LANGUAGE, ARCHAEOLOGY AND THE AFRICAN PAST

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ACRONYMS

AA	Afroasiatic
BC	Before Christ
BLR3	Bantu Lexical Reconstructions 3
BP	Before present
C	consonant
C_1	first consonant
DNA	Deoxyribonucleic acid
DRC	Democratic Republic of the Congo
IPA	International Phonetic Association
KS	Khoesan
Kya	‘000 years ago
MSA	Middle Stone Age
mtDNA	mitochondrial DNA
N	nasal
NC	Niger-Congo
NS	Nilo-Saharan
PB	Proto-Bantu
PIE	Proto-Indo-European
PWS	Proto-West Sudanic
V	vowel

CONVENTIONS

Square brackets around a date in a reference indicates first publication. Thus Nachtigal (1980 [1871]) indicates that I use a version published in 1980 but that it was first published in 1871.

Preface

This book has grown out of two frustrations; the failure of historical linguistics and archaeology in Africa to come together, despite many opportunities for their encounter, and the style of certain presentations, which suggest that the answers to the questions both disciplines are asking are already wrapped up. In part this is because of the varying styles of individual historical linguists; some practitioners announce their results with a certainty that hardly reflects the scholarly consensus. If this book can convey a single message it is that reconstructing the African past is a trans-disciplinary enterprise that must be both dynamic and collaborative. New data and analyses are constantly being presented and frequently require major rethinking of received ideas. Certain established areas of study, such as Bantu and Afroasiatic, can be very resistant to radical proposals and thus only change rather slowly. Despite constant lip-service to the idea of synthesis and collaboration, mainstream conferences do not usually attract scholars from other disciplines and the attitudes of referees in high-status journals do not encourage cross-fertilisation.

This book is inevitably personal; I have been working on these themes for many years. Nonetheless, I have tried to give due prominence to styles and theories very different from my own, especially in genetics, where I have had no direct involvement. I have tried to write this book as much for archaeologists interested in linguistics as for linguists interested in prehistory. Still, I am aware that some parts will be hard going, especially in the methods section. There is no easy way around this; it is important to get across the very real problems of historical linguistics if the links with archaeology are to be made credible. I have tried to incorporate recent discoveries in genetics with the aid of colleagues who are practising scientists, but I am well aware of the potential to oversimplify or scramble some issues. Spending time tracking down the originals of a number of early sources it seems that many of the bibliographic references in standard volumes are quite inaccurate. I have therefore tried to make these as complete as possible.

I make no excuse for referring throughout to developments outside Africa, especially in the Pacific region, where many trans-disciplinary explorations have gone much further and there is a broad scholarly consensus on many issues that is sorely lacking in Africa.

Binding a CD-Rom with the text bypasses one of the hurdles of historical linguistics, the difficulties of publishing extensive datasets in print. Most of the material on the CD-Rom is also available on my website and this should be updated as soon as new data or analyses are to hand. I have freely cannibalised much of my published and unpublished work; many of the papers out of which this book has grown are accessible through my website.

I am not part of any institution; my thanks are thus to individuals who have worked with me, read my papers, given me access to unpublished data and generally provided encouragement. These are Daniel Aberra, Jörg Adelberger, David Appleyard, Robert Armstrong (†), Giorgio Banti, Daniel Barreteau, Peter Bellwood, Lionel Bender, John Bendor-Samuel, Martin Bernal, Vaclav Blažek, Robert Blust, Steve Brandt, Peter Breunig, Humphrey Burkill, Eithne Carlin, Joanna Casey, Bruce Connell, Tom Cook (†), David Crozier, George van Dreim, Adam Frajalla, Richard Freeman (†), Dorian Fuller, Ludwig Gerhardt, Leoma Gilley, Cameron Hamm, Umaru Hassan, Dick Hayward, Robert Hedinger, Bernd Heine, Carl Hoffmann, Jean-Marie Hombert, Larry Hyman, Baudouin Janssens, Hermann Jungraithmayr, Barau Kato, Bitrus Kaze, Andrew Kidd, Roland Kießling, Ulli Kleinwillinghöfer, Gerhard Kosack, Maarten Kossmann, Colin Leakey, Rudolf Leger, Salvio di Lernia, Selbut Longtau, Sarah Lyons, Kevin Macdonald, Ian Maddieson, Abdalla Mongash, Rex Moser, Maarten Mous, John Nengel, Katharina Neumann, Paul Newman, Derek Nurse, Andy Pawley, Clark Regnier (†), Mechthild Reh, Laurie Reid, Alicia Sanchez-Mazas, Laurent Sagart, Bonny Sands, Thilo Schadeberg, Russell Schuh, Guillaume Segerer, Uwe Seibert, Paul Sinclair, Neil Skinner, Anne Storch, Robin Thelwall, Mark Thomas, Irene Tucker, Rainer Voßen, Valentin Vydrine, Martin Walsh, Andy Warren, Kay Williamson and James Woodburn. My greatest debt, however, is to the many people, in different parts of Africa, but especially in Nigeria, Ghana and Sudan who have patiently answered my questions and taken part in survey work.

PRELIMINARIES

TERMINOLOGY

As more syntheses of the languages of the world appear a consensus on terminology is slowly emerging. The most important of these is the use of 'phylum', now applied to the large well-known and reasonably established families of languages such as Austronesian or Uralic, but more controversially extended to any language grouping whose external affiliations are not well established or remain highly controversial. This can mean that an individual language may be considered a representative of a now-vanished phylum; thus the Hadza language of Northern Tanzania is generally considered an isolate and the potential group of languages of which it is now the sole remaining representative can be referred to as 'Hadzic'.

The term 'stock' occurring in discussions of Pacific, especially Papuan, languages has not been widely adopted outside this region; most linguists use 'family' as the next level of relationship below phylum. Indeed, Indo-European scholars, the most conservative subgroup of historical linguists, do not yet refer to Indo-European as a phylum. Between stock and language something of a free-for-all obtains; branch, section, group, subgroup are used quite freely, and no fiat from individual scholars is likely to change this situation. 'Language' is generally considered to be a group of speech-forms whose speakers can all understand one another without considerable effort. Below 'language' in the hierarchy of classification either dialect or variety are commonly used. The term 'lect' has recently been adopted both to capture the ambiguous region between language and dialect and also to avoid the pejorative overtones of dialect.

WEBSITES

Increasing amounts of data are available on websites and I have used them extensively in the preparation of this book. Some of the most valuable are cited in a separate list following the bibliography, others are in footnotes. Websites have the disadvantage of a certain impermanence, they change content and vanish for unspecified reasons. As a consequence, they never have the status of a published text, despite their importance. All the sites mentioned in the text are therefore cited with this caveat concerning their future accessibility.

RECONSTRUCTIONS AND CONVENTIONS

Reconstructions form a particular focus of historical linguistics, and the proto-forms it reconstructs are usually denoted by an asterisk * and are often referred to as 'starred forms'. These abstract forms are the elements of a hypothetical proto-language. Thus an author citing * plus a formula for a word is implying that it was part of the proto-language spoken by the particular reconstructed ancestral group. Terms such as Proto-Indo-European (PIE) are common enough to be standard terminology. However, not all authors use the same standards of evidence to derive these proto-forms. Problems arise;

a) when the dataset is defective, i.e. lexical attestations are known only from some languages in the proposed subgroup
b) when a reconstruction is built indirectly, i.e. on the back of other reconstructed forms whose status is in turn doubtful.

Proto-forms can be proposed for defective datasets; this is an inevitable part of hypothesis building. But they should clearly be identified as speculative; when speculative reconstructions of this type are quoted as solid results by specialists from a different discipline this can highlight the problems of this type of inter-disciplinary enterprise.

In some domains of African language research a distinction has been adopted between a 'quasi-reconstruction' or 'pseudo-reconstruction' and a 'regular reconstruction' (e.g. in Bendor-Samuel 1989).

Quasi-reconstructions are essentially well-informed guesses based on partial datasets as opposed to regular reconstructions which result from a thorough analysis of historical sound-correspondences. Quasi-reconstructions are marked '#', in contrast to regular reconstructions which retain the asterisk *. Systematic application of such a distinction is difficult to enforce as authors are inevitably sensitive when the reality of their own reconstructions is under question, particularly in the case of deep-level macrophylic reconstructions. However, as variations arise in the reconstruction and subgrouping of the language phyla of the world, historical linguists will gradually be compelled to become more critical of proposed reconstructions.

PHONETIC CHARACTERS AND ORTHOGRAPHIC CONVENTIONS

This book makes no apology for using the technical conventions of linguistics; unless results are backed up in a way credible to linguists any assertions about reconstruction will remain speculative. As far as possible, data tables have been shifted to the accompanying CD-Rom to establish a clear flow of argument. In an ideal world, all linguists would switch to a standard set of conventions for representing phonetic characters and these would be internationally agreed upon and developed or expanded as research continues. The conventions of the IPA (International Phonetic Association) largely serve this function in the case of basic phonetic research and often in the description of undescribed languages. However, where an old-established research tradition exists, as in Indo-European, Ethiopic or Proto-Bantu, phylum- or subgroup-specific conventions have been established. In addition, orthographies that were developed in the last century for mission or other literacy purposes often reflected the technology of the period. Where authors were expecting to produce primers or Bible translations they developed conventions that were effective on typewriters. In some cases, these conventions have become well-established and now that printed materials are produced by computer, word-processors have to mimic them. The text generally uses IPA phonetic symbols, but in the case of well-established traditions, the transcription follows disciplinary orthographic conventions. Where these might be obscure they are explained in endnotes.

ETHNIC AND LANGUAGE NAMES

Throughout the text numerous language and ethnic names are cited, especially in the data tables in Part II. To locate and explain each name in the text would be lengthy. These names are listed in the language classifications included on the CD-Rom, but a quick and effective way to locate them is to access the Ethnologue, which is a global guide to the languages of the world, to which the author has contributed extensively. The Ethnologue can be found at http://www.ethnologue.com. This book does not always use the same head entries as the Ethnologue, but my versions of language names can always be found by using the search facility.

Foreword

The African continent houses a diverse human population speaking nearly one-quarter of the languages spoken on Earth; at least 2000 different languages, and a myriad of dialects. Some languages have many relatives and others are isolates. Some language families have a very restricted geographical distribution while one family, Niger-Congo, covers nearly half of the continent. The modern-day distribution of African languages is very striking, since most of the sub-Saharan region is notable for its mosaic of extremely different languages, while a large region of southern and eastern Africa is entirely populated by the numerous closely-related Bantu languages, of a comparatively recent origin. Given the variety of human physical types, this welter of indigenous languages, and the diversity of cultural expression, it is no wonder that Africa has been visited both by the classifiers of languages and those attempting to describe the origins, connectivity, influences on and borrowings from the different vernaculars spoken there.

Language is one way humans encode experience to transmit it to their peers and descendants. As such, it is the medium for affecting change in others, often in association with social or technological behaviors. Anthropologists often wish to determine the effects of cross-fertilization, through language of seemingly diverse cultural groups. For example, were Maa-speaking foragers, who interact with culturally distinct Maa-speaking herdsmen, always Maa-speakers, or have they shifted ethnolinguistic identity? What is the cultural basis of the cooperative behaviors of the physically distinct forest Pygmies and their Bantu-speaking agriculturist neighbors? Uncovering such analytical problems was the role of descriptive linguistics. Finding explanations is embedded in the interstices of archaeology and historical linguistics.

Those interested in the African past have a wide-ranging set of queries, related to the movement of people, ideas or subsistence strategies. For example, why is the nearest relative to the language spoken by the people of Madagascar found on Borneo, a distant southeast Asian island? From whence came the different cattle-herding people of the continent? Where did cereal cultivation originate in Africa and what relationship did the earliest farmers have with contemporary pastoralists, or even emergent Near Eastern agriculturists? Can we detect in vocabulary, autochthonous development, stimulus or direct diffusion, or the merging of different traditions? And what of the widespread foraging populations that once ranged the open savannas? What was their original range, what role did they play in the imposition of food-producing regimens in their vicinity, and how were they affected by the settlement of new populations speaking different languages? If words are borrowed from foreign speakers, is such borrowing a clue to the source of diffused and assimilated ideas? In other words, what information relevant to discussions of the African past is encoded in the diverse vocabularies of the continent? All these are questions that investigators have asked and still attempt to answer.

Often attempts at explanation have been driven by a purely archaeological solution to the problem. In the 1960s, archaeologists working in eastern, central and southern Africa were engaged by the research problem usually called the *Bantu Expansion*, the surprising fact that almost all the languages spoken between southern Cameroun and Zululand are closely related and appear to have spread out recently. The argument held that the presence of pottery-using agriculturists was synonymous with related peoples conversing in one or another of a large family of Bantu languages. Given the extensive swath of landscape occupied by Bantu-speakers and their supposed insinuation onto terrain once utilized by non Bantu-speaking pastoralists and the apparent displacement of other non-Bantu speaking foraging populations, this seemed a logical conclusion. Time has not changed this research equation, though time has changed the quality of our data and our means of studying this phenomenon. At one time, the field approach to the Bantu Expansion problem, though ostensibly the investigation of the spatial and temporal dimensions of a language family was, in reality, one of potsherds, the classification of characteristic pottery types and attempts to find linkages between the different decorative types suggesting both the movement of people and the relationships between far-flung cultural populations. The validity of such studies is not questioned here, though we have Roger Blench to thank for helping to bring us back to the probing of vocabularies, syntax and grammar in the search for the origins and transformation of this important language family. Beyond these three elements of language are those essential lexemes acting as portmanteaux filled with critical meaning—conveying the significance of

an animal's skin color to a young herdsmen, or the embodiment of land tenuring in a senior member of a farming community, or the spirit of a trance experience to a forager communicant, or whatever.

Historical linguistics provides an exciting tool for posing and answering the kinds of questions historians of culture are required to ask; opening the portmanteau, discovering within it the significance of individual words, while positing transmission of concepts from generation to generation and group to group. It is not vocabulary, *per se*, that attracts our notice, but the broader canvas that some words convey, as they transfer within and between cultural groups carrying along an associated complex of things or ideas. But, this is only one, albeit, important example of the kind of problem we can consider with a hope of finding a constructive conclusion by the coming together of the methodologies of historical linguistics and archaeology.

The African language families and their connectivities with, or borrowings from, other languages, cultures, technologies or patterns express the interaction spheres that vitalized human history from the beginning of time. Critical autochthonous cultural development occurred everywhere, sometime, but emergent interaction spheres mediated the movement of novel ideas embodied in the words describing them. From time to time foreign people–through conquest, contact or trade–and new technologies brought with them new vocabularies describing fresh concepts previously unknown. The tracking of these novelties through their linguistic correlates permits the plausible reconstruction of happenings, innovations or contacts not otherwise discernible in the complex matrix of the archaeological record.

Utilizing the latest linguistic analyses, current evidence from archaeology, genetic research and recorded history, Roger Blench surveys not only the broad universe of African languages and language families; but by association examines the economic culture of the continent. By delving into the "hidden" historical significance of speech he does more than just revisit problem, like the Bantu origins and expansion, but discerns the different language phyla in time depth as he examines the likely origins and passage of foodstuffs, economic technologies and subsistence patterns. The history of African languages and the cultures they articulated is laid open.

Whether determining the origins of Cushitic-speaking pastoralists of East Africa; or deriving diversion of the equally pastoralist Khoekhoe of southern Africa from their foraging cousins, the San, or some other question latent in the archaeological palimpsest, Roger Blench searches their verbal expression for the common correlates and borrowings that suggest the source of new economic patterns and, by inference, the social behaviors that attend them. Though my examples are, for the most part, drawn from the southern half of the continent, in the book equal attention is given to the people of the forested regions, the Congo basin and the desert regions of the Sahel and Nile valley.

Roger Blench's coverage of the historical development of African language studies is wide-ranging. Along with a comprehensive overview of the investigative tools available to the study of African linguistic history and a critical discussion of the repertoire of related linguistic methodologies, he has given us a landmark multi-dimensional study of the distribution of African languages in space and time, marking their individual characters, tracking their influences on the development of the distinctive cultures of the continent. Not all the answers to all questions will be found, to everyone's satisfaction, in this, admittedly personal, multi-disciplinary book. Indeed the controversies that are illustrated in the text show the extent to which the field is dynamic. But, we are proud to introduce this important survey to an audience of Africanists and others far beyond the archaeological community.

Joseph O. Vogel

PART I. DEVELOPING GENERAL MODELS OF THE AFRICAN PAST

1. INTRODUCTION: LANGUAGE, HISTORY AND ARCHAEOLOGY IN AFRICA

A crossroads of disciplines

Africa is the continent where both hominids and modern humans evolved, and as such is presumed to be the birthplace of language. It is also the continent where the most languages are spoken, although curiously not the one with the greatest linguistic diversity. In modern times, the image of Africa has been highly ambivalent; colonised by Europe over a period of more than a century, it has been the subject of numerous unflattering profiles. At the same time, its music, art and dress styles have been highly influential, albeit filtered though the sometimes idiosyncratic perspectives of the African diaspora. In recent years, the endless civil strife, the hard-to-interpret wars surging back and forth across television screens and the seemingly endless appeals for populations threatened by famine have begun to play poorly in seminar rooms. African studies centres are losing funding and research institutions within Africa are in decline, although politicians are not unwilling to visit them and make grandiloquent promises.

At the very least, this is unfortunate, since Africa has never been so important to our broader understanding of what it means to be human. It is now widely accepted that hominids not ancestral to modern humans diffused out of Africa at least 1.8 million years ago (Swisher *et al.* 1994), that modern humans evolved in Africa (Allsworth-Jones 1993; Horai *et al.* 1995; Thomson *et al.* 2000; Ingman et al. 2000; Ke *et al.* 2001) and that they spread out of Africa more than 100,000 years ago (Stringer & McKie 1996; Mitchell 2002). In June 2003, fossils of the earliest modern human, *Homo sapiens*, were uncovered at Herto village in the Middle Awash area of Ethiopia, about 140 miles northeast of Addis Ababa, and were dated with radioisotopes at 154-160,000 years old (White *et al.* 2003). This has provided a remarkable insight into the physiognomy of modern humans as well as confirming the co-existence of *Homo sapiens* and pre-*Sapiens* hominids. Expanding modern *sapiens* displaced the existing hominids who populated the Old World so effectively that by ca. 30,000 BP these had been eliminated (Trinkaus 1983; Stringer & Gamble 1993). It is unlikely there was any genetic interchange between modern *Sapiens* populations and the resident *Homo erectus* (Krings *et al.* 1997). The exact dates and routes by which modern humans spread remain controversial, but early dates for Australia indicate that modern humans reached there between 60-50,000 BP (Connell & Allen 1998). Ambrose (1998, 2003) has argued that there was a substantial genetic bottleneck some 70 kya associated with the eruption of Mount Toba and the subsequent 'volcanic winter'. The difficulties inherent in subsequent environmental conditions may have forced the earliest migrants out of Africa and across the Red Sea to the coast of southern Arabia, along the coastline of the Indian Ocean, eventually reaching Australia. Although there is evidence for modern humans in the Near East by 90,000 BP, this first expansion seems to have failed and the peopling of Northern Eurasia followed from a second migration around 50,000 years ago. This second wave out of Africa was responsible for the peopling of the New World. The date of this remains controversial and for many years the academic establishment would not accept dates earlier than the 'Clovis Horizon' which was little more than 13,000 BP. This is now changing and many scholars accept dates of up to 16,000 BP. Given the dates for modern humans in Siberia (e.g. the D'uktai culture central north-eastern Asia and the Yana site, now dated to 30,000 BP (Pitulko *et al.* 2004)), there seems to be no reason in principle why earlier dates will not eventually be accepted.

