of this site appears to be reliable and the donkey bone is dated to between 0-250 A.D. After this, the next finds of donkey bones are at Akumbu in Mali with a date of 600-100 A.D. However, such finds are extremely rare even in sites, such as Tegdaoust, where there have been extensive finds of other domestic species.

Dogs

The ancestry of the domestic dog remains uncertain and a number of canids may be implicated in present-day types (Clutton-Brock, 1984). The dog is not native to Africa and was introduced at an unknown period in the past. Epstein (1971, I) who reviewed this question at length, shows that dogs were known in Egypt in the pre-Dynastic period and so could have been brought across the desert in prehistoric times. It is likely that there have been multiple introductions from different sources, although the only race found in Central Africa is what Epstein calls the "pariah dog". Dogs are kept everywhere in Africa for hunting and security purposes. Frank (1965) has exhaustively reviewed the literature on domestic dogs in Africa, and Epstein (1971) has examined the evidence for the evolution of the African dog.

Guinea-fowl

The crested or helmet guinea-fowl, *Numida meleagris galeata*, Pallas, is part of the native fauna of West Africa. It is distributed from Senegambia to Cameroon and is also found in a part of Western Zaire. It was presumably domesticated long ago, although the larger domestic races closely resemble their wild counterparts. There are several wild species and genera of guinea-fowl in West and East Africa, notably *N. meleagris meleagris* in Sudan and Ethiopia, but apparently only *N. meleagris galeata* has been domesticated (see Donkin 1991, Map 1). Wild guinea-fowl are still regularly trapped as a source of food and their eggs are raided in the bush. Mongin and Plouzeau (1984) present an overview of recent scholarship on the guinea-fowl worldwide while Ayeni (1983) summarises existing information for West Africa. Donkin (1991) is an "ethnogeographical" study of the guinea-fowl that synthesises a great deal of scattered material, especially on the iconography of the guinea-fowl in the Mediterranean. Blench (1999 b) summarises the recent evidence for the history of the guinea-fowl in Africa.

Pig

The history of the domestic pig in Africa remains highly controversial. Although the wild pig, *Sus scrofa*, is native to north Africa, and its

range extends along the Atlantic coast to the Senegal River, there is no evidence that it was ever domesticated in Africa (Epstein 1971, II). Pigs are usually thought to have been domesticated in Anatolia and the earliest archaeological finds of pigs date back to 7000 BC. Domesticated pigs were kept in the Ancient Near East and Egypt from the end of the fifth millennium BC (Epstein 1971, II: 340). Pigs were known along the North African littoral, and seem to have spread down the Nile at least as Sennar, where they are still kept (Spaulding & Spaulding 1988). Pigs cannot be herded and are generally not kept by pastoralists unless they settle. Since pigs cannot survive by grazing for more than part of the year and depend on grown food they are usually kept by settled farmers. There is evidence that semi-feral pigs spread into the Omotic-speaking regions of the Ethiopian borderland and westward at least as far as Kordofan (see map of sites where pigs were recorded in Spaulding & Spaulding (1988)) and may have spread to West-Central Africa along a corridor from Darfur to Lake Chad. Blench (1999 c) summarises the recent evidence for the history of the domestic pig in Africa.

Linguistic Evidence

This section sets out the principal base forms proposed to illustrate the inter-Saharan connection. I have given apparent or actual cognates in Berber, Egyptian and Semitic where these have been proposed rather than omit evidence that may run contrary to the argument proposed here. I have not given the source of the data for each attestation to keep the references to manageable length. In most cases these are standard published sources and are listed in the references.

#ɬa, "cow, cattle"

West and Central Chadic attest a form something like *ɬa-* with likely cognates in East Chadic (Jungraithmayr and Ibriszimow 1994, I: 43). Southern Cushitic also has a voiceless lateral, #*ɬ-*, in the same C_1 slot (Ehret 1987: 80).

Related terms seem to be found in Semitic but not in Berber or Egyptian, if the ɬ/l correspondence holds. Cohen (1947: 182) presents an #*l-* series for Semitic, including Akkadian *lu* and Soqotri *leɔe*,

Notes

Acronyms/Toponyms etc.

'Central Africa' here refers to the area presently encompassed by Chad, Cameroon and Central African Republic.

Orthography

Spellings can be phonemic (where the language has been analysed in depth), phonetic (where the form given is the surface form recorded in field-work) or orthographic (taken from earlier sources with inexplicit rules of transcription). The follow-wing table gives the forms used here and their IPA equivalents;

This Work	Other Orthographic	IPA (1993)
y		j
c	ch	tʃ
j	dj	dʒ
ɮ	dl, zl, ź	ɮ
ɬ	tl, hl, sl, ś	ɬ

Words extracted from French sources have been normalised to make comparison easier.