If all humanity can be traced back to Africa, then the languages, cultures and genetic inheritance of its peoples should be of consuming interest. It is therefore more than tragic that Africa remains so understudied, especially by Africans themselves. Conferences and publications encompassing the whole continent barely attract one percent of those who turn up to endlessly recycle increasingly bizarre interpretations of nineteenth century novelists. There is some logic to this; both because the past does not yet seem alluring to peoples whose eyes are fixed on modernisation and because difficult situations in the present in so many countries make it hard to focus on events long ago. But this is a short-term perspective; the past runs into the present. Just as John Maynard Keynes observed that practical businessmen are unknowingly in thrall to the theories of dead economists, so the development experts who try to imagine the future, fail for lack of knowledge of the past. For all the skyscrapers in capital cities, most people in Africa still live in rural areas

and the majority subsist by agriculture, fishing or livestock-rearing. Understanding the past informs a richer interpretation of the present and provides more convincing pointers towards the future. Long-term environmental history establishes an interpretative framework and a context for the current changes the continent is undergoing. The rise of ethnolinguistic nationalism is intimately related to the studies of linguists and the development of vernacular literacy.

Africa thus represents a crossroads of disciplines for studying all our history. By making sense of its languages and cultures in the present we reconstruct past processes of evolution and change. Despite the demanding discipline required to bind together different stories into a unified narrative, it more often generates hostile criticism than constructive debate. Disciplinary traditions may be dry but they are safe, they provide career paths and are validated by publication in mainstream journals. Nonetheless, as the volume of data from different disciplines continues to mount, there is evidence that a paradigm shift may be under way.

This book is divided into two parts; first a broader scene-setting section with issues of method and background and then a more detailed view of specific issues, in particular the contribution of historical reconstruction of plants and animals that relate to our broad understanding of the African past. Part I begins with the sources of evidence for the African past, and a brief overview of early attempts to make these work together. It then moves to the issues of method; in particular trying to present to archaeologists the doubts and uncertainties that are current as well as the internal debates within linguistics. Linguistics offers a wide variety of strategies for historical reconstruction and not all of these have been equally in focus. For example, in the emphasis on reconstruction, the part loanwords can play in determining the introduction and spread of crops or material culture has been less well understood. The chapter entitled 'Contested methodologies' looks at current tools for reconstructing the past and the controversies they have engendered. This is followed by an account of the language phyla of Africa and their classification as presently understood. More speculative, but central to the main argument, are interpretations of the still sketchy evidence for links between language structures and archaeological data and their consequences for the reconstruction of prehistory.

For these approaches to work, it is important to see how this type of interdisciplinary enterprise works out with real data. As an example, Part II illustrates the major African economic plants and animals in relation to the attested linguistic data and the interpretation of these results in terms of archaeology. In an ideal world, all the data would be within the published text, but the economics of modern publishing and book-buying make this impractical. However, this book should not be an example of reconstruction by assertion; it is essential to present the data upon which the reconstructions are based. Just as a scientific experiment should be reproducible, if historical linguistics wishes to aspire to a similar status, such a 'paper trail' is indispensable. So the book includes a CD with the printed text to make available both published papers, conference papers and unpublished data tables that provide a corpus of comparative materials to support the arguments. Further data will also be posted on my website, which is continually updated.

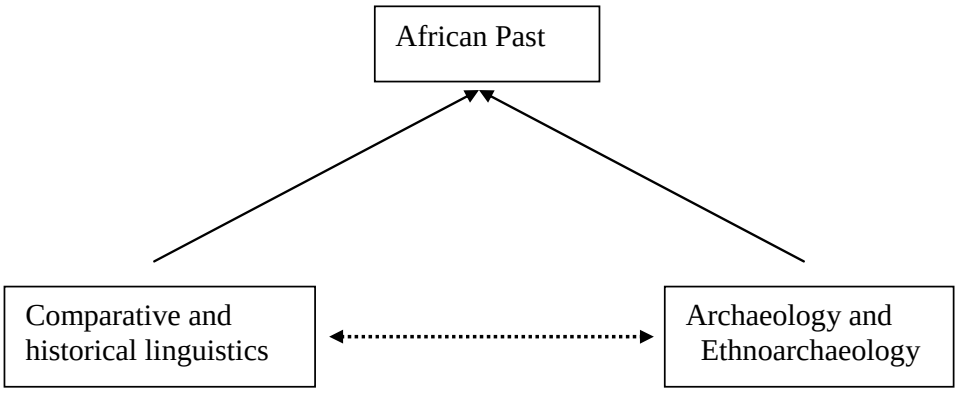
Enterprises such as this are highly dynamic; unlike Indo-European, which deals with a nearly fixed corpus, new data on all aspects of African culture and language continue to be published at an increasing rate and archaeology is thriving. Finds post-2000 have overturned existing assumptions about the dates for the spread of the chicken and the origin of sorghum; there is no reason to think further changes are not under way. Such enterprises are also collective; no individual scholar can hope to master the latest scholarship on all the 2000 languages of Africa, let alone the genetics and archaeology. We depend on others to summarise and digest materials from regions outside our own expertise. Africanist linguists are still far from having easily accessible electronic databases such as are available for Austronesian, but searchable electronic data is now becoming a significant factor in comparative scholarship.

Reconstructing the past; prehistory versus archaeology

The African past can be pursued with a generous vision or a more limited perspective. For some scholars, the prehistory of the continent can be constructed from a nexus of disciplines including archaeology, linguistics, genetics, comparative ethnography and historical records. For others, the non-verifiable nature of the conclusions emerging from this complex vision suggest that they are a step too far, that we should stay with grounded, empirical data imagined to reside in the laboratory or the archive. This book emphatically rejects such a viewpoint, if only because it betrays the living reality of Africa. If people make music, weave baskets, perform masquerades and carve striking wooden objects in the present, there is every reason to imagine that their life was equally diverse in the past, whatever survives in the archaeological record. Interestingly, this view was promoted in one of the first edited volumes to bring together Francophone and Anglophone scholars, Vansina, Mauny & Thomas (1964). Something of a manifesto, its agenda is very modern-sounding, but in reality it had few successors, either in co-operation across the linguistic divide or in terms of its interdisciplinary approach. The term 'prehistory' has sometimes been criticised as implying a dichotomy between 'real' history as it emerges from written sources and 'prehistory', confined to non-literate cultures. But modern historians have become wary of the thin and sometimes tendentious tale of documents, hence the greater attention given to oral history, even in cultures obsessed by writing. Ideally, the two approaches would merge and simply be called 'history', but this may still be too radical in the present climate. If we can agree to study Africa's past with whatever tools are to hand this sterile dichotomy will disappear.

The reconstruction of the remote African past is at present pursued via two major disciplines, archaeology and comparative linguistics. Although there have been numerous attempts to generate interdisciplinary results from their merger, the impact on the great majority of professionals has been slight. Figure 1.1.1 shows the present configuration of these disciplines;

Figure 1.1. Present configuration of disciplines in reconstructing the African past



The current situation, bounded by disciplines, produces a rather etiolated version of the African past. The flow of hypotheses between archaeology and linguistics remains a trickle. In principle, if we assume that past societies possessed all the anthropological richness visible in the present, a more rounded approach becomes essential. The bizarre consequences of such a restricted vision can be imagined by analogy if we were to try and represent modern European society solely through its ceramics and metals.

Other disciplines can contribute to this enlarged picture. Genetics has been the subject of great hopes and even greater claims. Genetics has undoubtedly played a key role in establishing the 'Out of Africa' hypothesis. Indeed to judge by the claims of some of its exponents, the links between language, demographic movement and genetics are well-established (Cavalli-Sforza, Piazza & Menozzi 1994). Archaeologists and linguists have treated these claims with greater scepticism, but there is little doubt that the analysis of DNA from skeletal material and more intensive sampling of present-day populations may soon begin to deliver significant results.

More curious, because so long ignored, is the role of comparative ethnography. The diversity of African societies is complemented by the existence of a large number of cultural elements which are similar across wide areas, ranging from material culture to abstract ideas and symbols. They change and evolve from one group to another in ways that suggest;

a. they may be of considerable antiquity
b. they may be linked with linguistic groupings and known demographic movements
c. that observed changes reflect general processes that can be identified

Such ideas are hardly new; indeed the organising principles of the Pitt-Rivers Museum in Oxford were intended to demonstrate something of the kind. Pitt-Rivers used Polynesian war-clubs to illustrate the point and island societies are ideal for showing gradual change without significant areal influences (Steadman 1979: 87 ff.). What *is* new is the potential for an interpretative framework, combining cultural elements with archaeology and linguistics. Existing interactions between archaeology and language in Africa, from the endless recycling of Greenberg to the innocence of linguists picking up basic archaeological data can often be discouraging. Nonetheless, the picture seems worthwhile updating even where the information is still woefully incomplete. The broader agenda is also to glance at these other disciplines and to try and re-imagine the past from this expanded perspective.

Individual disciplines

Archaeology and ethnoarchaeology

Archaeology in Africa first began formally in January 1776 when the Swedish archaeologist Andreas Sparrman (1783:676-677) excavated a stone mound near Cookhouse on the Great Fish River in South Africa (Robertshaw 1979). Gowlett (1990:16) records the beginnings of archaeology in Southern Africa, when Richard Thornton, the geologist with Livingstone's Zambezi expedition, collected stone stools in Natal in 1858-1860. Algeria then became an important focus for Palaeolithic archaeology, reinforcing an important tradition that was evolving at the same time in France. The side of archaeology concerned with the excavation and restoration of monuments was probably initiated when Napoleon commissioned the scientific expeditions to Egypt (1798-1801) published in 1809-1813 as the *Description de l'Égypte*. The decipherment of hieroglyphics by Champollion in 1822 gave an enormous boost to Egyptology and also began the long association between epigraphy and archaeology. Since that time, monumental excavations in North Africa and more modest caves and settlement sites elsewhere have remained in very different boxes. Indeed, this divergence has been exacerbated by television; endless documentaries, often flirting with or endorsing New Age theories, have contributed significant financial resources to Egyptology, but have also encouraged the perception of its isolation from Africa as a whole. Publications and attendances at conferences on Ancient Egypt far outweigh those concerned with the remainder of the continent.

The other factor muddying the waters of African archaeology is the attention given to early hominids. The most spectacular and widely publicised type of archaeology has been palaeoanthropology and this continues to be the principal focus of mass-circulation publications such as *National Geographic*. Finds of hominid or early *sapiens* skulls regularly make the news websites, while the apparently less interesting recent sites are confined to specialised journals. But the reconstruction of prehistory depends on a slow accumulation of data, each site and date contributing to a larger picture. Developing patterns requires geographically dispersed datapoints, not spectacular finds, whether they be gold-encrusted tomb artefacts or 7-million year-old skulls.

Archaeology deals in point data, namely archaeological sites. For every site excavated, many more have been identified; their excavation depends on the availability of resources, both human and financial, and a stable political and administrative framework within which to operate. The nature of likely finds is also important; it is no accident that Egypt has seen a greater concentration of resources than the rest of the continent aggregated. Egypt has produced and continues to produce art objects, texts and iconography that

allow almost unparalleled access to patterns of subsistence as much as 7000 years ago. Its hold on popular imagination is quite unlike any other region of Africa, ensuring a continuing flow of resources. An extensive and well-resourced university and museum system also encourages archaeology as the concentration of sites in South Africa demonstrates. Preservation is also a significant feature; the Sahara and the Sahel are more likely to produce well-preserved materials and thus preferentially attract researchers. The acid soils of the humid forests, by contrast, make sites harder to find and the results less spectacular. The result is that excavations are extremely unevenly distributed.

Striking monuments such as Axum and Zimbabwe have created a public profile which helps fund archaeology at nearby sites even where they have little or nothing to do with the monuments in question. Archaeology in sub-Saharan Africa, with those notable exceptions, has not generally been seduced by the excavation of spectacular monuments and has focused on the more revealing patterns of everyday life. However, it has tended to run along the tramlines set up for the discipline by European archaeology; lithics, pots, metalworking, seeds, settlement patterns. Sometimes these seem to take on a life on their own, especially lithics, and formal description of artefacts appears to supersede hypotheses concerning their use.

Archaeology is being transformed by technology, both in communicating its results and in detection and excavation. The market for African archaeology no longer supports doorstop tomes and increasingly, the web is being used to disseminate site reports and to publish substantially more colour images than the printed page. From the technical side, GIS systems, metal detectors, radiometry, and more effective flotation of archaeobotanical materials have altered field archaeology substantially.

Archaeology also encompasses a wide variety of environmental sciences that have recently begun to contribute to the overall pattern of African history. Palynology, the study of fossil pollen, enables us to understand vegetation change over time, from the period when the first humans began to have an impact on the landscape up to the near present. Deep sea and lake cores are providing palaeoclimatic reconstructions over very long time-spans. The techniques of archaeoscience, a cover term for archaeobotany and archaeozoology, are rapidly developing, and allied with studies of DNA from modern plants and animals are providing new insights into changing subsistence systems. Epidemiology is gradually changing our understanding of the dynamics of both human and animal pathology, although this is an area Africanists have been generally slow to exploit.

A dark side of archaeology now affecting sub-Saharan Africa, is the robbing of sites for artefacts to sell on the international art market. A millennia-old tradition in North Africa, the quest for valuable artefacts is very much associated with the international market. When the Nok terracottas and the Igbo Ukwu artefacts of South-Central Nigeria first surfaced, they were primarily of interest to specialists. However, as more traditions, such as the terracottas of the Malian Delta, were uncovered, a market developed, especially in New York and Brussels. The potential to date these terracottas by thermoluminescence gave them credibility and in many countries, underdeveloped antiquities legislation meant that their export was not even illegal. Just as a trade in modern-day artefacts began to develop, Africa's archaeological heritage became a looter's paradise. With this came a rich industry of copies and fakes and the art market is now awash with objects of unknown provenance, almost certainly illegally exported, but many of them recent copies[1]. In a further twist, the Nigerian Museum Service has given its imprimatur to a book that publishes many ancient terracotta figurines which clearly did not leave the country by conventional channels (De Grunne 1998).

A key companion discipline to archaeology is ethnoarchaeology. Ethnoarchaeology has a long history, but its real birthplace was in the late 1960s when enthusiastic young Ph.D. students began fanning out across Africa and other parts of the developing world, describing pottery, encouraging old ironworkers to make one last smelt so the techniques could be recorded, and recording settlement patterns. Ethnoarchaeology represented an attempt to infuse more interpretative life into conventional areas of interest, using

[1] At one level, this is a tribute to the skills and imagination of the forgers, and it is hard not to be sympathetic their energy. This clandestine industry also has the paradoxical effect of keeping alive traditional carving skills.

contemporary ethnographic data to propose likely meanings for archaeological finds (David & Kramer 2001). Thus, if pots are decorated using certain techniques in the present using tools which may be perishable and thus invisible in the archaeological record, it is a reasonable assumption that similar tools may have been used in the past (Gallay *et al.* 1996; Gosselain 2002; Gelbert 2003). Langlois (2001) plotted the distribution of present-day pottery techniques from northeast Nigeria to south-western Chad and was able to correlate at least some techniques with linguistic affiliation. Sterner & David (2003) have shown that a rather specific African pottery-forming technique, the use of a tamper and concave anvil, has a Sahelian distribution from Mali to Kordofan, and that vernacular terms freely cross linguistic boundaries, indicating that the technique has spread in comparatively recent times. The potential for linking archaeology with present ethnography in the field of iron production is well exemplified in a study of the Teke Plateau in the Congo where the radiocarbon record stretches back nearly 2000 years (Dupré & Pinçon 1997). Generally speaking, we cannot hope to illuminate Ancient Egyptian civilisation but studying present-day architectural practice in Egypt; socio-economic and material change make the threads that link past and present largely intensive reinvention rather than true historical continuity. But in much of Africa until recently, pottery production or iron-working did exhibit strong continuities with past practice and it was reasonable to assume that current ethnography could be used to illuminate archaeological data (Atherton 1983). Needless to say, ethnoarchaeologists get very excited when they discover stone tools still in use, although how representative such remnant usages are is open to doubt. But ethnoarchaeological fieldwork in the present is driven by archaeological questions, especially those deriving from ceramics, metalworking and the use of space; its use of ethnography is therefore highly selective. Ethnoarchaeology only makes use of a small part of the cultural wealth of African societies and archaeology has been slow to exploit the larger heritage of anthropological monographs. Pottery has proven more resistant to imported substitutes than iron, but even so, the growth of long-distance trade has severely eroded local traditions; people prefer to buy their pots in the market rather than make them. Ethnoarchaeology *has* resulted in some documentation of vanishing traditions of material culture. However, it seems that the enthusiasm that powered it in the 1970s and 1980s is now attenuating; funding for more traditional archaeology, driven by the heritage industry and media interest, has seen a return to holes in the ground.

Linguistics

The relationship between linguistics and archaeology reflects both the internal dynamic of the disciplines themselves and external political and social trends. Many archaeologists have asserted that archaeology and linguistics do not share much common ground, either for reasons internal to archaeology, or because of the sometimes startling misuse of the conjunction of disciplines by earlier scholars. Linguistics is in many ways more internally diverse than archaeology; a much greater proportion of its practitioners are engaged in high theory and fieldwork is a low prestige activity. Most linguistic enterprises really do have no relevance for archaeology, whilst the reverse is not true. However, among the subset of linguists interested in historical topics, many have at least considered archaeology in the light of its potential to provide interpretations of their findings. The argument from the linguists' point of view is simply put; languages were spoken by real people in the past and form striking patterns in the present. This must have been the consequence of distinct strategies of movement and diversification of peoples and somehow reflect the development of social and economic conditions. Historical linguistics appears to tell us that we can plot the development of language families, and reconstruct particular lexical items of economic significance, such as hunting gear or food crops. It therefore seems that we should be able to map archaeological findings against these.