Tone and stress marks

The exact significance of tone-marks varies from one language to another and I have used the conventions of the authors in the case of published languages. The usual conventions are :

High	ˊ
Mid	unmarked
Low	ˋ
Rising	ˇ
Falling	ˆ

In non-tonal languages, such as South Arabian, stress on vowels is marked with an acute accent, a convention I have retained.

In Afroasiatic languages with vowel length distinctions, only the first vowel of a long vowel is tone-marked. Some nineteenth century sources, such as Heinrich Barth, use diacritics to mark stress or length. These have been 'translated' into modern notation to avoid the confusing implication of tone-marking.

Vowel Length

Long vowels are usually marked by doubling in African languages but are often transcribed with a macron in Semitic etc. All long vowels have been transcribed by doubling to make comparison simpler.

Reconstructions

A word prefaced by # represents a pseudo-reconstruction, in other words a form derived from inspection of roots that looks probable, but has not been rigorously established through sound-correspondences. This contrasts with *, used to indicate reconstructions from systematic sound-correspondences.

Acronyms

*	Reconstruction established from complete analysis of sound-change	
#	'Quasi-reconstruction' established from quick inspection of cognates	
BC	Benue-Congo	
BES	Berber-Egyptian-Semitic	
C	Consonant	
Eth	Ethiopic (unlocated Ethiopian root)	
HEC	Highland East Cushitic	
N	Nasal	
NC	Niger-Congo	
NS	Nilo-Saharan	
PAA	Proto-Afroasiatic	
PC	Proto-Cushitic	Ehret, 1987
PEC	Proto-Eastern Cushitic	Ehret, 1987
PO	Proto-Omotic	
PS	Proto-Semitic	
PWS	Proto-West Sudanic	Westermann, 1927
s/r	small ruminant (in tables)	
V	Vowel	

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Cushitic	Agaw	Bilin	ləwi	cow
		East	Gedeo	lali	cattle
			Oromo	loon	cattle
		West Rift	Iraqw	ɬee	cow
	Chadic	West	Ngizim	ɬà	cow
		Central	Ga'anda	ɬà	cow
	Semitic	Central	Akkadian	lu'um	wild bull bull
				luu	
			Arabic	la'an	bull
			Jibbāli (=Shahri)	lé'/lhóti	cow
NS	Kuliak		Ik	ɬɔ	cow

Table 1
Attestations of #ɬa, "cow, cattle".

which may form a cognate set. These may, however, refer to the wild bull, still present in the Middle East and Arabia in the fifth millenium BC. Leslau (1938: 61) points out that the Hebrew personal name "Leah" is almost certainly cognate with these forms. The common Ethio-Semitic *#lam* for cow is something of a puzzle (Appleyard 1977: 26). Semitic scholars seem generally unwilling to connect this with the lateral fricative roots in Cushitic. As a result it has been suggested that the *l-ḥ-m* roots meaning "food" in Arabic and "shark" in Soqotri (*lehem*) are cognate. A semantic correspondence between "shark" and "cow" has a certain Greenbergian charm, but Akkadian *lu'um* "wild bull" is surely more likely. Leslau (1979, II: 379) also notes a comparison with Arabic *lihm*, "aged ox".

#saa, "cattle"

This root is a suppletive plural for "cow", *i.e.* "cattle" throughout Eastern Cushitic and Beja. Hudson reconstructs **saʔa* for Highland East Cushitic and Ehret (1987: 61) has reconstructed **ʃaaʕ-* for Proto-

Cushitic. An interesting further possible link suggested by Beja is with words for rhinoceros. Beja *še* pl. *ša* for rhinoceros is certainly close to the common plural for cattle *ša'*. Since these two animals would have inhabited the same ecological niche in the pre-domestication period, such a semantic shift is at least plausible.

This root is analysed by Pilszczikowa (1960) who links it with words for "sheep" in Semitic and Egyptian. Behrens (1985: 179) and Jungraithmayr and Ibriszimow (1994, I: 43) assume that the roots with lateral fricatives in C_1 are also cognate. This analysis is not adopted here.

Although attested in Hausa, *sâa* is an isolated citation and it seems likely that this is a loanword, possibly from Berber or directly from Arabic. The same may apply to the isolated Kotoko witness the source of which may be Shuwa Arabic, which has *sâ'a*, meaning "wealth in livestock"[4]. Other attestations related to *shaanuu* occur in Old Semitic languages, for example, Akkadian *ṣa'num*, and in Berber, Tamachek

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Cushitic	Beja	Beja	ša, pl. ša'a	cow
		Eastern	Sidamo	saa	cow
			Afar	saga	
			Proto-Cushitic	*ʃaaʿ-	(Ehret)
	Chadic	West	Hausa	sáánìyáá	
				sâa pl. shaanuu	
		Central	Kotoko	ń'ṣáá	
	Semitic		Akkadian	ṣa'num	
			Shuwa Arabic	sâ'a	
	Berber		Tamachek	eesu. pl. eeswaan	
			Tamazight	esu	cow
NS	Kuliak		Tepeth	saa	cattle kraal
	C. Sudanic		Sara Ndoka	sa+	cow
			Modo	sà	cow

Table 2
Attestations of #saa, "cattle".

eeswaan "cattle". The nasals seem to be added in Berber-Egyptian-Semitic forms. Although these roots clearly co-exist in Afroasiatic, the absence of widespread attestations for *s-* in Chadic do suggest borrowing from Berber.

#k-l-m, "bull"

The Chadic *#k-m-* (bull) resembles closely the common Agaw term for "cattle", something like *#kəm-* (Appleyard 1984: 39). Jungraithmayr and Ibriszimow (1994, I: 43) consider this connected with more widespread Chadic roots for "meat". Cushitic forms usually have *#k-r-m* so Agaw may have shortened this. Cohen (1947: 112) noted a common Afroasiatic *k-* for "bull" though he speculated that it was possibly a widespread loan. Although this word occurs throughout West Rift it so closely resembles the Ethiopian forms that it is probably

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Omotic	N. Ometo	Maale	k'ólmo	cattle
		S. Ometo	Koyra	kéymo	cattle
	Cushitic	Agaw	Bilin	kəm	cattle
		East	Gedeo	korma	bull
			Arbore	ḳoll	cattle
		Southern	Iraqw	karama◊	steer
	Chadic	West	Kulere	kyáàl	cattle
			Karekare	kwàm	bull
		Central	Hwana	kwèl	bull
		East	Lele	kòl-bḛ́	cattle
			Mubi	kìyà	cattle
	Ancient Egyptian			ḳmɜ	bull
NS	Saharan		Kanuri	kə́nná	calf

(◊) This root also occurs in a number of Bantu languages in Tanzania and I assume these are loans from West Rift languages.

Table 3
Attestations of #k-l-m, "bull".

[4] Also a common association in Indo-European; see "cattle" and "capital".

a recent loan rather than an old retention, since the practice of using pack-oxen is probably not as old as domestication.

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Omotic	S. Ometo	Zayse-Zergula	galó	
	Cushitic	Beja		tagar	
		Agaw	Bilin	gar	
		East	Burji	gáree	
			Arbore	goran	heifer
			Somali	agor	bull calf
	Chadic	West	Mburku	ɣérwá	cow
			Zaar	gààl	cow
		Central	Guduf	daɣale	bull
			Vulum	gàrîî	bull
	Semitic	West	Ugaritic	ʕ-g-l	calf
			Hebrew	ʕeegel	calf
	Egyptian		Coptic	ʕgol	calf
NS	E. Sudanic	Nubian	Nobiin	gor	calf

Table 4
Attestations of #gor, "calf".

#gor, "calf"

This root was suggested by Bechhaus-Gerst (1999) as a loanword into Nobiin. However, it clearly is more widespread as Table 4 shows, assuming the Chadic forms are indeed cognate.

The Zayse-Zergula citation may be a single loanword, since this is not a common form for calf in Omotic. The Chadic forms are almost certainly cognate with each other, but less certainly cognate with the Cushitic forms.

#b-g-r, "male ruminant"

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Omotic		Mocha	bágo	sheep
			Shinasha	baggoo	sheep
	Cushitic	Agaw (= Central)	Bilin	bägga	sheep
	Chadic	West	Karekare	bùgùrè	sheep
			Kwaami	mbòkìrá	sheep
		Central	Bacama	bògéré	sheep
			Musgu	béŋgere	he-goat
		East	Mokilko	bû-ŋgàrí	cattle
			Kera	ku-púrki	he-goat
	Semitic	Central	Shuwa Arabic	bagar	cattle
		South	Ḥarsūsi	bəḳərát	cattle
	Berber	Tamachek	Niger	á-beggug	sheep
NS	Saharan	Saharan	Zaghawa	bóógúrá	young married man
	E. Sudanic	Nubian	Nobiin	fag	goa

Table 5
Attestations of #b-g-r, "male ruminant".

Jungraithmayr and Ibriszimow (1994, I: 81) cite this as *#b-k-r*, a pan-Chadic root and describe this as a *Wanderwort*. Given its widespread distribution in Afroasiatic and the antiquity of goat domestication, there is no reasons why this should be so. However, they also (*op. cit.* 148) give *#baga* for "sheep" in Central Chadic and these roots must almost certainly be combined. The Berber citation (from Behrens, 1985: 167 *ex* Heinrich Barth) is unusual and not otherwise attested in Berber; it may therefore be a loanword. Bechhaus-Gerst (1989) also argues that the West Rift forms such as Iraqw *be'i* are also related, although this involves vowel changes and the assumption that the deleted consonant is /*g*/. The *-ri* consonant common to Semitic and Chadic is curious, suggesting a source in Ethiopic not synchronically attested.