Samuel Johnson expressed the notion that language history could be made to answer for the history of peoples as early as the eighteenth century (Boswell 1785);

> There is no tracing the connection of ancient nations but by language; and therefore I am always sorry when any language is lost, because languages are the pedigree of nations. If you find the same language in distant countries, you may be sure that the inhabitants of each have been the same people; that is to say, if you find the languages are a good deal the same; for a word here and there the same will not do.
>
> Samuel Johnson, quoted in James Boswell,
> *The Journal of a Tour to the Hebrides*

As this quote indicates, Johnson was already reacting to an aspect of historical linguistics that has often caused it to be regarded with the gravest suspicion by other disciplines; the tendency for some of its practitioners to develop unusual models of world prehistory based on tenuous links between geographically remote languages. Yet the eighteenth century saw the first insights into comparative linguistics that would eventually lead to the classification of the languages of Africa into four major phyla. The kinship of the Bantu languages was recognised, the links between Amharic and other Semitic languages noted and comparisons between Malagasy and the SE Asian Austronesian languages made.

Historical linguistics can provide essentially three sorts of insights into the prehistory of more or less tangible lexical items;

a. patterns of loanwords that track the introduction and diffusion of new or innovative material culture or socio-economic institutions
b. reconstructions of an item to a hypothetical proto-language that make it likely that it was known to speakers of that language. Items of ancient establishment but uncertain antiquity can be reconstructed historically with particular language phyla
c. tracing the sources and etymologies of toponyms and ethnonyms

Linguistics can provide information on topics on which archaeology has little to say, including social organisation, music, religion and vegetative crops, but can only ever provide relative dates. Glottochronology, the use of mathematical formulae to assign dates to language splits, has failed to convince any outside a small circle of adherents. In contrast to archaeology, the growth of historical linguistics has been more patchy and its practitioners much less likely to reach consensus. Nonetheless, there is now a solid body of reconstructions for a number of major subgroups of the principal African language phyla and thus considerable potential for archaeological interpretation.

Historical linguistics may be defined as the analysis of the relationship between languages, in particular those assumed to be genetically related, to 'have sprung from some common source'. Historical linguists establish rules that allow each language to evolve from this common source to reconstruct hypothetical proto-forms. Usually they base this on the comparison of two or more languages, but the 'internal reconstruction' of a single language is also possible, using indications within a language, such as dialect variation or fossil morphology, to build up a picture of an earlier stage of that language. In the case of linguistic isolates, such as Basque or Burushaski, this is the only procedure possible.

Linguists are concerned to develop testable rules by which specific languages can be related to one another, using phonology, morphology and lexicon and to a lesser extent, syntax. These rules generate a tree-like genetic structure which allows both the modelling of the relative antiquity of splits between different languages and other more complex aspects of their inter-relations. Proto-forms predicted by rules that relate two or more languages can be used to reconstruct a hierarchical sequence of proto-languages for nodal points in the genetic tree.

The presence of a reconstructed proto-form with a specific meaning is taken to imply that the item in question was in use or recognised by the speakers of the proto-language. This approach was first defined by German linguists and is sometimes known as the 'words and things' (*Wörter und Sachen*) approach (Schuchardt 1912). Thus, for example, if it is claimed that 'dog' can be reconstructed to Proto-Afroasiatic, it means that whenever and wherever Proto-Afroasiatic was spoken, that society was familiar with the dog. The reconstruction of 'horse' in Indo-European has long been held to be crucial to the understanding of the identity of the Proto-Indo-Europeans. The reconstruction of 'pig', 'dog' and 'fowl' in Oceanic (Austronesian) enables us to establish the subsistence strategies of the colonisers of the Pacific. Although both sides like to pretend they work in isolation from one another, insights from archaeology always inform linguistics. We know that iron-smelting is simply not old enough to reconstruct to the proto-language of any of the language phyla of the world, and if such a reconstruction seems plausible, either the linguistics is in error or a semantic shift has occurred. As Part II of this book shows, this type of semantic shift is crucial in marrying linguistics with archaeology in understanding the history of crops and livestock.

One of the attractive aspects of linking historical linguistics with archaeology is that it is possible to generate testable hypotheses[2]. Max Müller (1864:222 ff.) may well have been the first scholar to link etymological data with archaeological finds. He showed that linguistic interchanges between 'fir', 'oak' and 'beech' in early Indo-European can be interpreted in the light of changing vegetation patterns deduced from the strata apparent in Danish peat bogs. Linguists are usually far in advance of archaeologists in their speculations. Finding an informant for a language is easier and far less costly than mounting an archaeological expedition to search for the origins of food production. An experienced linguist can often elicit a range of basic and key cultural vocabulary in a few hours, whereas excavations often take many years and require a team of researchers who command very different skills. Historical linguists are often tempted to throw off hypotheses far more quickly and perhaps more casually than would be permissible within another academic framework. An aspect of this that is very noticeable in the archaeological literature is the tendency to stay with old classifications and outmoded terminology. For example, a standard text such as Phillipson (1993b) which gives due weight to the importance of linguistics in its introductory section is content to reproduce Greenberg (1963a) with the addition of a non-standard terminology ('Congo-Kordofanian' for Niger-Congo).

When a prediction is made then it can be tested. If a historical linguist claims that certain species of domestic animal can be reconstructed back to the proto-language of a particular phylum, and at the same time makes a proposal for the homeland of the speakers of that proto-language, excavations should ideally be able to confirm the presence of those species. A striking example of such a correlation is presented by Green and Pawley (1999), where linguistics is used both to pinpoint the homeland of Oceanic languages and to suggest the structural features of house-forms that should be present. Excavation has shown that structures of the predicted type are indeed found. Such correlations are rare in practice, especially when only a small number of sites have been identified, but as the density of well-investigated sites increases, the potential to subject hypotheses to a reasonable test will be greater.

[2] Contributions to Blench & Spriggs (1997, 1998, 1999b,c) represent a recent overview of this area at a worldwide level.

Needless to say, such transparent correlations are attractive but rare, for a number of reasons;

a. Information is rarely complete for any given language phylum, and reconstruction therefore takes place based on partial data. New data can compromise the results of earlier studies.
b. Not all scholars agree on the rules of historical reconstruction, nor on the semantic assignments permissible for proto-forms
c. Assigning absolute dates to language groupings on the basis of purely linguistic criteria is problematic and few scholars would now consider this an acceptable procedure. However, importing data from another discipline, i.e. archaeology, to build specific conclusions inevitably means that historical linguistics is already in a feedback loop with the discipline it is supposed to be independently confirming.

For the archaeologist, trying to reconcile the results of linguists with the more concrete evidence of radiocarbon dates, claims by linguists can be perplexing. For example, not all linguists agree on the classification of African languages (see Blench 1993b, 2004a for a description of both mainstream and speculative views) and the homelands of its major phyla constitute a particular arena of disagreement. In a particularly egregious case, Ehret (1993) made major claims for the internal reconstruction of Nilo-Saharan and thereby the antiquity of both cultivation and livestock production among its speakers. Bender (1996a,b) has separately reconstructed Nilo-Saharan and strongly disputes both Ehret's reconstructions and their implications.

Genetics

Genetics can be divided into two categories, corresponding to the categories of phenotypic and molecular. Phenotypic genetics began with the nineteenth century practice of skull measurements and African 'races' were ascribed particular head shapes into the twentieth century (e.g. Seligman 1930). The reputations of traditional physical anthropologists have recently stood at an all-time low following analyses such as that of Gould (1981), who accurately skewered their underlying racial preoccupations of the nineteenth and early twentieth centuries, by showing just how problematic these procedures were in the case of Amerindian populations. There is every reason to think this type of work has very limited value in determining the pattern of the African past, although osteometrics remain acceptable in many European traditions, especially in France, as witness a standard text on human remains in the Sahara (Dutour 1989). In the middle of the twentieth century there was a burst of interest in serology, the study of the distribution of blood groups in Africa. Roberts (1962) sampled the blood of a significant number of Nilotic populations (Dinka, Shilluk) with a view to finding an algorithm that would indicate how long ago these populations split apart. This has a certain resemblance to glottochronology and suffers from some of the same defects, namely the assumption that populations diversify in simple tree-like fashion at a regular rate. Whatever its scientific value, this thread of biological anthropology has virtually disappeared with the rise of molecular techniques. Unless the patterns revealed by a biological or genetic parameter can be linked to the results of another historical result, this information is of limited value except within its own narrowly defined field.

Phenotypic work has been more productive in the case of domestic plants and animals; these are partly linked to human migration but have their own distributional logic. Studies of the morphology of modern-day crops have been crucial in interpreting archaeobotanical remains, but they can also be linked to distributions of languages or archaeological cultures. For example, the different cultivars of sorghum form complex patterns across the continent, highly suggestive of distinctive population movements (Harlan *et al.* 1976). Collections of wheats and barleys in Ethiopia and the Sahara have proved important for understanding the evolution of these crops as a whole (Orlov 1929; Vavilov 1931). Determining the races, species and wild antecedents of African domestic animals through comparative anatomy also has a venerable history, going back at least to Darwin's identification of the rock-pigeon, *Columba livia*, as the ancestor of the domestic pigeon. In a more elaborate form it is represented by a series of monographs combining comparative anatomy with ethnography, beginning with Hahn (1896), Doutressoulle (1947), Boettger (1958), Mason &

Maule (1960) and reaching a climax in Epstein's (1971) magisterial 2-volume *The origin of the domestic animals of Africa*.

The development of modern techniques of DNA analysis constituted a major break with traditional biological anthropology; the introduction of molecular techniques in the early 1990s has largely revolutionised the study of human populations in Africa. DNA could potentially be recovered from archaeological material and analysis of DNA seemed to offer a way of relating present human populations to one another and to past materials. The earliest work concentrated on mitochondrial DNA (mtDNA) but the analysis of nuclear or paternal DNA is now regarded as of equal significance. A significant early result was the 'Eve' hypothesis (Templeton 1993; Horai *et al.* 1995), which posited a single origin for humanity in the African continent in the relatively recent past. Together with osteometric and archaeological data this now forms the generally accepted 'out of Africa' hypothesis (Ke *et al.* 2001). During the 1990s, debates focused on whether *sapiens* were interfertile with the resident *erectus* populations as an explanation for the diversity of modern humans. More recent work suggests that there is no Neanderthal or *Homo erectus* genetic component in modern humans and that as *sapiens* expanded out of Africa they simply outcompeted other existing hominids. More recently, DNA work has focussed on the diversity of DNA lineages. A recent overview of African mtDNA (Salas *et al.* 2002) observes 'Africa presents the most complex genetic picture of any continent, with a time depth for mitochondrial DNA (mtDNA) lineages >100,000 years.' This pattern is certainly what we would expect from the 'out of Africa' hypothesis, although it is of little help in dating phylic dispersals within Africa.

A success such as this, applied to deep time, does not automatically licence geneticists to interpret the remainder of world history. Despite great hopes and even greater claims, there has been deep scepticism about genetics from other disciplines. To judge by some of its exponents, the links between language, demographic movement and genetics in prehistory are well-established. These were enthusiastically promoted at the end of the 1980s and into the early 1990s as the 'New Synthesis' or 'Archaeogenetics' (see, for example, Cavalli-Sforza 1987; Cavalli-Sforza *et al.* 1988; Renfrew 1992; Renfrew and Boyle 2000). The *opus magnus* of this trend was *The History and Geography of Human Genes* (Cavalli-Sforza *et al.* 1994), which essays a major revision of the methodology for exploring human history. Linguistic classifications of human populations purport to offer a tool for outflanking simple racial models; more abstract, they appear to provide an ideal analogue to the classificatory trees drawn from DNA analyses. If DNA phylogenies and language trees were to correspond, this would indeed be striking independent confirmation for models of human prehistory. Although this continues to play well in the pages of the journal *Nature*, most archaeologists and linguists remain deeply sceptical[3] (McEachern 2000). Some archaeologists are among those disturbed by the implications of the 'New synthesis' for encouraging narrow nationalistic readings of history, and restoring the discredited view of race, language and culture as generally coterminous (Pluciennik 1996). Part of this is innate conservatism and the fact that no academic career points are to be made in being interdisciplinary where established disciplines have developed internal formalisms. But it is also because DNA studies have not delivered credible results; linguists are faced with endless trees that show linkages quite contrary to established results and contradicting one another from one paper to the next (cf. Chen, Sokal & Ruhlen, 1995; Blench 1999c for some particularly egregious cases).

An important but little-discussed aspect of the methodology of genetics is the targeting of sample collection. The hard science aspect of genetics has often blinded journal referees to the highly unscientific character of the samples analysed. Thus we can find 'three West Africans' compared to 'Mbuti pygmies'. Even now, most of the articles cited above depend on 'out of the freezer' materials, often exchanged between laboratories. But if we are really to solve some of the major problems of ethnic and language correlations then targeted sampling is required; i.e. collecting samples that are statistically valid and reflect closely the

[3] It would be unfair to say that there are no archaeologists who have taken an interest in 'Archaeogenetics', the publications of the MacDonald Institute in Cambridge constituting a major focus of these ideas (e.g. Renfrew et al. 2000). But publications in this area seem to have taken on a momentum of their own; rather than influencing mainstream practitioners, a group of researchers spend their time going to conferences with one another.

particular groups that are the focus of the study. It is thus unacceptable to make claims about 'Nilo-Saharan' when in fact only one or two groups have been sampled, often from related populations. Ethnolinguistically targeted DNA collection is presently under way and some more coherent results may emerge within a few years.

Ethnography and material culture studies

Although a powerful tradition of ethnography dealing with material culture developed in the early twentieth century, particularly out of German and Swedish ethnological traditions, social anthropology in Britain and America largely grew away from it. Ethnological museums are treated as embarrassing souvenirs of a colonial past or convenient spaces for photographic exhibitions. Ethnoarchaeology has recovered some of the tradition of material culture studies, but there is much about the culture of early modern humans that will never emerge from the archaeological record. Many materials rarely preserve and particular aspects of social and cultural life cannot be reconstructed with confidence. But there is a wholly different method of attributing elements of culture to modern humans using ethnographic reconstruction based on the world-wide distributions of material and social culture, comparative ethnography. Although unfashionable among social scientists, the descriptive ethnographies written by colonial officers and missionaries who attempted to cover all aspects of a society without any very explicit theoretical framework are the basic building blocks of comparative ethnography. Such accounts were commonly collated by the cultural geographers of the North European traditions. Although the colonial ideology is easily deconstructed in fashionable seminar-rooms, this does not affect the concise descriptions of farming or material culture that feature in these monographs[4]. What *is* new is the potential for an interpretative framework, combining the insights of archaeology with the results of linguistics.

Before considering how this might work, it is useful to backtrack and consider the practices of ethnographers early in the twentieth century, particularly those of the German-Swedish school. In Germany and Sweden, in particular, 'ethnology' was held to consist of the collection of accounts of particular practices or cultural items and their mapping. When the main sources of information about exotic peoples were missionary reports and objects brought back to Europe by collectors of curiosities, it is unsurprising that material culture studies played a major role in interpreting world prehistory. The late nineteenth century was the century of colonial museums, and the period when most of the large ethnographic collections were accumulated. Although this was true across the European/American world, the theoretical edifices erected on the basis of these collections were most developed in Germany. Although it is an intellectual commonplace to link these collections with the formation of colonial empires, in fact the most enthusiastic imperialists, Spain, England and France never developed the rich intellectual superstructure that evolved in Germany, Sweden and to a lesser extent, the United States.

The founders of this approach, such as Adolf Bastian and Bernard Ankermann (1905), thought that culture could be divided into discrete traits and mapped, thereby revealing cultural layers. Such layers had an evolutionary subtext, in that there were 'primitive' and more evolved layers and these were reflected in the complexity of material culture. To do these scholars justice, such labels were sparingly applied and the concern was more to uncover a rich stratification. It was believed that material culture, religious beliefs and social organisation were associated in complexes and that detailed analysis would allow a more complete characterisation of such complexes. Ethnologists expended much time in categorising layers, complexes of cultural traits that were supposedly found together. The enterprise was global but Africa played a major role in the German imagination and many major scholars worked on African material culture. Frobenius, for example, conceived an *Atlas Africanus* which would map African material culture in great detail and some folios of this were published, but much more was collected and today lies unused in the archives of the Institute that bears his name in Frankfurt. Frobenius (1933) summarised his thinking on African culture in a frustrating volume that contains some valuable observations on the distribution of material culture and then

[4] Additional insights can be gathered from the collections of oral history and traditions, most typical of the 1960s and 1970s, especially when the interview notes and traditions are published.

sabotages his argument with wild and unsupported comparisons with Egypt and the South Seas. Thus there was supposedly an 'Indonesian' layer whose influence could be detected in Africa. Similarly, a Eurasian 'Steppe-hunting' layer was responsible for much to the culture of North Eurasia and North America and a supposed Oceanic complex which may or may not have influenced South American culture (e.g. Nordenskiöld 1912, 1920; Lagercrantz 1950). Musical instruments played a considerable role in these early analyses partly because the morphology of sound-producers is very distinctive and partly because there seemed to be a link between formal complexity and 'high civilisation' (*we* have pianos, hunter-gatherers have rattles) (Sachs 1929). The high tide of this approach is Baumann's (1975-79) *Die Völker Afrikas und ihre traditionellen Kulturen,* a grand synthesis of a discarded way of thinking.

The German enterprise had two major offspring, the Swedish ethnologists and the American students of material culture. Both groups were astonishingly energetic in collating information and publishing monographs on material culture, whether regional, ethnic and single-item studies. Sture Lagercrantz, who died only in November 2001, began publishing distributional studies in the 1920s, and the journal *Ethnos* became the focus of this type of publication as well as the monographs of *Studia Ethnographica Uppsaliensis*[5]. In America, comparable data collection is associated with Franz Boas, but the Field Museum in Chicago was probably most active in publishing studies of material culture, especially those of Wilfred Hambly (1937).

These procedures now seem largely pointless because they were not founded on a significant awareness of either the processes of cultural evolution or the chronology of human settlement in different continents. Although the interpretative framework is of limited interest today, the mapping of cultural traits can be of considerable value when combined with new insights into ethnic and language distribution. A more sophisticated approach can easily be imagined whereby the distribution of individual elements could be superimposed on linguistic, genetic and archaeological maps and potential correspondences thereby explored. To a certain type of archaeologist, the study of comparative ethnography is of no value; since we will never be able to excavate evidence for many of the reconstructed cultural items, they must remain invisible. But the idea should make more sense to linguists and geneticists; the underlying reconstruction methodology is at least potentially similar. At present we are far from having diachronic rules similar to those in use in historical linguistics; but such rules can at least be conceived.