#kol, "goat"

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Omotic	N. Ometo	Maale	kóle	goat
		South	Karo	k'olí	goat
	Cushitic	East	Burji	k'al-óo	goat
			Yaaku	kɔll-ɛh	castrate goat
			Rendille	kelex	castrate goat
	Chadic	West	Kofyar	koor	large castrate goat
			Bade	akûn	goat
		Central	Dera	kwáarà◊	goat
			Uroovin	xwun	goat
			Yedina	kàaní◊	goat
NS	Kuliak		Ik	kɔl	goat
	Kadu	Central	Katcha	kɔrɔmɔk	goat
	E. Sudanic	Surmic	Bodi	koloy	goat
		Temein	Dese	kwórɔmàl	he-goat
		E. Nilotic	Turkana	a-korai	goat
		S. Nilotic	Proto-Kalenjin	*kwɛr	he-goat
	Saharan		Kanuri	kəláwo	virgin she-goat

(◊) These may be loans from Kanuri *kanyî* and thus indirectly or unconnected.

Table 6
Attestations of #kol, "goat".

#t-m-k, "sheep"

The base form *#t-m-k* occurs in Afroasiatic, Saharan, and Niger-Congo (not cited in the table) and is definitely a *Wanderwort*. Newman (1977: 31) proposes **təmki* for sheep in proto-Chadic and Jungraithmayr and Ibriszimow (1994, I: 148) note its presence in all branches of Chadic, but they do not consider the external Afroasiatic lookalikes to be cognate. The word for a two-year old sheep in Teda-Daza, *duma*, is cognate with the Kanuri term *dími* and lamb *táma* as

with the Berti *tami*. The borrowings into Niger-Congo would have come from multiple introductions in the West African Sahel at the termini of trans-Saharan routes.

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Cushitic	East	Oromo	tumaamaa	castrate
	Chadic	West	Hausa	túnkìyáá. pl. túmáákíí	sheep
		Central	Bade	taaman, təmakun	sheep
			Higi of Kiria	tlmbəkə	sheep
			Tpala	tàmâk	sheep
		Masa	Masa	dímíína	sheep
		East	Mubi	túmák	sheep
			Kera	taaməgá	sheep
	Berber		Wargla	adəmmam	hair sheep
NS	C. Sudanic	Moru-Madi	Moru	temélé	sheep
	Kadu	Eastern	Krongo	ḍéémà	female goat
	Saharan		Kanuri	dími	
			Kanuri	táma	female lamb
			Berti	tami	lamb

Table 7
Attestations of #t-m-(k), "sheep".

The third literal, *-k-*, only occurs in Chadic and is presumably an early affix or compound. As the Oromo citation seems to be isolated, without further evidence the provenance of this root as Erythraic must remain doubtful. However, the Nilo-Saharan citations look convincing, providing some evidence for the base form further East in Central Africa. The Berber citation is interesting, since this word explicitly applies to hair sheep that have been brought from Mali and Niger (Delheure 1987: 53). It is likely that all such forms in Berber are loanwords from Chadic or even Saharan.

#'aare, "small ruminants"

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Omotic		Koyra	ʔáare	flock of sheep
	Cushitic	Beja	Beja	ano, annee	ewe
		East	Burji	aráy	
			Rendille	'aḍi	s/r
		South	Gorwaa	'aaraa	goats
	Chadic	West	Hausa	árà-árà	long-legged s/r
		East	Lele	ore	goats
	Semitic	Gurage	Muher	äräz	
	Berber		Guanche	ara	goat
NS	Kuliak		Ik	ri	goat
	E. Sudanic	E. Jebel	Gaam	èər	sheep
		Nubian	Meidob	arar	ram
		Nyimang	Dinik	ér	sheep
	Maba		Masalit	ári	ram
	Fur		Fur	w-ùri	ewe
	Saharan		Zaghawa	aro	ewe
				òòrù	flock
			Teda	arro	he-goat

Table 8
Attestations of #'aare, "small ruminants".

The Guanche citation is curious and may well be just coincidence. Perhaps related is a root that floats between sheep and goat, *onä*, which appears as a word for ewe in Beja but surfaces in Gurage as "goat". These could be a subset of Proto-Semitic #*n-z*.

#xorge, "he-goat"

Ehret (1987: 22) reconstructs Proto-Cushitic **ʔorg-* for "small ruminant" but this is most likely "he-goat" to judge by the predominant

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Ongota		Ongota	orgai-ko	goat
	Omotic	Ometo	Wolaitta	?orggé	he-goat
	Cushitic	East	Harso	orkakkó	he-goat
			Saho	xarge	he-goat
			Borana	orge	heifer camel (!)
		South	Asax	'a'aku	sheep
	*Proto-Cushitic◊			*?org-	small ruminant
	Chadic	West	Hausa	àwàakìi	she-goat
			Ngizim	áakù	goat
		Central	Ndreme	àwák	goat
		East	Dangla	âwkò	goat
	*Proto-Chadic◊◊			*a(w)ku	goat
NS	Saharan		Teda	orko	goat

(◊) Ehret (1987: 22)
(◊◊) Newman (1977).

Table 9
Attestations of #xorge, "he-goat".

gloss. This particular root has both Omotic and even Ongota cognates, although these could well be loans (Table 9).

Since this form does not otherwise occur in Nilo-Saharan, the Teda attestation may be a recent loanword.

Newman (1977) gives *#a(w)ku* as a proto-Chadic reconstruction, but there seem to be sufficient attestations of a lateral in C_2 position in Cushitic to add this to the reconstruction. Jungraithmayr and Ibriszimow (1994, I: 43) give the root as **wk-* and similarly attest its presence in all branches of Chadic. These are almost certainly cognate with the Cushitic *kor-* roots. Indeed it is possible to speculate that *kor-* and *org-* are in fact the same root with metathesis.

#m-r-k, "castrated small ruminant"

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Omotic	N. Ometo	Wolaitta	mára	lamb
			Koyra	marά	ram
	Chadic	West	Polci	maar	goat
			Tangale	mara	castrate goat
		Masa	Masa	mərak	castrate goat
		East	Birgid	mar	bull
NS	Maba		Masalit	mar-ʃa	bull
	Fur	Fur	Fur	maà	lamb
	Tama		Tama	má	bull
	C. Sudanic		Mödö	mùrúkù	castrated sheep
	E. Sudanic	W. Nilotic	Dinka -Bor	amààl	sheep
		E. Nilotic	Teso	e-merekék	ram
		Nubian	Birgid	mar	ram
		Surmic	Murle	merkee	ram

Table 10
Attestations of #m-r-k, "castrated ruminant".

This root is so widely attested that it is surprising to find no evidence for Cushitic.

Donkey

The historical and archaeological evidence for the wild ass or donkey does not appear to suggest either early domestication or transmission to West Africa. The linguistic evidence, however, is clear. The *#k-r* root is spread from Omotic to West Chadic, with intervening Nilo-Saharan attestations and is also largely apparently absent in BES which has a series of quite distinct roots.

The most likely history of this root is that it originally developed as a word applied to "wild ass", probably in Ethiopia. Bender (1988: 152) reconstructs proto-Omotic **kur* for ass. Skinner cites **dAnḵwAr* for proto-Cushitic based on forms such as Bilin *dəxʷara*. The *dV-* prefix strikingly links Southern Cushitic and Agaw and is apparently

Phylum	Family	Branch	Language	Attestation
AA	Omotic	Gimira	Benc Non	kur
		Mao	Hozo	kuuri
		Southern	Karo	uk'ulí
		Agaw	Bilin	dəxʷara
	Cushitic	Eastern	Saho	okáalo
		West Rift	Iraqw	daqwaay
	Chadic	West	Karekare	kóoróo
		Central	Vulum	kùré
		Masa	Peve	koro
		East	Nancere	kurá
NS	E. Sudanic	W. Nilotic	Mabaan	tɔɔrɔn
		Temein	Keiga-Jirru	kúl-kóŋ
	C. Sudanic	Sara	Mbay	kòro
	Saharan		Kanuri	kóro

Table 11
Attestations of #k-r, "donkey".

not attested in Eastern Cushitic at all. The Mabaan form is only cognate if initial t- corresponds to *k-*. Although the West Chadic forms closely resemble those of Masa and East Chadic, they may be loanwords from Kanuri.

#harre

This is an extremely widespread root through the Horn of Africa, and appears virtually unchanged in numerous East Cushitic and Omotic languages. This suggests that it is probably a widespread loanword and should not be reconstructed to Proto-Cushitic. The Ethio-Semitic languages have a different word, cognate with the Near Eastern Semitic root *ḥ-m-r*, arguing that the ancestral speakers of these languages already had a domestic donkey when they crossed the Bab el Mandeb.

The most probable source for *harre* are the Oromoid words for "zebra". Zebras are not part of the fauna of the highlands but they are widespread in the lowlands south of the Ethiopian Plateau and are

very familiar to pastoral groups such as the Borana. Borana has *harre dida* for zebra, with *dida* meaning "outdoors" or "open air". The term *harre* was probably originally a word for zebra in lowland Oromoid and was transferred to donkey once it was fully domesticated. The zebra would then become the "donkey of the plains". Formations such as Konso *harr-etita* for "zebra" would be calques of the Borana expression, already using the borrowed word for donkey. The development of the donkey as pack animal is probably reflected in the Beja *harri* "anything ridden, from a camel to a train".