Other tools for reconstructing African prehistory

Iconography

The major sources of iconography are the rock-paintings and engravings found throughout the continent, and wall-paintings, engravings and other representations in the case of Egypt and North Africa. Rock-art is best preserved in the arid and semi-arid regions, but petroglyphs have been found even in the humid forest. North African representational art is an important source of information, especially as it can usually be dated accurately. Rock art has two problematic aspects, dating and the selectivity of the artists. It cannot usually be dated directly except occasionally by associated artefacts, although techniques are becoming available to do this. Chronology is thus developed on stylistic grounds as superposition and patina enable the establishment of rather general stylistic strata, but the considerable debate within the scholarly world on coherence of style must imply that these can be used at only the most general level.

Rock art creates positive evidence; the representation of practices suggest their presence and importance in the mind of the artists. It is a collective art, somehow symbolic of the desire and imagination of the people who made it. However, just because something is represented in the locale of the rock art it need not have actually existed there. The schematic representation of wheeled vehicles in the southern Sahara suggests that

[5] If further evidence were required as to the forgotten significance of this type of research, in 2001 in Sweden, I acquired an almost complete set of these, since they had been ejected from the Uppsala University library.

the painters had heard about such vehicles rather than seen them directly. Similarly, absence in rock art does not ensure absence in reality; painters had a highly selective imagination then as now. The same reservations apply to wall-paintings and historical iconography, although the presence of co-occurring texts often acts as a check on the visual representations.

Textual

One of the more problematic aspects of the reconstruction of language phyla such as Indo-European and Sino-Tibetan is the presence of ancient textual material. Often this material is hard to interpret and even harder to compare lexically and phonologically with modern-day oral languages. But the obsession of Western scholarship with the written leads to these materials being overprivileged in reconstruction; the existence of Old Chinese has created a classificatory structure for Sino-Tibetan with a binary split between Sinitic as a primary branching and the remainder, Tibeto-Burman, all the other languages. There is *no* evidence for this classification, but it has been maintained by Siniticist scholars. Similarly, the underlying idea of 'Hamito-Semitic' (now Afroasiatic) was that Semitic (as spoken by Mediterraneans) and with written attestations, was privileged against all the languages spoken by sub-Saharan Africans. These ideas have taken a long time to extirpate and still live on in a type of popular writing. Bearing this caveat in mind, historical textual material relevant to the reconstruction of the African past can be valuable, if used with care. It may be divided into six main categories;

a) Ancient North African texts
b) Epigraphic material
c) Arabic
d) Classical texts of Ethiopia in the Ge'ez language
e) Texts in African languages written in Arabic script
f) Early texts in European languages

Table 1.1 shows the main categories of textual source for the African past and their relative accessibility.

Table 1.1 Epigraphic and written sources in African languages

Category	Access	Languages
North African texts	Mostly published	Egyptian, Greek, Latin
Nubian texts	Mostly published	Nubian
Epigraphy	Published in scattered sources but new texts constantly coming to light	Egyptian, Meroitic, Greek, Latin, Numidian, Old Libyan and Phoenician
Ethiopic	Some published but many archival sources	Ge'ez
Other Ethiopian	Mostly unpublished	Harari
African languages	Mostly unpublished	Nupe, Hausa, Kanuri, Songhay in Arabic script

Of these, the most poorly known are the texts in West African languages written in Arabic script. These are often hard to transcribe, as the Arabic script is poorly adapted to such languages, and they require knowledge of both the language in question and local Arabic conventions. The results are often not very rewarding, as they consist mainly of devotional poems or translations of already known texts.

Table 1.2 shows the main textual sources for the African past in non-African languages;

Table 1.2 Textual sources for the African past in non-African languages

Category	Access
Arabic	Mostly published
European languages	Published sources available but much archival material remains

The principal Arabic sources for information on West Africa from the 8th century onwards are the writings of geographers and travellers. Almost all of these exist in some edition, although not necessarily a modern one, and have been translated into a major European language. In the case of West Africa, the corpus of sources has been conveniently assembled in a single volume of translations (Levtzion & Hopkins 1981). Lewicki (1974), meanwhile, is a useful synthesis of everything related to food in these sources which inevitably collects most material on livestock. For East Africa, the Arabic corpus is more scattered and texts must be sought individually. The narratives and ethnographic data of early travellers writing in European languages have a primary bias towards the coast; until the middle of the nineteenth century, few travellers were able to sustain long journeys into the interior. Many of those written in English have been reprinted and are readily available. This is much less the case for French, German and Portuguese travellers, whose works are often only available in the original edition. Iberian countries still have large archives and much of what they contain is only poorly catalogued, let alone published. There is even a remarkable account of three Siamese [Thai] ambassadors, wrecked off the coast of South Africa in 1686 who made an overland journey to the Cape of Good Hope (Smithies 1999). Although the thrust of the present study is historical reconstruction, and textual sources generally provide only a very limited tool for developing sources for African history overall, any material that can be woven into the larger narrative should not be excluded.

Oral traditions

It might be thought that a text on reconstructing the African past would give a higher profile to oral traditions than to assign it to a subsection of a subsection. There is no doubt of the intrinsic interest of these traditions and some authors have successfully woven together narratives with documentary sources to produce a synthesis of recent history. Jan Vansina (1985) is a particular proponent of this approach, as in his accounts of Kuba history (e.g. Vansina 1978) and there is little doubt that these are of importance within a circumscribed domain. Crazzolara (1950-54) in his detailed account of Lwoo traditions in the Southern Sudan makes an impressive attempt to link these narratives to the relationship between languages. Nurse (1982) analysed the conjunctions of oral tradition and the layering of loanwords in Segeju and Daisu in East Africa to illustrate the potential of combining the two disciplines. But the reality is that, rather as science fiction tells the reader more about authors' present preconceptions than the shape of the future, so oral traditions reflect recent political and social preoccupations rather than objective historical narrative. Henige (1974) shows all too clearly how trying to abstract an objective chronology from oral traditions may be 'a chimaera'. This makes them frustrating to use, especially for linguists, where they are often flatly contradicted by the results of the comparative method. Spear (1981: 46-70) gives some valuable examples of this type of contradiction in relation to East African accounts of origins.

Two interesting developments in the twentieth century have made the interpretation of these traditions still more complex; the rise of globalised information and the potential to print locally and cheaply. The first has made the framing of oral traditions more internationalist and subject to influences drawn from a wider range of sources, while the second has resulting in the printing of many small pamphlets and books which purport to recount oral traditions. Where once Mecca was a place which could only be known through the filter of accounts by pilgrims who had taken many years to go there and return, it can now be seen any night on satellite television.

Historical traditions in much of Africa tended to be quite local in the pre-colonial period, in part because other continents were unimaginably remote. The spread of world religions, first Islam and then Christianity, was a key factor in suggesting to the guardians of oral traditions that they would need to incorporate a wider perspective. Towards the end of the nineteenth century, scholars and antiquarians began to consider an external origin prestigious they sought real and imagined resemblances with distant cultures. Johnson (1921

but manuscript prepared in 1897) wrote an influential history of the Yoruba in Nigeria. Islamised traditions, first recorded in the 1820s, had the Yoruba spring from one Lamurudu who migrated from Mecca. Johnson argued against an Arabian origin for the Yoruba on the grounds that this was a Muslim construct and instead used cultural evidence to support a migration from Egypt. Prior to this, Yoruba traditions had largely assigned their origin to Ife, now in west-central Nigeria, or even to sites more local still. The Egyptian origin has now become accepted fact and is taught in Nigerian schools, despite its extreme unlikelihood. Broadly speaking, as ethnic groups were influenced by Islam, they began to construct histories that had them migrating from Mecca or at least Arabia. So the Kuteb people from southeast Nigeria, speakers of a Jukunoid language and clearly long resident in West Africa, now have their own printed traditions in the form of *Know the story of the Kutebs* (Mgbe 1973) which maps out their migration from Egypt. This mythologising had a secondary consequence, as tribes largely converted to Christianity then considered a Palestinian origin to be prestigious. The Efik people of Calabar in SE Nigeria, who were early Christian converts, now trace their origin to Palestine (Akak 1986) and indeed believe the name of Calabar is simply a local form of 'Canaan', a belief today enshrined in the inscription over the entrance to the town. Egharevba (1936, 1968) published a very influential *Short History of Benin* written first in Bini but soon translated into English. The first edition, which is straightforward narrative, makes no mention of an external origin, but in successive editions Egypt began to make an appearance and by the fourth edition in 1968, the Bini had migrated to their present location from Egypt via the Sudan.

The process whereby oral traditions are made to serve current political and social concerns can only become more intricate and thus of greater interest to the anthropologist than the historian. Deconstructionist accounts tend to simply assume all traditions are inventions (see Willis 1993 for the Mijikenda and the Swahili and review by Walsh 1993). Loubser (1990) compared the accretions of oral traditions and written history among the Venda of the Transvaal with the archaeological evidence. She concludes that anthropologists in particular have been much too willing to take locally and sometimes recently constructed traditions on trust, but the contradictions with the archaeological and ethnographic evidence suggest that these be treated with due scepticism. Oral traditions have their own value and confronting those recorded in different periods often has considerable value in charting social evolution; but as an unsupported account of a society with any significant time-depth they are generally unusable. Historical linguistics, especially the analysis of loanwords, can play an important role in unpicking the layers of influence on a particular society and thus perhaps validating some types of tradition.

Common narratives and interwoven disciplines

In reconstructing the African past, inter-disciplinary studies relating archaeological materials to linguistics, iconography, genetics, contemporary ethnography, and historical texts are essential to create a rich and convincing prehistory and to uncover the links with the present. Results from these disciplines are, however, not always easily synthesised, partly because sampling strategies are generally not co-ordinated, and the available data is thus characterised by a lack of fit. Variable styles of data presentation and even types of argumentation are often difficult for disciplinary scholars to integrate. Nonetheless, recent developments, especially in molecular genetics, have made the process of synthesis essential if coherent models are to be developed.

Calls for greater interdisciplinary scholarship have become something of a cliché in this type of literature. Africa is definitely not at the forefront of co-operation; scholars of the Pacific have been bringing together linguists and geneticists in single conferences for some time, while African archaeology meetings still reflect a more conservative view. This may have something to do with the problems of African universities and of internal communication within the continent. Journal access is difficult and many conferences on Africa are held outside the continent, sometimes with only limited African participation.

Table 1.3 shows the different disciplines used for the reconstruction the African past and tabulates various features associated with both their collection and availability. It gives impressionistic estimates both of the

type and amount of data available in specific disciplines and also the extent to which such data has been exploited.

Table 1.3 Data classes, their attributes and values in reconstructing African prehistory

Features	Geographic zone	Linguistics	Archaeology	Iconography	Textual	Oral traditions	Genetics	Ethnography/ ethnoscience
Samples		Very large number	Small number of point samples	Highly variable sample	Very small sample, chronologically limited	Extensive	Large number	Very small number
Precision		Low	High	High	Medium	Low	High	Very low
Dating		Low	High	Low	High	Medium	Medium	None
Degree of exploitation in:	North Africa	Medium	High	High	High	Low	Low	Medium
	E. and S. Africa	Medium	Medium	Medium	Medium	Medium	Low	Medium
	Central Africa	Medium	Low	Low	Low	Medium	Low	Medium
	West Africa	Medium	Medium	Low	Medium	Medium	Low	Medium

2. CONTESTED METHODOLOGIES

Research in the early period

Historical linguistics, like many another discipline, has a slightly disreputable past. Some of its early practitioners developed models of world prehistory by arguing for links between geographically remote languages in the context of Biblical references, such as the location of the Lost Tribes of Israel (Wauchope 1962). One of the earliest theories to develop along these lines was the version of Amerindian history that claimed the inhabitants of the New World were the Lost Tribes of Israel. This interpretation was advanced as early as 1650 when Menasseh ben Israel published his account of the traveller Aaron Levi who reported that he had encountered Hebrew-speaking Amerindians in the mountains near Quito. This type of scholarship is often broadly referred to as Voltairean linguistics, from a famous apothegm attributed to Voltaire: 'Etymology is a science in which the vowels count for nothing and the consonants for very little'[6].

Historical linguistics in the modern sense began as a comparison of written languages; textbooks typically cite Sir William Jones' famous lecture in 1786 as the first demonstration of the links between Sanskrit and the Classical languages of Europe and of the comparative method. But Jones' perception was far from original by that time; Van Driem (2001: 1039 ff.) has shown that the conventional accounts (Bonfante 1953; Muller 1986) of the predecessors of Jones, notably Marcus van Boxhorn, are highly inaccurate[7]. Boxhorn's (1647) published study of 'Scythian' [comparative Indo-European], represents the first discussion of the methodological issues involved in assigning languages to genetic groups. He observed that to use lexical cognates, loanwords must be first eliminated and he placed great emphasis on common morphological systems and on irregularity, *anomalien,* as an indicator of relationship. Even the expression *ex eadem origine*, 'from a common source', often attributed to Jones, first appears in a book by Johann Elichmann (1640:iii), a doctor at the Persian court, which relates European languages to Indo-Iranian using morphological comparison. Leibniz (1710:1), in his *Brevis designatio meditationum de Originibus Gentium, ductis potissimum ex indicio linguarum*[8] observed that '*Cum remotae gentium origines historiam transcendant, linguae nobis praestant veterum monumentorum vicem'*[9]. Indeed, these earlier accounts were significantly *more* accurate than Jones, who erroneously believed that Egyptian, Japanese, Chinese and the languages of the high civilisations of the Americas were part of Indo-European while Hindi was not. Although Jones is associated with the comparative method, his underlying belief seems have to been the languages of all ancient civilisations were related, a crypto-historical model that exactly runs counter to the assumptions of comparative linguistics.

These precursors of historical linguistics essentially focussed on written forms of the language and their value is in developing the sense of the antiquity of connections between languages. But written language can also be highly misleading, in part because the relationship with spoken forms is difficult to determine and epigraphers and linguists tend to privilege early written forms. However, most historical linguistics today is used to illuminate the evolution of unwritten or recently written languages and it is this which has been of greatest interest to archaeologists. A major advance in historical linguistics occurred when it was realised that present-day spoken forms could be linked together and historical hypotheses thereby generated. In particular, the languages of the world could be organised into broad groupings. The recognition of the major language phyla is often surprisingly early. The outlines of Austronesian were first recognised in the early eighteenth century by the Dutch scholar Hadrian Reland, who compared Malay, Malagasy and Polynesian (Relandus 1708). Remarkably, the earliest sketch of an entirely unwritten language phylum appears to be Arawakan, the languages spoken in the pre-Columbian Caribbean, but stretching into today's SE Colombia,

[6] Although quoted in Leonard Bloomfield's 'Language' (1935:6), the direct source in Voltaire's writings has yet to be uncovered and there is more than a suspicion that this is a piece of convenient linguistic folklore.

[7] I would like to thank George van Driem for drawing to my attention to what is effectively a major revision of the narrative of historical linguistics.

[8] Available online at http://www.bbaw.de/bibliothek/digital/struktur/01-misc/1/jpg-0600/00000028.htm

[9] 'When the origin of remote peoples goes beyond history, our languages show themselves their oldest monuments'.

which dates from 1782 (Gilij 1780-1784). Gilij's insights were impressive for their time; he recognised sound-correspondences as a key tool in classifying languages, focussed on the importance of word order patterns and discussed the diffusion of loanwords.

There is a strong argument for saying that by assigning a greater importance to fragmentary written materials over a wealth of data obtained from reconstruction, this type of epigraphic material has acted more to confuse prehistorians (see Blench, 2004 for an example from Chinese). Indeed, much of the most innovative work in using historical linguistics has been brought about by the *absence* of ancient texts. Just as North American archaeology developed new analytic techniques to analyse the sites of hunter-gatherer communities, modelling in historical linguistics has been stimulated in regions of the world lacking early textual material.

The earliest phase of historical linguistics was then essentially classificatory, linguists discovering what tools were available to assign individual languages to specific groups. If there was any interpretation of these findings it was in terms of a vague migrationism, unanchored in specific historical events. However, by the nineteenth century, scholars had begun to turn to the analysis of language to establish historical results. Donaldson observed in the 1830s:

> There is in fact no sure way of tracing the history and migrations of the early inhabitants of the world except by means of their languages; any other mode of enquiry must rest on the merest conjecture and hypothesis. It may seem strange that anything so vague and arbitrary as language should survive all other testimonies, and speak with more definiteness, even in its changed and modern state, than all other monuments, however grand and durable.
>
> (Donaldson 1839: 12)

Julius von Klaproth may well have been the first to explore this method in Indo-European. He was the first to observe that the root for 'birch', linked European languages with those of Indian and therefore had implications for prehistory;

> Il est digne de remarque que le *bouleau* s'appelle en sanscrit *bhourtchtcha,* et que ce mot dérive de la même racine que l'allemand *birke*, l'anglais *birch* et le russe, берeза (bereza), tandis que les noms des autres arbres de l'Inde ne se retrouvent pas dans les langues indo-germaniques de l'Europe. La raison en est, vraisemblablement, que les nations indo-germaniques venaient du nord, quand elles entrèrent dans l'Inde, où elles apportèrent la langue qui a servi de base au sanscrit, et qui a repoussé de la presqu'île, les idiomes de la même origine que le malabar et le télinga, que ces nations, dis-je, ne trouvèrent pas dans leur nouvelle patrie les arbres qu'elles avaient connu dans l'ancienne, à l'exception du bouleau, qui croît sur le versant méridional de l'*Himâlaya*[10].
>
> (Klaproth 1830: 112-113)

Some decades later, Pictet (1859-63) began to develop the notion of 'linguistic palaeontology', the idea that prehistory can be reconstructed from specific evidence drawn from modern spoken languages and the transformation of individual words. That he used the data to evolve convoluted and highly suspect theories of the migrations of the Aryan race should not distract attention from the significance of the enterprise.

[10] 'It is worth saying that the *bouleau* is called *bhourtchtcha* in Sanskrit, and that this word derives from the German *birke*, the English *birch* and the Russian берeза (bereza), although the names of other India tree species don't occur in the Indo-Germanic langues of Europe. The likely reason is that the Indo-Germanic nations were coming from the north, and when they cane into India they brought the language which became the basis for Sanscrit, thereby pushing down the peninsular the speech-forms of the same origin as Malabar [Malayalam] and Telinga [Telugu]. These peoples didn't find the same tree species in their new homeland as those in their former location, with the exception of the birch which grows on the southern slopes of the Himalayas'.