In the Horn of Africa, an old root for the wild ass *#kuur-* was largely displaced by *#harre* when the domesticated donkey developed economic significance. The term *#harre* was probably borrowed from terms in lowland Oromoid originally applied to "zebra".

Dogs

Arguing historically from terms for "dog" presents a special problem; these words have an astonishing similarity across much of Eurasia. For example, proto-Omotic for dog is **kan* (Bender 1988: 145) closely resembling Proto-Indo-European **kwon-* (Rabin 1982: 27). Similar forms are also found in proto-Austronesian and Chinese. Newman (1977) proposes *#kər-* for the original proto-Chadic, forms of which also show up in Nilo-Saharan and is identical to English "cur". Jungraithmayr and Ibriszimow (1994, I: 49) note the widespread reflexes of this root across Chadic and consider it may reflect a "Central Saharan areal lexeme". Linguistically, therefore, probably the only useful evidence comes from compounded or affixed forms.

If, as Bender (1975: 159) and Skinner (1977: 187) suggest, this root is common Afroasiatic, then Akkadian *k-l-b*, Arabic *kalb* and Kabylé *akelbun* all form part of a cognate set. The *k-l-b* root is also applied to wolves in Eurasia (*e.g.* South Arabian languages) but this is probably a secondary meaning as wolves are absent in Africa. The South Semitic languages, such as Mehri and Soqotri, explicitly apply the same word *kalb* to both "dog" and "wolf". The third radical, *-b*, is now generally considered to be an affix marking wild animals and would not necessarily travel with the remainder of the word. Rabin (1982: 27) notes that forms such as Latin *canis* may be direct loans from Afroasiatic. Historically speaking, given the Middle Eastern origins

Phylum	Family	Branch	Language	Attestation	Gloss
AA	Omotic		Common	*kana	
	Cushitic	Beja	Beja	keluus	puppy
		Agaw	Bilin	gədəŋ	
		East	Saho	kare	
			Gawwada	xar-o	
			Konso	kuta	
		South	Asax	kite	
	Chadic	West	Hausa	kàree	
		Central	Bata	kəde	
			Kaɗa	kəra	
		East	Mokilko	gédè	
			Sokoro	kúyo	
	Semitic	Central	Ugaritic	k-l-b	
		South	Soqotri	kalb	
	Berber		Kabyle	akelbun	puppy
NS	Kuliak		Tepeth	kudo'	
	Saharan		Kanuri	kári	
			Teda	kidii	

Table 12
Attestations of #k-r, "dog".

of the dog, this is not improbable. Agaw terms for dog, such as Bilin *gədəŋ*, seem to resemble Central Chadic forms very closely, although this may be accidental similarity.

Another root with some promise is *#k-t-r* for "puppy". This lexical item is much more rarely recorded, and therefore less certain. However, this root has the advantage that it does not appear to be correspondingly widespread across the world in the same way as the basic terms for "dog".

The *#t-t-l* forms are only found in Gurage and probably loans from Cushitic.

Phylum	Family	Branch	Language	Attestation
AA	Cushitic	East	Haddiya	ṭuuṭúlla
		South	Gorwaa	kutukuti
	Chadic	West	Karekare	túutùu
		Central	Bura	kutiru
		East	Bidiya	kúrkiɗo
	Semitic	Gurage	Zway	ṭuṭəlla
NS	Saharan		Kanuri	kuturú

I Table 13
Attestations of #k-t-r, "puppy".

Guinea-fowl

The most common root in Chadic is *#sVb~vVn* which Skinner (1977: 192-3) shows is spread throughout the family. Skinner argues from this that the word has spread recently, but this seems unlikely as the guinea-fowl is indigenous to the region. Newman (1977) also notes this root and proposes *#zaban* for proto-Chadic while Jungraithmayr and Ibriszimow (1994, I: 84) propose *#z-b-l*. Strikingly, the forms in Cushitic are very similar. The common Ethiopic root appears to be *#z-g-r*, widespread in Cushitic and Ethio-Semitic; whether its witnesses in Omotic are more than sporadic loans remains to be seen. This root also means "spotted" in many languages. Ehret (1987: 54) suggests **zagr-* for proto-Cushitic, but Agaw forms have *-n-* in the C_3 slot and centralised vowels in V_1 and V_2.

Pig

Linguistic evidence suggests that some of the pigs in West Africa were introduced at an early period by the Portuguese, "unimproved Iberian swine", as Epstein has it. Loanwords from Portuguese *porco* are widely found in the coastal region of Nigeria (Williamson, p.c.). But there is also evidence for a chain of terms stretching from Eastern Burkina Faso to the Sudan-Ethiopian borderlands that appear to be unrelated to European introductions. Spaulding & Spaulding (1988),

Bechhaus-Gerst (1999) and Blench (1999c) have made preliminary compilations of the evidence (Table 14).

Phylum	Family	Branch	Language	Attestation
NS	Koman	Anej	kuturu	
NS	ES	Nyimang	kudur	
		Old Nobiin	kutun	
NS	Maba	Aiki	gìrwà	wart-hog (?C)
NS	Saharan	Kanuri	godú	warthog
NS	Kadu	Kamdang	b-oḍuruk, pl. k-aḍuruk	
NC	Kordofanian	Orig	kàdìrú	
NC	Benue-Congo	Nupe	kutsũ	
NC	Kwa	Fon	agurusa	
NC	Gur	Dagbane	kurutʃu	
NC	Bantu	#CB	#-gùdú	wild pig
AA	Omotic	Kefa	gudinoo	
AA	Semitic	Sudan Arabic	kadruuk	
AA	Chadic	Hausa	gàduu	

Table 14
Attestations of #-kutu, "pig".

This root appears in Nilo-Saharan, Niger-Congo and Afroasiatic and can also be applied both to the warthog and the bush-pig (*Potamochoerus porcus*). Manessy (1972: 314) points out that the chain of lexemes connecting to the Gur languages can be traced through dialect and obsolete terms for domestic pig given in Koelle. It was also cited by Gregersen (1972: 86) who used this as evidence for a proposed "Kongo-Saharan" grouping (wrongly, given that it is clearly a widespread cultural loan). Gregersen (*op. cit.*) also mentions Greenberg's suggestion that the Saharan form was loaned into *PB. Schadeberg and Elias (1979: 84) observe that this root has been loaned into Sudanese Arabic to give *kadruuk*.

The linguistic evidence is rather compelling; it suggests strongly that the small black pigs of the interior of Africa were indeed part of an

ancient pig-keeping culture that spread across Central Africa from the Nile. Pigs were kept in a semi-feral manner either roaming throughout the year or only being confined during the growing season. The rise of Islam drove pig production into pockets, and the introduction of larger European breeds which crossed freely with the local pigs has virtually obscured their genetic heritage. The pig, the "democratic philosopher of the Medieval Sudan" needs to be highlighted as a significant element in African subsistence strategies. It may be, however, the transmission of the domestic pig was chronologically and culturally distinct from the pastoral movement proposed in this paper; pastoralists usually eschew pigs because they cannot move long distances.

The "Inter-Saharan" Hypothesis

Tentative Historical Implications

A rather unexpected consequence of the study of domestic animal names is the number of common lexical items shared between Cushitic and Chadic. This tends to confirm the studies of Mukarovsky (1990, in press) on numerals and body parts. If this is correct, then Cushitic and Chadic may share a special relationship and be opposed to Berber-Egyptian-Semitic or "North Afroasiatic" (Ehret 1995). The links between Cushitic and Chadic would then be the result of a migration of Cushitic speakers westward. This is a considerable distance and might be explained by the gradual migration of pastoralist peoples. The example of the Fulɓe pastoralists who have expanded from Senegambia to the borders of Sudan in the last millennium show that such a migration can occur (Blench, 1995b, 1999d). The animals accompanying this migration would have been three species of ruminant: cattle, goats and sheep. More controversially, donkeys, dogs, pigs and guinea-fowl may also have been associated with this movement, although perhaps not kept as pastoral species.

Speakers migrated from the Nile Valley to Lake Chad, as would the Shuwa Arabs, millennia later. Languages related to present-day Chadic were presumably once spoken in a strip across present-day Sudan but

were later eliminated by movements of Nilo-Saharan speakers (Map 1). Little-known Chadic languages such as Kujarke, spoken in Western Sudan, may well be the last surviving remnants of this process (Blench, in press, b).