Into Africa: Egypt and the issue of long distance influence

Whatever progress has been made in other directions, there is one part of Africa, Ancient Egypt, that has remained the province of amateur theorists and has acted as a lightning rod for the political and philosophical preoccupations of a certain body of scholars. The notion that civilisation was somehow invented in Ancient Egypt and spread out through the far-reaching peregrinations of its inhabitants and was a commonplace among early ethnographers (see the history of this idea in McGaffey 1966). Not only did early Egyptocentric researchers such as Elliot Smith (1923, 1929) and Perry (1923) consider Egypt the origin of much of the culture of sub-Saharan Africa, they thought that Middle America and the Pacific had also been upgraded by reed boats from the Nile. The great pyramids of Central America as much as divine kingship in Africa were all brought from outside.

This type of theorising is often linked with bolder cultural hypotheses that usually involve long-distance migration, and often have a religious or political agenda. It is easily caricatured and can provide an excuse for archaeologists and prehistorians to avoid the whole area. Such theories are rarely based entirely on linguistic evidence, but lexical connections are added to support comparisons of material culture. The ascription of Egyptian origins to African peoples was well under way by the beginning of the twentieth century. Most non-African scholars assume that the origin of these theories is a crypto-racist mentality that attributes Egyptian origins to 'high culture' elements in sub-Saharan African societies. Today, however, this view is mainly promulgated by African scholars, both in the works of the followers of Cheikh Anta Diop (1983) and in the American Afrocentrists (Palter 1993). This school promotes the inverted assumption that Ancient Egypt was 'black' and that the attempts of Egyptologists to conceal this are part of a broader motif, the downgrading of the achievements of 'black' (or perhaps Afro-American?) civilizations. Inversely, the claims by Bernal (1987) of substantial influence from Egypt on Classical Greece have been received warmly by Afrocentrists and with something approaching moral panic by classicists (Lefkowitz 1996; Moore 2001).

Mainstream scholars are often caught in a bind by these debates; however much they distrust this type of theorising, it is often politically difficult to publicly oppose it. But the whole controversy is confused; to engage with it is to endorse the notion that 'civilization' can be somehow evaluated by a series of tick-boxes, stone monuments, writing, kingship systems, social hierarchy. The more a people or region scores in this imaginary comparison, the more 'civilized' it is proclaimed. Hence the intense, yet ultimately pointless, debate on who influenced whom. To get away from this framework, a way of writing history can be imagined that simply explores the change and development of society in every part of the world and decsribes mutual influences with no preconceptions as to their rung on a mythical cultural ladder. To do this we probably have to throw away the language of 'achievements' so beloved of cultural historians. Typically, this type of writing looks at African art and tries to decide whether it is 'as good as' European art; if we decide that it is, then this is an achievement of African civilization. Alternatively, we can conclude that this type of aesthetic canon is quite inappropriate. The economic substructure of European art would be absolutely alien to an African carver or metalworker. If so, the whole enterprise is flawed. Better an empirical understanding of the processes that led to an object's creation than a manufactured awe, in part created by the encomia of the auction catalogue.

Who has been writing about historical reconstruction in Africa?

One of the most potentially fruitful techniques for the reconstruction of African history is the reconstruction of proto-forms of words within particular language-families. This has been exploited extensively to help understand the cultural repertoire of the Indo-Europeans (Mallory 1989), and perhaps with greater analogy, the culture of Proto-Austronesian speakers (Ross *et al.* 1998). The earliest use of comparative linguistics in Africa to reconstruct the history of individual cultural items, as opposed to the more general kinship of languages, may be Johnston (1886) who discussed the history of the chicken in Bantu languages. Some of the earlier compilers of comparative wordlists, such as Koelle (1854) and Barth (1862) drew valuable conclusions from the distribution of loanwords, but had not yet reached the point of reconstructing hypothetical proto-forms.

A long gap occurred before the next wave of interest in linking historical reconstructions to cultural hypotheses. Greenberg (1964) made some initial suggestions about the application of these techniques to African data, but a revival of interest is strongly associated with a series of publications on Eastern and Southern Africa by Christopher Ehret (1967, 1968, 1971, 1973, 1974, 1978, 1979, 1980, 1981, 1982, 1983, 1985, 1986, 1987, 1989, 1991, 1993, 1995a,b, 1998, 1999, 2000a, 2001, 2002a,b), Ehret & Posnanksy (1982), Ehret & Ali (1986), Ehret, Elderkin & Nurse (1989) and Ehret's students (e.g. Saxon 1980; Schoenbrunn 1997, 1998; Fourshey 2002; Gonzales 2002). Nurse & Hinnebusch (1993) us a detailed discussion of the linguistic history of Swahili which attempts to tie the dialect splits and contact phenomena they uncover with the known history of the East African coast. Nurse (1997) has provided both a useful overview of the successes of historical linguistics in Africa but also the major debates within the discipline. This is not the only tradition; a parallel school of researchers with a quite a different approach deriving more from historical ethnology is associated with Hamburg, Frankfurt and Köln. For example, Heine (1981), Rottland (1982), Voßen (1982, 1988, 1991, 1996, 1998), Voßen & Heine (1989), Kießling (2002) have all contributed to the reconstruction of Nilo-Saharan, Afroasiatic and Khoesan. The majority of work by the German school is written in German and as this a language is not much read by Anglo-American researchers, it has tended to drop out of view. Apart from American and German research, French researchers have taken an interest in historical reconstruction, especially as it relates to the history of plants. Philippson (1984), Philippson & Bahuchet (1994/95) and Labroussi (2002) all deal with Bantu languages from this perspective. Apart from this, more scattered literature includes Bender (1970, 1975, 1981a, 1982, 1983c, 1984, 1988, 1991b, 1992, 1994, 1996a,bc, 2000a, 2001, 2003a), the eight volumes of Semitic reconstruction by Cohen (1994-1999) which incorporate material on Ethiosemitic, Militarev & Kogan's (2000) ongoing Semitic etymological dictionary and Vansina's (1990, 1995) overviews of the Bantu expansion.

It is no accident that this work has tended to concentrate on Eastern and Southern Africa and indeed the focus has often been on Bantu. Bantu is highly alluring; like Austronesian, its relatively transparent morphology and high levels of cognacy attract the attention of historical researchers, whereas the marked diversity and opaque morphology of West African languages deter them. Historical work on West African languages is much more scattered, more difficult to track down. For example, although there are two competing reconstructions for Nilo-Saharan and Afroasiatic, and a significant database of Bantu reconstructions, there are no comprehensive attempts for the whole of Niger-Congo. Nonetheless, important contributions to historical reconstruction exist for West-Central Africa, for example Kastenholz (1991-2, 1996) for Mande, Doneux (1975) for Atlantic, Heine (1968) for Central Togo, Moñino (1998, 1995) for Ubangian and Gbaya, Manessy (1969, 1975, 1979) for Gur, Connell (1994, 1995, 1998a) for Lower Cross. Boyeldieu (2000) is major reconstruction of the Sara-Bongo-Bagirmi languages and now part of a project to cover the whole of Central Sudanic (Boyeldieu 2004). Williamson (in prep) and Williamson & Ohiri-Aniche (in prep) constitute major sources for the Igboid and Ijoid families. Outside Niger-Congo, Chadic has been covered by Newman & Newman (1966), Newman (1977) and Jungraithmayr & Ibriszimow (1995), while Nicolai (1981) laid the ground for a comparative Songhay. More general approaches include Williamson (1988) on river technology, Blench (1989, 1993a,b, 1994/5, 1995a, 1997c, 1999b, 2000a, 2001a, 2003a) and the multi-volume studies by Bahuchet (1992, 1993) of the languages spoken by pygmy groups and their interactions. For north Africa, the studies on comparative lexis of Berber by Naït-Zerrad (1998, 1999, 2002)

and a reconstruction of its phonology (Kossmann 1999) are the major references. Wölfel (1965) compiled all the remaining material on the language of the Guanche, the vanished inhabitants of the Canaries and set out some speculative etymologies.

It is not the intention of this book to provide a summary of this material. Some parts of it have simply become outdated with the availability of new language materials while others employ highly suspect methodologies and therefore reach doubtful conclusions. Some material has a specifically historical focus, other papers and monographs are simply reconstructions with historical implications.

Methods and discussions

Lexicostatistics and glottochronology

Lexicostatistics, the counting of cognate words in a standardised list and the assignation of a numerical value to their relationship, seems to have been first used in the early nineteenth century. Dumont d'Urville (1834) compared a number of Oceanic languages (which would today be called Austronesian) and proposed a method for calculating a coefficient of relationship. There were other tentative experiments in the nineteenth century, but until Swadesh (1952) these made a very limited impact. Lexicostatistics initially proved very attractive to Africanist researchers as a way of ordering a large mass of languages of uncertain relationship and Swadesh himself collaborated in an attempt to classify the Gur languages using this method (Swadesh *et al.* 1966). Prior to computers, counting a large number of languages against one another was a major undertaking, but lexicostatistic exercises were undertaken for Kwa (Armstrong 1964, 1981), Atlantic (Sapir 1971), Kwa (Bole-Richard & Lafage 1983) and for Mande (Dwyer 1989). However, it is for Bantu that lexicostatistics seems to have been most alluring. The first count I can trace is Evrard (1966), but this seems to have inspired the compilers of the comparative Bantu lexicon at the *Musée Royale de l'Afrique Centrale* at Tervuren which has been responsible for a series of counts and revised counts ever since (e.g. Henrici 1973, Bastin & Piron 1999; Bastin, Coupez & Mann 1999).

A fifth columnist that very often accompanies lexicostatistics is glottochronology, the notion that languages change at a standard rate, so regular that by applying a formula to lexicostatistical results, the approximate ages of language families can be estimated. William Wotton (1730) had the idea of calculating how rapidly languages change by comparing ancient texts of known date with the modern form of those languages. Robert Latham (1850) was probably the first author to sketch the possibility of assigning a precise date to the split of two languages through applying a mathematical algorithm. Armstrong's (1964) proposal to use glottochronological methods for the Kwa languages of Southern Nigeria, was an early use of this technique for African languages. Armstrong concluded, incidentally, that Idomoid and Yoruboid must have split some 6000 years ago, which, if true, would make Niger-Congo about 40,000 years old. Dates with such limited credibility have not encouraged other Africanists to embrace this technique. Ehret (2000c) tested glottochronological dates for his own reconstructions of African proto-languages against archaeological results. Needless to say, these generally match very well; although no archaeologist has adopted these correlations.

Lexicostatistics and glottochronology have the attractive aspect of quantification; they seem to represent a scientific approach to the dating and genetic classification of languages. However, few historical linguists now accept the premises of such approaches, some because the mathematics underlying these methods has been heavily criticised (see discussions in Hymes 1983:75; Embleton 2000). More important, however, has been the realisation that languages undergo a variety of changes in interacting with one another. Glottochronology assumes languages change at a regular rate, especially in their core vocabulary and that the basic lexicon is resistant to borrowing. There are many problems with this approach, the most important being that the calibration of such dates must derive from written culture and it is far from proven that similar rates of change are true for oral cultures. More importantly, borrowing of basic vocabulary between related languages will vitiate the results, a situation which casts doubt on the value of conclusions derived from lexicostatistics. Although this is recognised by some practitioners, it seems to be an almost insuperable

objection because of the difficulties of detecting the degree and direction of borrowing even where a great deal of information is available. Despite this, many linguists are still attached to the idea that lexicostatistics and glottochronology can be 'fixed', that if only we can get the technical aspects right, the results will be of value. Greenberg (1987b) devoted part of his studies of Amerind to displaying new formulae while the contributors to Lamb & Mitchell (1991) propose various strategies for improving the technical aspect of the calculations. This is not to say that lexicostatistics has no value at all; for a first impression of the broad relationships of a large group it can sometimes be useful. But it should not be the axis of fine discriminations; the single percentage points on which nodes in the structure of Bantu are sometimes determined can surely have no meaning in understanding realworld events (e.g. Bastin *et al.* 1999).

None of this has made any serious impact on the larger linguistic and archaeological establishment and as we understand more about the complexities of language interaction, the assumptions of lexicostatistics are increasingly difficult to maintain. Detailed case studies suggest that all sorts of factors, geographical, social and environmental, affect rates of language change, making the lexicostatistical project ever more mired in uncertainty. Should we then throw it out entirely? Probably not; something of value is lodged inside. For example, we know that English is closer to German than Sanskrit and this is confirmed by lexicostatistic counts; counts also confirm the distinctions between different language phyla. Buts its conclusions may simply be circular, in other words we trust them only when we know the result from other sources.

Proto-forms and the comparative method

Lexical reconstruction

An underlying theme of this book is the mutual interplay of historical linguistics with archaeology and in particular the identification of reconstructible lexical items of significance for the prehistory of linguistic groups that can potentially be linked to archaeology. The methodology of reconstruction is usually known as the comparative method, and has a venerable, if often controversial, history (Durie & Ross 1996). Its origins lie in the mid-nineteenth century when scholars began to detect regularities in correspondences between words and to explore the idea that there might be sound-laws that expressed these regularities. The foundation of the comparative method is sound correspondences. In other words, if a segment in language A corresponds to another segment in language B, the correspondence should always be the same under identical conditions. There are two possibilities here. In some language groupings, relations are usually of identity; i.e. the segments are the same across very different languages. Table 2.1 shows the relations between the nasal consonant /n/ in Tarokoid, a language group in East-Central Nigeria;

Table 2.1 Sound-correspondences in Tarokoid

Language	**Gloss**			
	mother	**mouth**	**scorpion**	**cow**
Tarok	ù-nɨna	anùŋ	ìnyìnyàŋ	ì-nà
Pe	ù-na	unuŋ	ì-nàŋ	ì-nàk
Yangkam	nan	noŋ	naŋ	nak
Sur	naa	kunu	naŋ	nak
Proto-Tarokoid	*ù-nana	*-nuŋu	*ì-nàŋ	*ì-nàk

Tarokoid shows reduplication, prefix incorporation, reprefixing and erosion, but has maintained the first stem nasal unchanged in all four languages, apparently stable in the face of these processes. In other language groups, sound correspondences between phonemes can be regular. Table 2.2 shows a correspondence between /l/ and /d/ in the Lower Cross languages spoken in SE Nigeria;

Table 2.2 Sound-correspondences in Lower Cross

Language	Gloss			
	body	**enter**	**ten**	**tongue**
Anaang	í-dɛ́m	dɔk	dùòp	ɛ́démɛ̀
Ebughu	í-lé	lók	lùgò	ɛ́léì
Etebi	ídí	dók	dùgu	édî
Oro	ílɛ́	lók	lùwù	ɛ́léì

Source: Connell (1995)

In every case where a particular language has /l/, and another language has /d/ in the same slot, the correspondences are regular.

Needless to say, actual languages seem to bear only passing resemblance to those in textbooks of historical linguistics. One reason for this is that regularity of sound correspondences simply work much better under certain formal and historical conditions. In the nineteenth century, this was expressed as a debate between the proponents of regular sound-correspondences and those who believed that 'every word has its own history'. Typically, languages that have had only limited opportunities to borrow from closely related languages, such as Polynesian, look more regular than those where internal borrowing is common, such as parts of Bantu (Janssens 1993). Typically, it is easier to find correspondences in languages with small consonant inventories, as for example the Lower Cross languages cited in Table 2.2. But in those parts of Africa where consonant inventories are very large, such as Khoesan in southern Africa and central Nigeria, regular correspondences are hard to trace (Sands 1998 for discussions of Hadza and Khoesan). Different authors have reached very different conclusions on the phonology or languages with large consonant inventories (e.g. Dahalo and Sandawe). The source of this complexity is likely to be the compression, erosion and re-analysis of stems. Indeed, Voßen (1991) argues that because of intensive borrowing between Khoesan languages, correspondences between clicks are not regular in the usual sense and are largely unpredictable. Another methodological hurdle is the different ways words erode. Typically, words erode from the end, usually leaving the first consonant (C_1) of the stem in place. In Tarok and the Lower Cross languages set out in the tables above, the C_1 has remained in the same place but the final elements of the word vary. This makes the identification of cognates relatively easy. But elsewhere, for example in Kordofanian, many languages have lost this first consonant as they erode from the first consonant of the stem. If the first consonant is deleted or compressed, it is much harder to know whether two words are really cognate. Linguists also use the criterion of phonetic plausibility, the likelihood that particular developments will occur in the light of known sound changes. So, correspondences between /d/, /l/, /r/ and /n/ are generally considered plausible, but it is unlikely these would correspond to /s/. Complex morphophonemic processes *can* lead to unusual correspondences, but the linguist proposing them will need to put up a much stronger argument for such developments to be credible.

Morphological reconstruction

Apart from lexical items, historical linguistics in Africa has placed considerable emphasis on the reconstruction of morphology. Most African languages have extensive morphological systems, and some are so complex that their description is still disputed. Western Nilotic languages such as Dinka and Shilluk have lost much of the segmental morphology while retaining the tone; even after many attempts by different scholars, they remain intractable. The noun-classes of the Bantu languages, characterised by alternating prefixes and concord, and exemplified in languages such as Swahili, are found throughout the Niger-Congo phylum.

The interest of morphology is not purely formal, but also provides pointers to how people think, to their cognitive structures. Their persistence over many millennia show that there are deep-rooted ways of ordering the world in Africa that can be reconstructed far into prehistory. In Niger-Congo languages, many noun-class affixes also act to denote meaning. Affixes may signal rather obvious categories, such as humans, animals, mass nouns such as 'water' or 'oil' and also more subtle ideas such as 'long and thin' or

'dangerous' entities (Denny & Creider 1986). Moreover, the meanings associated with these affixes allow speakers to change the status of an entity by playing on them. So, for example, in the Plateau languages of Central Nigeria, wild animals are usually assigned a specific affix used for animals in the bush, but if that animal appears with human characteristics in a folktale, the affix changes to that appropriate for humans.

Another aspect of the relationship between morphology and the ways speakers of African languages construct the world has come to light with respect to Nilo-Saharan languages. A very widespread way of marking number in nouns is a tripartite system, whereby the main stem is unmarked, and a singular and a plural may be formed by adding affixes (Dimmendaal 2000). Thus in the Bari language of southern Sudan, words for seed are as follows;

nyɔmɔt-i	single seed
nyɔmɔt	seeds
nyɔmɔt-an	different kinds of seeds

Source: Dimmendaal (2000:242)

The plural is the form without any affixes and a singular (technically a singulative) and a second plural is back-formed from it. This is very contrary to the conceptualisations of number in Indo-European languages, where the singular is always primary and the plural formed from it, for example, by adding a suffixed -s as in English. What happens in Nilo-Saharan is that these types of plural or mass nouns are regarded as primary, as if the world were perceived as generally composed of grouped objects, and it is the individual that must therefore be specified. These distinctions can also be rooted in observations of the natural world; for example, in Baale, a Surmic language of SW Ethiopia, the solitary rhino is awarded an unmarked singular form, whereas for herd animals, such as antelope, plural forms are primary (Dimmendaal 2000:229). It may seem that the prehistory of human thought is inaccessible, but there are pointers to the complex conceptual systems embedded in the languages of Africa if we can learn to read them.