Archaeological Correlations

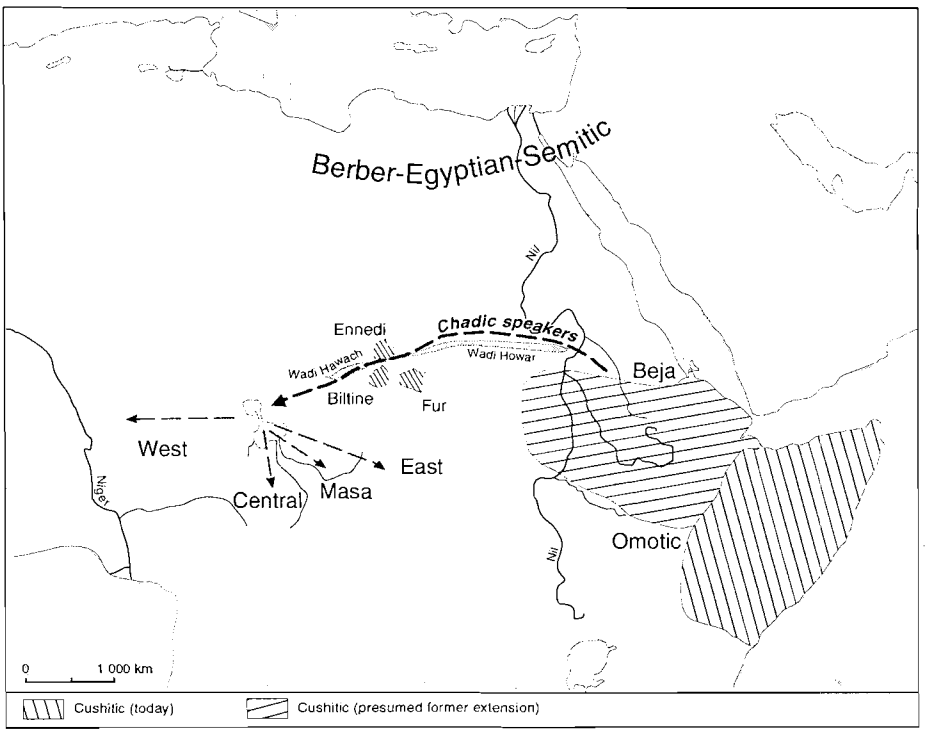
Such a significant long-distance movement of actual population as implied by this model should have archaeological correlates. One of the distinct problems in relating linguistic to archaeological evidence is the patchy nature of excavation. Sudan is relatively well covered, but data for Chad and the relevant regions of Ethiopia and Nigeria remain sparse indeed. To seek sites or traditions that might provide material evidence for such a movement, certain parameters must be established. The linguistic data provides no internal evidence for dating although the model has to allow sufficient time for the internal diversity of Chadic languages to develop. Such a movement of pastoral peoples must also lie within the known parameters of ruminant domestication.

A likely candidate for the wandering Cushites is the *Leiterband* pottery tradition that has been identified in the Eastern Sahara, most specifically in the Wadi Howar, which is a now dry river system that stretches over 1000 km between Eastern Chad and the Nile Valley[5]. The Howar ends just beyond the Sudanese border and the proposed migrating pastoralists would then have faced a substantial obstacle in the shape of the Ennedi and Biltine mountainous regions which run North-South. However, there is a gap between these two outcrops which would permit pastoral migration, and the herds would then pick up the Wadi Hawach and thence a series of smaller wadis, running towards Lake Chad.

Leiterband traditions were first identified by Kuper (1981) as distinct from Nubian C-group pottery. They have been subsequently studied in more detail by Keding (1993) who argues that this tradition shows its strongest links with the Khartum Neolithic, out of which it may

[5] I am grateful to Jean-Charles Clanet, who encouraged me to examine the geography of this region more closely.

develop. Keding shows that the pottery traditions are strongly associated with cattle-keeping and indeed complete cattle skeletons have been found in pits on *Leiterband* sites. From this she argues that the makers of the pottery were pastoralists who also supplemented their diet with fish, at that period widely available in the rivers. This pastoral/fishing economy is extremely familiar today from the Nilotic-speakers in the region, such as the Dinka. Map 1 shows the projected route of the speakers of proto-Chadic as well as the approximate locations of the wadis referred to above.



Map 1
Proposed migrations of Chadic-speakers.

Leiterband traditions have yet to be convincingly dated directly, but if the chronological sequence linking it with the Khartum Neolithic is correct, then it would begin to develop approximately 4000 BP. This would suit the present hypothesis extremely well; if the Cushites

began their westward movement from Ethiopia some 6-5000 years BP they may have been responsible for the Khartum Neolithic (beginning 5700 BP) and then gradually spread westwards along the Wadi Howar some 4000 years ago. The increasing aridity after this period severed the links with the Nile Valley allowing an independent evolution of decorative styles. In the meantime, the continuing westward drift reaches Lake Chad ca. 3000 BP. This would then link with the earliest dates for cattle in this region at about this period (Breunig *et al.* 1994).

Conclusion

Various models of the internal structure of Afroasiatic have been proposed, most notably those of Fleming (1983), Ehret (1975, 1995), Stolbova and Orel (1995), Bender (1997) and Blažek (in press). The terminology of domestic livestock suggests strongly that Cushitic and Chadic share a special relationship and that this is reflected in the terminology for species of domestic animals. As names for domestic animals are notoriously susceptible to loaning, the demonstration of such links is far from constituting proof of the specific Cushitic-Chadic relationship. However, other evidence also supports this notion, pointing to an avenue for further investigation.

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