Semantic reconstruction

Languages change, not only formally in terms of phonology and lexicon, but also meanings change over time, occasionally rather radically. Sometimes the logic behind these changes is fairly transparent, for example, words 'seed' and 'child' often interchange in Niger-Congo. This does not mean that these links are predictable; 'seed' is often linked to 'eye' in Nilo-Saharan. Semantic associations are often attested over a wide area of Africa; for example, in most languages, 'meat' and 'animal' are the same or related words (Greenberg 1987a). Very often too, the link is maintained when the words themselves are different, suggesting that these deep-level associations are very fundamentally rooted.

However, suppose the linguist comes across two words of similar shape in different languages with relatable meanings, for example 'heart' and 'liver'. There may be no evidence in the language spoken today to assess whether these words are genuinely related or the similar shape is merely a coincidence. So asserting that they go back to a common ancestral form depends on assuming they are cognate and that the semantic link is valid. Linguists differ sharply on the cognacy judgments they permit, but the wider the semantic net is cast, the more cognates you find, evidently. The problem here is that there is no agreed method for accepting or discarding these semantic associations; a section on methods of semantic reconstruction could in principle be a very short section.

One of the more troubling aspects of historical linguistics as practised in Africa is that many authors permit themselves extremely wide semantic leaps when making cognacy judgments, especially in relation to Nilo-Saharan. As a consequence, they come to highly variable conclusions about what can or cannot be reconstructed, which may have important consequences for our assessment of the antiquity of a phylum. As an example, both Lionel Bender (1996a) and Christopher Ehret (2001) have reconstructed Nilo-Saharan, reaching very different results. Ehret proposes some 1606 Proto-Nilo-Saharan forms, Bender only 173, which many are classified as 'fair', i.e. with cognates missing in many languages. The reason for this

difference is plain; Ehret permits an astonishing semantic spread between his cognate items. Table 2.3 compares selected examples from these two authors;

Table 2.3 Semantic equivalences in Bender (1996a) and Ehret (2001)

Bender (1996a)	
p. 77	belly, inside, liver, outside, intestines, heart
p. 79	follow, enter, exit, hunt, chase, dance, return, rise, turn
p. 137	earth, country, land, ashes, down, dust, mud, sand, charcoal
Ehret (2001)	
No. 1129	husk, shell, fur, to slide under, to shovel up, hair pulled out in fright, tweezers, hair, feather, to remove
No. 1134	to descend, to deflate, to be asleep, to trim lamp
No. 1262	to drip, blood, sap, cold, cataract, tear, river, dew

Source: Blench (2002)

The point here is that if these ideas *are* related, the words are cognate and the sound-correspondences thus regular. Semantics and regularity exist in a circular relationship; if you find lexical items you think are cognate, then you set up a tentative sound-law. Your tentative sound-law then encourages you to look for other semantic relationships that support it. The semantic linkages are driven by the search for common segments, sequences of consonants and vowels. If these occur in disparate languages, the researcher concludes that these segments must be cognate, and that therefore the meanings must be related, if only a link can be found. This can lead researchers to assert a connection between very different meanings. Schoenbrunn (1997:262) begins a sequence of proposed cognates with 'hunting dog', links this to ordinary dog and 'wolf', thence to 'otter' and finally 'poor person, beggar'. This seems to stretch semantics to breaking point; anything can be linked to anything if the roots are homophonous. Semantics is difficult; although astonishing shifts can occur this does not by itself licence a link between two roots that simply look similar. The longer you work on a language phylum, the stronger is the sense of what is possible. Although imaginative authors may be right to respond that we will never get very far if we are too conservative, equally we may want to be wary of the novelistic injunction to 'only connect'.

Generally, Africanists should take a far more conservative approach to semantics. We should not be impressed by sound correspondences unless the semantics is also convincing. One consequence is that the process of reconstruction will be slower and the results perhaps less impressive; but more dependable. A simple rule is to only permit semantic shifts that occur in attested languages. For example, in many Niger-Congo languages, 'meat' and 'animal' are the same or closely related words (**n(y)ama*), and these forms apparently correspond to the verb 'to eat' (*#nya*) in Nilo-Saharan. A reconstruction that assumed these were part of the same semantic set would be inherently credible, though not necessarily correct. By contrast, cognacy between 'antelope' and 'cow' (used by Greenberg and others) is highly doubtful, because it is not attested synchronically, and because African languages have no generics for 'antelope' only a broad range of specific names.

Shared innovations and the determination of genetic affiliation

Much of the interplay between linguistics and archaeology in Africa depends upon the assignation of a genetic affiliation to the languages under consideration. Where we place individual languages in the global mosaic of language phyla is essential to developing an archaeological interpretation. The key strategy in determining genetic affiliation from the linguists' point of view is the identification of shared innovations. When any new speech-form develops, this is marked by innovation. Changes occur in the speech of individuals and may spread to the whole community over time. These changes can be extended by analogy to other sounds, lexemes or clauses, according to rules internal to the language. Analogy often applies to morphology; e.g. the past tense of *weave* is irregular *wove*, but *weaved* is common in many contexts today, by analogy with pairs such as *believe: believed*. Once *weaved* takes over in spoken English, the irregular past of *weave* will only be known form written sources. When enough comparable changes occur, the

resultant speech-form is recognised first as a dialect and then, as the changes accumulate, it will be considered a 'different' language.

Innovations can be divided into four categories, and confusions between these categories have often led to disagreements over classification. The categories are shown in Table 2.4;

Table 2.4 Categories of innovation in historical linguistics

Category	Definition
Shared innovations	Two or more languages share an innovation that is the consequence of genetic affiliation
Parallel innovations	Two or more languages share an innovation that is the consequence of parallel developments but does not reflect genetic affiliation
Common retentions	Two or more languages share a feature because both have inherited it from a common proto-language
Diffused features	Two or more languages share a feature as a result of borrowing

Source: adapted from Herbert & Huffman (1993:63)

Innovations can be of multiple types, lexical, morphological, phonological, semantic and syntactic. These all have their own interest and analytic problems in determining their status, but the establishment of shared innovations is essential to determining genetic affiliation, and they can only be identified against a background of detailed knowledge of neighbouring languages as well as the other languages in the phylum. Shared innovations are a set or bundle of changes that have occurred at the level of a proto-language, are reflected in the daughter languages and which allow linguists to assign a particular language to a genetic grouping. In the earlier phases of African language classification, proposed shared innovations were nearly all lexical, because of the weakness of morphological and syntactic data. As more reconstructions become available, it is possible to widen the spectrum of shared innovations. For example, although the Ijoid languages are Niger-Congo, like all the surrounding languages, they are distinct in very many ways other than lexical. These include (Table 2.5);

Table 2.5 Shared innovations defining Ijoid

Feature	Ijoid	Other Niger-Congo
Constituent order	SOV (Subject Object Verb)	SAVO (Subject Auxiliary Verb Object)
Gender	at least feminine/non-feminine	none
Plurality marker	–**a** attached to numerals 2-10 when they qualify a noun	not present

The first two features could regarded as typological, i.e. they occur in other languages of the world, but in the context of Niger-Congo languages they are striking innovations. They are features to be reconstructed to Proto-Ijoid which are innovative in relation to all the possible relatives of Ijoid within Niger-Congo and thus provide a clear bundle of features which allow us to assign a language to Ijoid.

Often a considerable array of information is required to determine both whether a form is a genuine innovation and if so, of which type. For example, the Igboid languages of south-central Nigeria have a word for 'cow' very different from the usual Niger-Congo root #-**na** (Table 12.10). The typical forms are given in Table 2.6;

Table 2.6 Common root for 'cow' in Igboid

Lect	Attestation
Ekpeye	**éyí**
Ọgbakịrị	**éhí̱**
Owere	**éhyí̱**
Ẹbịrịba	**éfí̱**
Ẹhụgbo	**éhí**
Ẹzaa	**éʃwí**
Udi	**éʃwú**
Ọnịca	**éfí/éví**

Source: Williamson & Ohiri-Aniche (ined.)

Clearly all these forms are related and it is reasonable to say that they are related to an innovation at the level of the Proto-Igboid even if the shape of the proto-form might be disputed. But this is not enough to qualify these attestations as a shared innovation, because there are similar forms in some neighbouring languages. These are;

Language	Form	Gloss	Comment
Ekoid	**`-fúŋ**		? loan from Igboid
Bekwara	**á↓-pī**		? loan from Igboid
Proto-Yoruboid	**ɛ-fà**		? semantic shift from Ẹdo
Ẹdo	**ɛ́-hą̀**	buffalo	? unrelated to Igboid

At least the first two are more scattered forms in languages that are remote from Igboid genetically but close geographically and thus unlikely to be shared retentions; it is probable that they are loans *from* Igboid. The Yoruboid and Ẹdo forms are sufficiently similar that they may be related to one another. The Ẹdo word for buffalo underwent a meaning shift to 'cow' when cattle were introduced. Although the Yoruboid and Ẹdo forms look rather similar formally to the Igboid attestations, the change in quality of the final vowel (from back *i~u* to central *a*) would be unusual. Even if it were proven that a historical relationship did exist between the Igboid and Edoid forms, the difference in final vowel would still be a distinctive innovation for Igboid.

A parallel innovation can also be problematic to detect, especially in the area of phonology. Common phonological processes can occur by chance or drift in parallel in related or possibly related languages. The challenge is to prove that a particular sound shift is evidence for a genetic affiliation rather than simply an analogous but unrelated procedure. For example, it was once thought that the palatalisation of the initial n- in the word *nyama* 'meat' was characteristic of Bantu. Thus;

Bantu: *nyama* ‖ other Niger-Congo: *nama*

But examples of *nyama* were then recorded outside Bantu, often alongside *nama* in closely related languages. It gradually became clear that *nyama* was not;

1. A distinctive innovation defining Bantu
2. A shared retention from a much older proto-language
3. A diffused feature

The origin of *nyama* forms is a parallel innovation whereby an **i-** prefix is incorporated in the stem. Thus;

i-nama → *nyama*

Since the i- prefix is highly conservative, this change has occurred separately on a number of occasions and thus this sound-shift carries no information about the genetic affiliation of languages in which it has been recorded.

Diffused features can be quite evident when they are distinctive lexical items, for example recent loanwords. But there are clearly many ancient diffused linguistic features in African languages that can only be identified in the context of a fairly detailed knowledge of the affiliation of languages in a circumscribed geographical area. A good example of this is the labio-dental flap, an unusual sound found in a wide swathe of languages across Central Africa. This sound was first identified as widespread by Thomas (1971), mapped in Africa-wide detail by Greenberg (1983) and more fully in Olson & Hajek (2003). It is found nowhere else in the world except for possible case in Sika, an Austronesian language, and in Africa it is spread evenly across three of the four main phyla, Afroasiatic, Nilo-Saharan and Niger-Congo. Despite being very distinctive, its source region and original genetic affiliation remains unknown. It is a typical diffused feature that has no implication for genetic affiliation.

Distinctive innovations are thus more difficult to discover than at first sight might appear, and historically many proposed shared innovations have turned out to fail the test, with greater knowledge of the region or phylum. To define a separate speech-form it is usually necessary to identify a 'bundle' of innovations, preferably of different linguistic types. Usually, with the clarity of hindsight, some of these proposed innovations have to be discarded, while the broader argument remains valid.

Language classification: branching trees and flat arrays

One of the consequences of the identification of shared innovations is a primitive 'tree' structure that provides a model for one way in which languages may be related. The nature of such models has important consequences for their interpretation by other disciplines. The typical nineteenth century philological model sought connections between words to construct etymologies, to establish cognacy and thereby uncover regular correspondences. The output from this model can be described as a flat array, in other words, a set of languages, or groups of languages that are shown to be related to one another but with no historical sequencing. In other words, these models do not set up precedence by claiming that one language group split away in a distinct time relationship with another. The work of August Schleicher (1871), who developed a *Stammbaum* or tree-model for Indo-European, is a significant exception, but his insights had a very limited impact for many years after his work was published. Most important sources on African language classification up to the second half of the twentieth century do not use tree-structures to describe language groupings. Westermann (1927) and Greenberg (1963a) set out Niger-Congo as a series of related groups but did not draw any consequences for the historical diversification of the phylum. For example, Greenberg's 'flat' model of Niger-Congo (Figure 2.1) puts all the families he identifies on the same level and it was not until 1976, that Bennett & Sterk drew the first tree structure for Niger-Congo. Greenberg's formulation should be contrasted with the modern 'tree' which proposes a historical ordering of Niger-Congo families (§5. and Figure).

Figure 2.1 The subdivisions of Niger-Congo according to Greenberg (1963a)

- West Atlantic (Fulfulde, Wolof, Temne, etc.)
- Mande (Bambara, Vai, Kpelle, Busa etc.)
- Gur (Dogon, Mossi, Dagari, Bariba etc.)
- Kwa (Kru, Ewe, Akan, Yoruba, Igbo, Ịjọ etc.)
- Benue-Congo (Kamberi, Birom, Jukun, Efik & Bantu)
- Adamawa-Eastern (Mumuye, Chamba, Gbaya, Zande, Banda etc.)

In the case of Afroasiatic, of the two competing reconstructions by Ehret (1995b) and Orel & Stolbova (1995), only Ehret sets out a tree, somewhat marred by the absence of Berber from his datasets.

If we are to link the pattern of modern-day languages with historical events or archaeological horizons, then some sort of ordering hypothesis is essential. It is often objected that tree structures are misleading, that they do not fairly represent the diachronic evolution of languages. This is partly because in any large land mass, languages tend to constantly influence one another in a variety of ways. Most writers consider branching models one way of looking at the relationships between languages, but would now add that we should take into account other types of interaction. English developed from Germanic later than the genesis of Germanic and the birth of English is associated with a movement of peoples, something we can be clear about because Britain is an island. Many other phenomena can occur to blur the historical picture, but languages do diversify, i.e. they split away from one another, either singly or in groups.

Diversity and linguistic geography

A question frequently asked of linguists by both historians and geneticists is how diversity can be estimated. The importance of the question is related to estimates of how old a phylum or a particular branch of it may be, or how genetic diversity can be mapped against linguistic diversity. Unfortunately, there are no easy answers. But;

a. Mechanical calculations of diversity, such as via lexicostatistics or other diversity indices, do not necessarily produce helpful results
b. Languages can be diverse in many ways, phonologically, lexically, morphologically and syntactically, and it is not easy to assign differential weighting to each category
c. Language diversity can be ‘old’, i.e. have arisen through a process of differentiation taking millennia, or it can arise suddenly, especially in urban situations
d. Total numbers of languages and diversity often go together but should not be confused.

Differences in types of diversity is very puzzling and it is unclear whether linguists have reached any very satisfactory conclusion on this issue. For example, the languages in both Australia and Papua have small phoneme inventories and the inventories themselves are extremely similar to other languages in the phyla. Yet they are lexically very diverse, so diverse that the reconstruction of a Proto-Australian or Proto-Papuan seems unlikely. African language phyla, by contrast, are extremely diverse phonologically, but have many more lexical items in common. This contrastive pattern is so striking that it must reflect some broader aspect of prehistory, but there is no convincing explanation for it.

The issue of the absolute number of languages is equally important. How languages are counted depends strongly on classificatory traditions for particular phyla. For example, the Bantu languages are very numerous, in part because the tradition has grown up of giving each speech-form an individual name and

treating it as a separate language. Bantu languages are often very close to one another, much closer than West African languages. If the dialects of West African languages were counted according to the same standards as Bantu, there would be many more languages in West Africa and the overall density thus much greater. So diversity cannot be assessed using numbers of languages unless the calculations also factor in the standards used to differentiate languages.

A related issue is linguistic geography, the actual pattern formed by languages or other features on the map. Maps are a common tool of dialectologists and the distributions of individual features can be plotted and dialects thus characterised by overlapping isoglosses. But a broader geographical approach is less easily quantified. For example, the language map of Africa[11] shows regions of very high language density and zones where only one of two speech-forms dominate. High-density zones can reflect phylic diversity, where languages of different phyla abut one another, as in northern Tanzania, or internal diversity, such as the Plateau area of central Nigeria, where many related languages are packed closely together. Obviously there is a broad link to ecology, the Sahara attracting few inhabitants and fertile humid regions supporting high densities. It is tempting to account for such zones of diversity by the presence of geographical features such as mountains or barriers such as rivers. But in parts of Africa, open savannahs also demonstrate this type of diversity, so such explanations can only ever be partial.

A feature of the African ethnolinguistic landscape that is easy to identify but hard to interpret, is fragmentation. For example, the Central Sudanic languages (Map) form isolated pockets across a broad region of Central Africa and their geographic separation is such that the speakers have no consciousness of being part of a larger grouping. This pattern must be the end result of a series of complex interlocking processes, beginning with the migrations of highly mobile small groups, the subsequent expansion of other language groupings to fill in the spaces thus created and finally the fragmentation that was a consequence of the nineteenth century slave trade. This is strongly contrasted with highly coherent families such as Omotic, where all its members remain contiguous to one another and have clearly been diversifying on the spot for millennia. These patterns are easier to observe than to explain; but they *are* the consequence of subsistence patterns, socio-political and economic change and should in principle be reflected in the archaeological record.

Why some things won't reconstruct

Reconstruction is not a given; many concepts and lexical items will not reconstruct. Sometimes this is a problem specific to a language phylum, but in other cases it is universal. The reasons for this can be summarised as follows;

a. Semantic scatter. Something which is a unitary concept in one culture may be perceived as diverse in another
b. Semantic shifting. Some concepts acquire broader or more divergent meanings new lexemes develop to capture these changes.
c. Salience. Where a concept or referent is salient in a particular culture, lexemes are likely to be persistent. Inversely, non-salient items can be rapidly replaced.
d. Lexical replacement. Spiritual or magical considerations cause terms to be replaced

Semantic scatter, which makes some reconstructions impossible, is connected with what is usually called the 'major taxon' problem. Each language has slightly different ways of classifying objects in the world and some languages have many more generic terms, i.e. taxa, than others. So English has a general term 'insect' for a wide range of species, whereas few, if any, African languages have such a cover term, despite the abundance of insects. Insect genera or species are usually given specific names, and often may have no name at all if they are of no economic importance. They may well be classified in other ways, such as 'creatures of

[11] There is no reliable published African language map that is up-to-date, but the country maps that form part of the Ethnologue would provide such a map if synthesised.

the air', 'biting animals', 'creatures that appear at harvest', but no cover term that corresponds neatly to 'insect'. Generally speaking, these 'major taxa' are fewer in African languages and probably in oral speech in general; they may be a characteristic product of writing culture.

However, we know that the early populations of Africa were surrounded by insects, so not much information has been lost here. But many topics of considerable interest to archaeologists are also impenetrable linguistically. The most important of these is pottery. Pottery first appears in the African archaeological record some 10,000 years ago (Cornevin 1993:61). It would be exciting if this could be tied to the reconstruction of proto-forms for 'pottery' in any of Africa's language phyla. But pottery usually has no generic term in individual African languages; each language simply has a repertoire of pots. Table 2.7 shows the major terms for different types of pottery vessel in Nupe, a language of Central Nigeria. The nearest terms to generics are **dùkùn** and **màngè**, in that they refer to a range of vessels. But neither category intersects with the other and some pots do not fall into either category. As a consequence, it is hard to link Nupe terms for pots with terms in Gbari, its nearest relative, let alone the proto-language, Nupoid. Despite, this, there is every reason to think pottery was known to speakers early in the evolution of this language-grouping. As a result, it is often not possible to reconstruct pottery terminology to quite local levels, let alone to the high levels that would be required by the archaeology.

Table 2.7 Nupe pottery terminology

Nupe name	Description
bùrù	Water pot with a very wide mouth and short neck.
dangàrà	Large water-pot.
dodo	Leach pot
dùkùn	Clay vessel
egbagi	Pot with a large mouth;
ètso	Long necked pot, traditionally stacked in the back of women's houses as a prestige possession. Used by women for storage. Now largely replaced by enamel bowls.
gbada	Water pot with a very wide mouth.
gbòdo	Leach pot.
kãsiko	Shallow pot with a large mouth.
màngè	Clay water pot with a long neck.
màngègi	Small pot with one or two handles.
màngè bàkómbàgiʒì	Eight small pots sunk in the ground outside of a house, and used as a shrine for twins.
màngè bùrù	Pot with a very large rim.
màngègegé	Bride's pot.
màngèta	Place where pots are kept.
màngègi tàdáwa	Ink-pot, no longer in use
màngègi yàwŏ	Bride's pot.
nãʃì	Clay fire-pot.

Source: own fieldwork

Much the same is true of iron-working. Iron-working seems to develop first in sub-Saharan Africa in the middle of the first millennium BC, based on Taruga in Central Nigeria with rather earlier dates in the Sahara at the *Massif du Termit*, back to 3300 BP (Cornevin 1993; see also a review in Holl 1997). Iron-working is therefore later than the expansion of the major branches of African language phyla. So the terminology of iron-working should appear as a series of loanwords borrowed from one language to another, rather like the spread of the onion, whose names are borrowed from medieval Arabic. But metallurgy has proven resistant to this type of approach. De Maret & Nsuka (1977), in an investigation of Bantu iron-working terms, could find no analysable pattern that would demonstrate a clear pattern of diffusion. This would also be true of central Nigeria, where smelting terms seem to be newly constructed from one group to another and iron itself is usually linked to words for 'money', and thereby other items such as hoe-blades that were part of pre-colonial exchange systems.

This type of lexical diversification is illustrated by what may be called the 'butterfly' problem. Butterflies are present in most climates and are also visually very salient. But they also attract ideophonic or descriptive names, presumably because of their appearance[12]. It has been noted that they do not reconstruct in European languages, with each major speech-form having a different word (Oehl 1922). The same is true in African languages, in sharp contrast to the bee or the termite. Table 2.8 shows the terms for 'butterfly' and 'bee' in the Plateau languages of Central Nigeria;

Table 2.8 Butterfly and bee in Plateau languages

Language	Butterfly	Bee
Təsu	**ágàràkpákpá**	**əʃi**
Hasha	**a-kərikwat**	**i-suk**
Berom	**dáŋá màdɛt**	**shòk**
Iten	**ɛ̀dìdabhát**	**isho⁺**
Jijili	**utugubili**	**iʃɔ̃**
Mada	**bə̀bàrì**	**shɔ**
Horom	**ɗì-kàmbè**	**sɛ̀kɛ̀**
Izere	**ìlə̲kə̲n**	**iʃɔʃ**

It will be apparent that words for 'bee' are all cognate while those for 'butterfly' are unrelated. A similar diversity of terms occurs for 'dragon-fly', 'ant-lion' and 'mole-cricket', whereas 'housefly', mosquito' and 'scorpion' are all very uniform. Clearly, the admonition to Muhammad Ali to 'move like a butterfly, sting like a bee' was in line with this underlying logic. The precise explanation for this is still unclear; butterflies are visually prominent but of no economic importance. Flies, mosquitoes and scorpions are of importance as pests and bees are important as honey-producers. However, the mole-cricket is everywhere enjoyed as food across West Africa, so it might have attracted a common name. But the lesson is that salience cannot be easily predicted, except in reverse. Once you identify widespread common terms you deduce or retrodict the importance of the lexical item.

An equal and opposite problem is words that appear to be improbably widespread, appearing in almost identical form in different language phyla. This may be called the 'crabs, turtles and frogs' problem (Blench 1997a). Table 2.9 shows the names for tortoise and turtle in African languages across the continent, including unclassified languages such as Hadza.

[12] See http://www.insects.org/ced4/etymology.html and http://www.linguistlist.org/issues/11/11-1765.html

Table 2.9 Tortoise and turtle in African language phyla

Phylum	Family	Language	Attestation			Gloss
—	Sandawe	Sandawe	kʰú	**rú**		tortoise
—	Hadza	Hadza	**k'õ**	**l**ó		tortoise
—	Laal	Laal	**kú**		**nán**	*petite tortue*
NS	Koman	Kwama	**k'**	**u**	kiʃ	turtle
NS	Songhay	Songhay	**ń**	**kúú**	**r** **á**	small tortoise
NS	Saharan	Kanuri		**kó**	**ro** **wú**	tortoise
NS	Maba	Maba	**fa**	**k**	**ruu** **n**	tortoise
NS	Surmic	Didinga	**bo-**	**ko**	**l**	tortoise
NS	ES	Dinka	**le-**	**ku**	**r**	tortoise
NS	CS	Asua	**ùn**	**gú**	**lú**	tortoise
NS	CS	Ma'di	**o**	**kù**		tortoise
NS	Kadu	Krongo		**-kó**	**ò** **ŋ** (ní-)	tortoise
NC	Kordofanian	Masakin		(k)**ə**	r**ə**	tortoise
NC	Mande	Yaure		**kú**	**lú**	tortoise
NC	?	Pre		**k**	**ru** w**ɛ**	tortoise
NC	Senufo	Nabaj		**xu**	**ru**	tortoise
NC	Ubangian	Geme		**kú**	l**ō**	turtle
NC	Kwa	Ewe		**k**	**lo**	tortoise
NC	WBC	Itsẹkiri	**ólu**	**kú**	**rú** m**ɛ̀**	tortoise
NC	EBC	Doka	**a-**	**ku**	**l**	tortoise
NC	Bantu	CB		k**ʊ́**	**dù**	tortoise
AA	Cushitic	Burji		**ko**	c**'**áa	tortoise, turtle
AA	Beja	Beja	**se**	**ku**	**ur**	tortoise
AA	W. Chadic	Hausa	**kùŋ**	**ku**	**ruu**	tortoise
AA	W. Chadic	Mwaghavul		**kú**	**r**	tortoise
AA	C. Chadic	Huba	**kwà**	**kú**	**rù** **m**	tortoise
AA	Masa	Lame		**gù**	**rè** **i**	tortoise sp.
AA	E. Chadic	Toram	**kùn**	**gù**	**rù**	turtle
AA	Berber	Kabyle	**tafe**	**k**	**ru** **rt**	tortoise
KS	North	Auen		**!gu**	**ru**	tortoise-shell
KS	Central	Mohissa		**cu**	**ru**	tortoise

Source: adapted from Blench (1997a)

Table 2.10 shows that these words are surprisingly similar across phylic boundaries, which is not the case, for example, with common body parts. The exact interpretation of this is uncertain but there is clearly a phonaesthetic component. The phenomenon goes beyond Africa; related words for 'crab' have virtually an Old World distribution (Blench in press, b). Tortoise is thus a poor word to use for historical reconstruction and genetic subgrouping, precisely because it is so widespread and the names are so formally similar. The existence of such transphylic words is unpredictable and probably can only be deduced by compilation of evidence.

It is easy to assume if something is prominent in the natural environment it should be reconstructible to the proto-language of a phylum, and that this will in turn provide clues to the origin and migrations of specific language phyla. In particular, it seems likely that biological entities as salient as large land mammals in Africa would be easily reconstructible in the major phyla. There have been a number of attempts to reconstruct names for large animals of Africa. Skinner (1984) attempted to reconstruct antelope names in order to propose that Afroasiatic must have originated in a dry, Sahelian zone. But his arguments have not been accepted, largely due to the diversity species of antelope and the uncertain identifications in the sources. No large land mammals reconstruct unambiguously to the proto-languages of Niger-Congo or Nilo-

Saharan and only a few even have widely attested roots (Blench in press, m). Among these are the leopard, but otherwise the widespread roots apply to smaller animals such as snake, crab and tortoise.

One likely explanation for this is lexical avoidance. Around many large animal species and some smaller ones there is a common belief that their ordinary name must be avoided either completely or under specified circumstances, such as after dark. Typically, speakers substitute periphrases; the hyena, for example, seems to have developed a particularly rich repertoire of avoidance names in Ghana with some Gur languages having up to six alternative forms in current use. Interestingly, even a relatively recently introduced species such as the domestic cat can have a variety of names because of a cluster of beliefs that associate it with witchcraft. Table 2.10 displays the names of some mammal species in Dagbane, a Gur language of North Central Ghana, with the 'basic' name and the alternative epithets. Of these, the most elaborated are the hyena and more surprisingly, the cat.

Table 2.10 Base forms and epithets of mammals in Dagbane

Species	s.	pl.	Gloss
cat	**jèŋkúnú**	**jèŋkúndí**	base form
	zambaŋa	**zambansi**	
	dùdóɣù	**dùdórì**	
	dùláámiˈhi	**—**	
	nààmám	**nààmámá**	
elephant	**wobgu**	**wobri**	base form woblaa (=male)
	bínjúú	**bínjúhí**	
hyena	**kunduŋ**	**kunduna**	
	dùkpìnbáɣsírígú	**dùkpìnbáɣsírá**	base form
	sapili	**sapiya**	
	búkálbílá	**—**	
	naɣnyili	**naɣnyiya**	
	naŋgbanpoŋlana		
	yuŋgorgu	**yuŋgora**	'night roamer'
leopard	**jeŋgbuni**	**jeŋgbuna**	base form
	nyìn-nyàhìlànà		
	zullana		
	wanzam	**wanzamnima**	
lion	**gbuɣinli**	**gbuɣima**	base form male form: gbuɣindibga.
	dùzóɣú	**dùzórí**	
	zuɣgbilli	**zuɣgbila**	
	yonaa		'bush king'
patas monkey	**jaŋa**	**jansi**	base form
	ŋmaaŋa	**ŋmaansi**	
	àdámá	**àdámáɲɨmà**	

Source: adapted from Blench (in press, f)

The hyena attracts more epithets than any other species, both in Ghana and elsewhere in Africa. Bastin (1994:7) comments on words for hyena, '*L'emploi d'une locution évoque souvent le tabou*' [The use of an epithet often evokes a taboo]. It is interesting to speculate why this should be so; probably because the hyena impinges more directly on human productive activity, attacking domestic stock and even babies that sleep outside.

Under these circumstances, it is easy to imagine that the original names can be lost and replaced with alternative forms. Interestingly, dramatic inversions can occur; 'snake' for example, can be reconstructed to a high level in Niger-Congo but somewhere in SE Nigeria a cultural change required speakers to employ avoidance terms to refer to it. 'Snake' became 'rope of the bush' (this periphrasis has even reached a popular

novel, see Kingsolver 1998) The form 'rope of the bush' is found widely throughout the Bantu-speaking area. This type of replacement has not been much analysed in the classification of African languages, although it is clearly of considerable importance. But among Austronesianists, word-tabooing is an important factor in analysing language affiliations. In many Austronesian areas, as among Papuan and Australian, a taboo on the name of a recently dead individual has the consequence that neither the name of that individual nor words that similar can be uttered; they must therefore be replaced by innovations, which are often borrowings from neighbouring languages (Dyen 1963; Simons 1982).

Another intriguing asymmetry, with important consequences for African economic history, is the difficulty of reconstructing crop names, compared with domestic animals. The recovery of the introduction and spread of agriculture through comparative linguistics has a long-established tradition in Indo-European studies and has been used with success in Austronesian. Given that dates for agriculture in Africa are highly controversial, it would be of interest to establish secure reconstructions for major cultigens such as Guinea yam, sorghum, millet, fonio and others in the different language phyla. But attempts to do this have been generally unsuccessful, in contrast to livestock, where terms for cattle, sheep and goat have well-attested reconstructions in both the Niger-Congo and Afroasiatic language phyla. As yet little has been published on tree names, but it is possible to reconstruct some important economic species to median levels of Niger-Congo.

How do we explain the asymmetry between crops when compared to livestock and trees? It may be that all the major African cultigens still exist in a related wild form that is still exploited for food. Indeed, the outcrossing of yams, the major cereals, pulses and some leafy vegetables with wild and escaped forms is major problem for plant breeding. As a consequence, the transition between gathering or transplanting uses and cultivation proper is seamless from the terminological point of view. There was little need to adopt or invent a new term to describe an already familiar plant. Linguistic innovations only occurred when technologies began to develop that were related to cultivation and were distinct from wild gathering strategies. Bruce Connell (1998b) has considered this issue in relation to oil-palm use in SE Nigeria. While basic terms for 'oil-palm' reconstruct to a deep level in West African languages, terms associated with its processing have a much shallower time-depth. The palm-nut is partially edible straight from the tree and this must have been known for millennia; pounding, boiling and skimming is almost certainly much more recent.

The contrast with domestic animals is evident; none of sub-Saharan Africa's domestic animals are indigenous to the continent except the donkey and the guinea-fowl (see §11). New terms to refer to introduced species such as cattle, sheep and goats are recorded in Niger-Congo and Afroasiatic to high levels of reconstructibility (Blench 1993a). Unlike cereals and other domestic plants, livestock are older and are apparently more linguistically stable; it is certainly tempting to reconstruct them in advance of local-level reconstructions. Species such as the chicken, introduced >3000 years ago, have created a complex trail of loanwords that clearly indicate the routes whereby they entered and diffused across the continent.

The reconstruction of tree names is more complex; Africa has a relatively high level of floristic biodiversity and almost all species of tree are of some potential use. However, some species mesh with evolving production systems, become very useful and thus gain a high degree of salience. African mahogany, the shea, the locust tree, the baobab, the silk-cotton are examples of these (Blench in press e). This salience is reflected in the existence of widespread linguistic roots that can be taken to mark the point in the evolution of African language phyla at which human society began to attribute significant economic and cultural value to a particular species. This will in turn be interpretable in terms of the archaeobotanical profile of particular regions of the continent.

These caveats should not be taken as counsels of despair, but rather as a warning to regard the literature with a sceptical eye. Historical linguistics all too often gives the impression of omniscience, that where the data exists, nothing in the past is opaque. In fact, many items and practices, as well as facts about the natural and social environment will never be retrievable.

Tracking loanwords: interpretations of contact and borrowing

A distinctive feature of the history of African language classification has been a widespread unwillingness to analyse commonalties between languages as the result of contact and borrowing, except in the case of transparent and recent loanwords. Most African languages are broadly related to their neighbours and it seemed simpler to assume that common lexicon or morphology was the product of a common proto-form to be reconstructed higher up the historical 'tree'. It was also buttressed by a widespread assumption that core lexicon was very unlikely to be borrowed, and that the spread of phonemes and morphological elements across language boundaries would be similarly rare.

Although this view is not held as rigidly as before, especially in the light of recent discoveries about language shift and creolisation, making sense of borrowing and contact remains difficult for both linguists and those who seek to interpret their results. But African languages have many areal features, words, morphemes and phonemes that delight in crossing language boundaries (Dimmendaal 2001a). In terms of language features, Thomas (1971) published a series of maps showing their distributions in Central Africa. These show, for example, the number of tone levels in individual languages is apparently determined in part by geography (Wedekind 1985). Areal features imply extensive borrowing as a result of multilingualism which must also affect the overall pattern of culture. Languages that trade phonemes, as it were, must also be trading material culture. Archaeology and comparative ethnography allow us to track the distribution of cultural items across ethnolinguistic boundaries in the same way as purely linguistic features. Long ago, Westermann (1927) christened the lexical elements *Wanderwörten* [wander words], although he offered no explanation for them. 'Parrot' (the African grey parrot, *Poicephalus senegalensis*) is called *aku* in Nilo-Saharan, Niger-Congo and Afroasiatic languages across a wide span of Central Africa as well occurring in diaspora languages in the New World. The grey parrot is part of the indigenous African avifauna and was probably not kept as a caged bird until European intrusions, but nonetheless its indigenous name seems to have spread in a very unconventional way, perhaps because its red tail feathers were traded for magical purposes.

Historical linguists seek reconstructions that can be assigned to proto-languages. Shared words common to a group of languages may indicate relatedness, but may also be indicators of the spread of a new technology or social change. How we interpret a common form exists in a feedback relationship with our historical understanding of its cultural role and chronology. We assume that people have always eaten and drunk, slept and died, and that where we find a widespread root referring to these concepts it can be used in historical reconstruction. By contrast, words for 'tobacco' in Africa are all resemble one another, in part because they were adopted from colonial languages together with the introduction of tobacco from the New World (Pasch 1980). Words for 'car' are similar over large areas, but differ between Francophone and Anglophone areas, because the lexical source is different. There are, however, many items which exist in some intermediate category, whose antiquity is uncertain. In Niger-Congo languages, the word for 'cow' is common to many languages and apparently is therefore reconstructible to a considerable time-depth. But the archaeozoological data for cattle do not support this level of antiquity in West Africa. Does this mean that the reconstruction is inaccurate and that we are mistaking ancient loanwords for genuine cognates or is it simply that the patchy excavation coverage has simply failed to uncover evidence still in the ground? Such questions have no easy answer at present and indeed both explanations may be partly true; cattle may be older than present materials suggest, but some apparent cognates may be loanwords and others related through genetic affiliation.

The study of lexical items reflecting more recent introductions is a less prestigious activity, a task for graduate students. However, in terms of the reconstruction of prehistory, the tracking of loanwords can provide much information that is unavailable through other means (Kiraithe & Baden 1976; Nurse 1986). The Portuguese had a considerable impact on African culture in many other ways, but their replacement by other colonial nations has meant that the Portuguese era is often forgotten or assigned only minor importance. But loanwords reveal periods of intense interaction. A good example of this is the maritime vocabulary of the East African coast, much of it borrowed from Portuguese (Table 2.11);

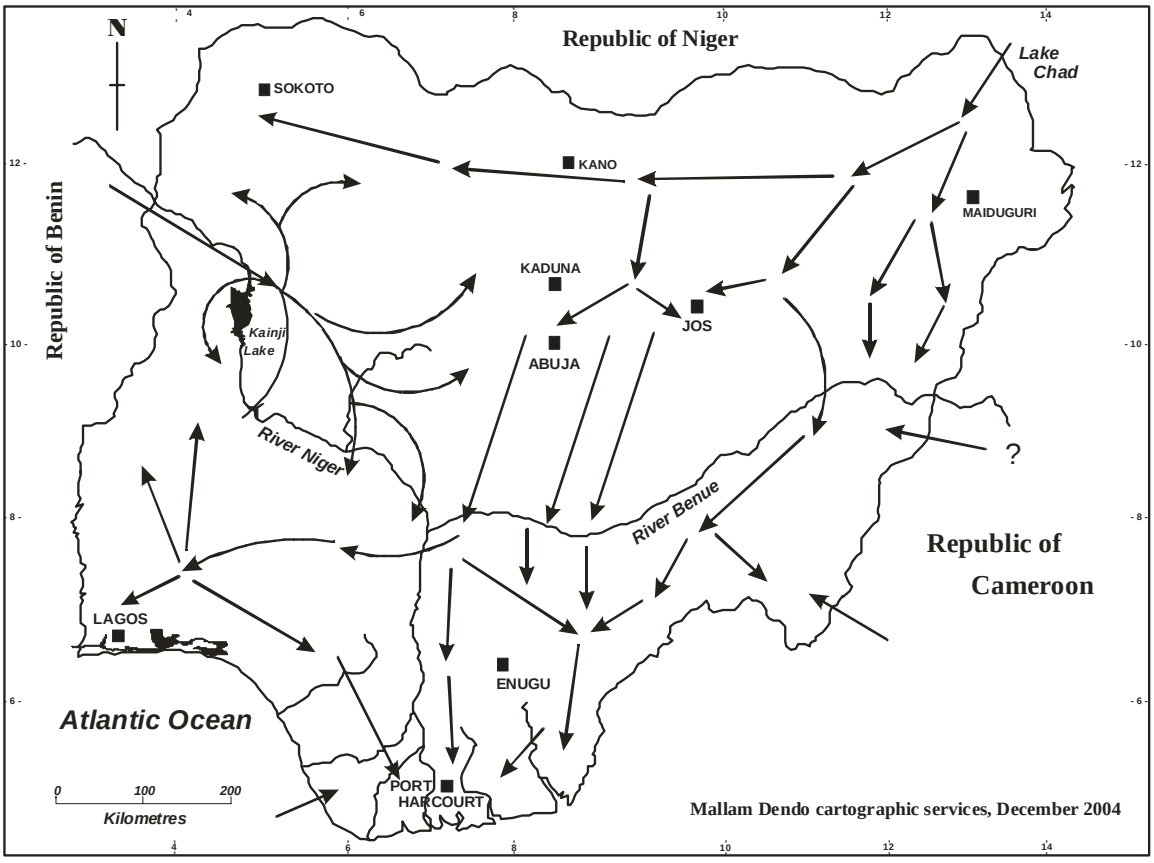
Table 2.11 Portuguese loans in Swahili nautical vocabulary

English	Portuguese	Swahili
small boat	batel	batela
tar	breu	bereu
tiller	cana	gana
pontoon	bunta	bunta
schooner	barraquinha	barakinya
dock	flotilha	furutile

Source: Kiraithe & Baden (1976)

Another example is the spread of New World crops in Africa. We know that maize, cassava, groundnuts and chilis transformed African agriculture long before European presence in the African interior reached significant levels. American food plants spread both from North Africa via the long-established trans-Saharan routes and via Portuguese maritime contacts with the coast, but in neither case are there many records. Using the pattern of loanwords, the spread of individual crops can be tracked and it can be shown how they were borrowed from one group to another, and often by what agency, whether through trade or farmer-to-farmer spread (cf. Williamson (1970, 1993) on food plants; Pasch 1980, 1983; Blench *et al.* 1997 for maize; Blench 1998a for New World crops; Bahuchet & Phillipson 1996, 1998 for American crops in Central Africa). Map 2.1 shows an example of this type of tracking, by plotting the diffusion of maize in Nigeria deduced from vernacular names;

Map 2.1 Diffusion of maize in Nigeria deduced from vernacular names



Source: Blench *et al.* (1997)

Interestingly, it shows that the majority of maize names derive from the north, rather than reflecting a coastal introduction, as is generally assumed.

There is another way in which loanwords can be of interest. Their frequency in languages that interact can indicate the intensity and often the nature of contacts. Schuh (n.d.) has recently studied the interaction of Manga (a type of Kanuri) with Bade (a Central Chadic language) in NE Nigeria. The Bade use a type of fossilised Manga as a court language and the Bade language appears have been borrowing from Manga for centuries, in a wide variety of contexts. Thus Schuh identifies are many commonalties in bird and fish names, lexical borrowings to do with authority systems and morphological and syntactic convergences.

This type of stratigraphic study works when the source languages are well-known. Another more speculative approach is the identification of words with no obvious etymology for the hints they may provide to substrate languages spoken in the region. Reid (1994) studied the languages of the Negritos of the Philippines (who today speak Austronesian languages) for evidence of their previous speech and concluded that common lexical items between now-dispersed groups indicated a non-Austronesian substrate. Many scholars believe that the pygmies of the African rainforest represent one stratum of its original inhabitants and that they must therefore have had a language unrelated to the Bantu and Ubangian languages they speak today (see §8.). Similar approaches to that of Reid have been attempted with the speech of Central African pygmies although with more mixed results (e.g. Letouzey 1976; Bahuchet 1992, 1993). Nonetheless, the more general analysis of the Bantu lexicon, which has developed relatively recently and must have incorporated words from the peoples whom they assimilated is a rich source that is yet to be effectively mined. Johnston (1922: 14-214) pointed out long ago that there are many unusual ('noteworthy', 'peculiar' etc.) word stems in Bantu languages which have either highly local or scattered distributions[13]. Ehret & Nurse (1981) and Nurse (1988) argue that non-Bantu words in the Taita languages of southern Kenya should be attributed to hypothetical Cushitic precursors in the Taita Hills, even though there are no neighbouring Cushitic-speaking populations there today.

The study of borrowing and loanwords and the general notion of stratification in African languages remains thus far an underexploited tool; the potential of such analyses to illuminate the spread of technologies of interest to archaeologists has been hardly used. One area where it might be of particular value is in the spread of agricultural tools. The German ethnologists took considerable interest in this and Baumann (1944) published a very detailed description of the morphology and distribution of tools. For example, the sickle used for harvesting cereals is quite a recent introduction in West Africa, although not of European origin (cf. Raynaut 1984 esp. p. 530 ff.). In many Nigerian languages, the term is borrowed from the Hausa *lauje* and it seems likely to have been spread by the Hausa people, based on a North African model. Indeed, the mapping of African agricultural tools and their associated terminology is still in its infancy but some of the distributions signalled in Raulin (1984) point to the importance of this for agrarian history[14].

Another concept that has been significant in Indo-European linguistics is the *Sprachbund*. A *Sprachbund* is a group of languages that have come to share features through geographical proximity. They may be genetically unrelated or only distantly related, but their specific characteristics in common make them appear closer than they really are. Typically, Balkan languages such as Bulgarian, Albanian and Romanian, all from different branches of Indo-European, the Northwest coast of Canada and much of India are cited as *Sprachbunds*. Usually such situations arise from intensive bilingualism without language loss. In other words, if you speak the languages of your neighbours without switching to them, then features inevitably seem to diffuse between the speech forms, sometimes incorporated so convincingly that it is difficult to determine their origin. This concept has a certain imprecision; when does intensive borrowing become a *Sprachbund*? Areas of Africa that are typified by this type of interchange are very common; Central Nigeria, the Nuba Hills, Central Tanzania, the whole of Chad (See Cyffer 2002 for a detailed description of the Lake

[13] Thanks to Martin Walsh for pointing this out. Johnston (1922: 61) commented on Nyakyusa-Ngonde: "In considering [Nyakyusa-Ngonde], we are in the presence of one of the most peculiar and interesting of the Bantu languages, one which contains a considerable number of unrelated word-roots or roots which have far-away connexions: a speech, in fact, which has evidently long been isolated in its present head-quarters, the mountain region immediately north of the north end of Lake Nyasa".

[14] Like so much in the field of material culture, documentation is urgently required, as factory-made tools and tractors are replacing traditional cultivation techniques.

Chad region) and much of Cameroun as well as the Caprivi strip in Namibia certainly qualify. It could be argued that the existence of a *Sprachbund* is a function of how much description and analysis has been done in a particular area; the more that is known about unrelated languages bordering one another, the more likely it is that similarities and borrowings will be uncovered. I know of no case where archaeologists have tried to link either archaeological or ethnographic material culture with a *Sprachbund*, but it is easy to imagine how this would work. The Jos Plateau of Central Nigeria is a bounded area with very distinctive material culture (Weingarten 1990) and also an area where the Kainji, Plateau and Chadic language families are intertwined. There has been intensive borrowing both of words and also items of material culture as well as social institutions such as initiation rituals and symbolism (Blench 2003a). Were there intensive archaeological coverage of the region it is likely that the sites could be interpreted in terms of the evolution of present-day cultural mixing.

Language shift

It can seem from standard texts that all language families diversify neatly into branching trees and it would certainly be convenient for proponents of demic expansion if this were indeed so. Moreover, if people would stick to their own language and not engage in multilingual behaviour, life would be easier for the archaeolinguist. But language shift is one of the central processes of cultural change and bound up with prestige institutions and material culture. Any convincing model of the relation between language and prehistory must take such processes into account (Ehret 1976).

A plus about language shift is that it can seen and documented in the present, which makes it easier to seek its traces in the past. All over the world, ethnic minorities are under pressure to yield their own speech to a national language and in many cases this is occurring (Blench 2001b). The consequences for material culture, though, can be highly variable. In many developed economies, for minority languages such as Breton, Scots Gaelic or the Amerindian languages of North America, the shift in material culture has already occurred. Language loss trails behind it, perhaps artificially retarded by literacy programmes or well-meaning linguists. The parallels within Africa can be seen by exploring the effects of the spread of *lingua francas* and the cultural shifts associated with them.

Two of the most predatory languages in Africa are Hausa and Chadian Arabic. In Nigeria, many minority languages are giving way to Hausa (Blench in press b), while in Chad, speakers of small Chadic languages are switching to Arabic (Connell in press). Obviously, the association of these languages with Islam is related to this expansion, although in Nigeria, the languages of other powerful and well-established Islamic peoples such as the Kanuri and Fulɓe are losing out to Hausa (Broß 2002). The decision to speak Hausa as a primary language has two sources; multi-ethnic marriage in towns and a conscious decision to 'become' Hausa in rural areas. Children of urban marriages in northern towns usually have a very limited command of their parents' languages, speak English more or less and an urban, simplified Hausa. Their speech consists of constant code-switching and it is safe to say they cannot really speak any language well. Inasmuch as they retain their ethnicity, they are likely to identify with their fathers. In rural areas, the situation is quite different. Hausaisation is usually associated with switches in dress-codes, the development of Islamic ceremonies, adoption of Hausa music etc. Much of this may occur while the previous language is still spoken, usually during a period of intense code-switching before the younger generation gradually drops the speech of their parents.

To relate this to archaeological interpretation, it is useful to consider something like the Swahilisation of the East African coast. The islands off the northern coast of Kenya seem to have been settled by about the 8th century (Horton 1996). The earliest settlers seem to have been principally cattle-keepers, a curious occupation on islands where fish were so abundant. They were probably pastoral peoples from the rangeland areas, either Cushitic or Nilotic-speaking. Over time, their settlements were transformed into the fishing-oriented Muslim, Swahili-speaking settlements found there today. The transition is not abrupt and it is likely that the resident population gradually became Swahilised through a mixture of settlement, trade, import of new technologies and the gradual spread of Islam, all processes that can be seen at work today in Northern

Nigeria in the context of the Hausa expansion. Interestingly, Swahili, although an important language of communication in Kenya and Tanzania, has not tended to displace the mainland vernaculars in the same way as Hausa, just as Islam has not spread inland in East Africa to any significant degree.

Pidgins, creoles and lingua francas

As with language shift, processes of language change observable in the present clearly took place in the past, although they muddy the waters of conventional language diversification models. One important process is pidginisation and the related creolisation (Thomason and Kaufman 1988). The conventional definition of a pidgin is a simplified language that grows up for speakers with different mother-tongues to communicate with each other, and a creole is when such a speech-form becomes the mother-tongue of a particular group. The boundary between these two is not always clear; presumably in transitional households, the parents speak a pidgin and the children a creole. Moreover, the elevation of Pidgin Englishes to codified speech-forms in various parts of the world (e.g. Bislama in Vanuatu, or Pidgin in Cameroun) means that what linguists would call creoles are known as Pidgin.

Creoles and pidgins have grown up in Africa in a variety of situations, most notably for trade, as a consequence of slavery, in armies (as the Arabic pidgin kiNubi spoken in Uganda (Heine 1982)) and for communication between employers and employees (as in the mine-speech Fanagalo in South Africa) (Heine 1973). The characteristic of creoles is that they mix vocabulary, phonology and syntax from their source languages. Earlier descriptions often characterise them as highly simplified, but simplification is a rather culturally loaded term. A language may be simplified from the point of view of a speaker of a particular language, partly because they do not recognise complexity in an area that is undeveloped in their own language. It *is* true, however, that most pidgins and creoles are very weak on ethnoscientific vocabulary. Developing in contact or urban situations, the need for detailed terminology to describe the natural world is limited. Still, when a creole persists over centuries, as on some Caribbean islands, this terminology evolves, in part through borrowing from the dominant written language.

It was also generally thought that pidgins occurred as a result of the interaction of two languages, but more complex scenarios are clearly possible. One of the most striking cases is Berbice Dutch, a language spoken in Surinam and described by Silvia Kouwenberg (1993). It is now virtually extinct (there were 4-5 speakers in 1993). Berbice Dutch was long known to have an African component, but this was only identified in the 1980s as Ijọ, probably Kalabari, spoken in the Niger Delta in Nigeria. Berbice Dutch draws its vocabulary from four distinct sources, Kalabari, Arawakan, Dutch and English and appears to borrow with even-handedness from all four. This suggests an extremely complex set of social interactions between a core of African speakers and the surrounding speech-communities with strong levels of bilingualism but without the type of cultural dominance that would lead to complete language loss.

Earlier writing on creolisation tended to focus on creoles that evolved between European (i.e. colonial) languages and indigenous languages, often through conquest or slavery. But as perceptions have sharpened, it is increasingly clear that these are broad processes affecting human language at all times and places (Thomason & Kaufman 1988). We know about these processes because they have occurred in the recent, observable past. But there is every reason to think that various types of language mixing also happened prior to modern documentation. It used to be considered that 'mixed' languages did not occur, that every language was essentially or underlying one language and was relexified from another. Thomason & Kaufman (1988:1) counterpose Max Muller's categorical assertion that there are no mixed languages with Hugo Schuchardt's claim that there are no 'unmixed' languages[15]. Linguists' resistance to the idea of mixed languages has rather broken down with increasing evidence that such languages do exist (Bakker & Mous 1994). Bechhaus-Gerst (1996) documented the evolution of Nile Nubian (where some written sources do exist) and was able to illustrate the pattern of borrowing and language mixing over time in a way that is

[15] Originals: *Es gibt keine Mischsprache* and *Es gibt keine völlig ungemischte Sprache*.

exceptional for Africa. More recent African examples are Ma'a in Tanzania (Mous 1994, 2001, 2004) and Ilwana in Kenya (Nurse 2000).

An example of a problematic language with a complex history is Laal. Laal or Gori is spoken by several hundred fishermen in Central Chad (Boyeldieu 1977; Faris 1994). Its vocabulary and morphology seem to be partly drawn from Chadic (i.e. Afroasiatic), partly from Adamawa (i.e. Niger-Congo) and partly from an unknown source, perhaps its original phylum, a now-vanished Central African grouping. For this to develop, Laal speakers must have been in situations of intense bilingualism with different neighbours over a long period, without being in a relationship where cultural dominance that would cause them to lose their language. Similarly, this does not suggest pidginisation, since Laal speakers have a very full ethnoscientific vocabulary, as would be expected from a remote inland fishing community.

Another way of regarding the multiplicity of changes that can occur is from the perspective of language restructuring. Many languages which have never been regarded as creoles have nonetheless undergone radical changes under the influence of bilingualism. Dimmendaal (2001b: 97 ff.) shows that the Nilotic Luo language of Western Kenya has acquired an incipient system of noun-classes through contact with neighbouring Bantu-speakers. The degree of contact necessary for this major restructuring to occur is of course reflected in many aspects of Luo culture, which in resembles those of the Bantu farmers more than their pastoral relatives in the Western Nilotic group.

The relevance for the interpretation of prehistory is that language mixing must surely reflect cultural mixing and as such, should definitely be visible in the archaeological record. This type of interaction between attested linguistic and archaeological data has been more thoroughly studied in Oceania, where the clash of Austronesian and Papuan languages and their highly distinctive material culture has been documented in some detail. Dutton (1999) studied the relationship between language mixing and pottery in the archaeological record on the island of Mailu in a way that has yet to be paralleled in Africa.

Nonetheless, it can be imagined how similar scenarios would play out, especially in Southern Africa, where the contact between the resident Khoesan speakers and the incoming Bantu has certainly left distinctive traces in the languages, and in the material culture. The clicks in Southern Bantu languages such as Zulu and Xhosa are often cited as evidence, but a language such as Yei in Botswana is a demonstration of a much richer interaction (Sommer & Vossen 1992). Yei has borrowed some 28 click sounds from neighbouring Khoesan languages, particularly //Ani, and the click are generally borrowed directly with their prosodies intact. A great many terms refer to objects in the natural environment, particularly plants and animals, which the Khoesan speakers would certainly know better than incoming Bantu-speakers. Surprisingly, the Yei have not regularised the click sounds in their phonological system; it is almost as if the sound-system of the language mimics the interacting cultural systems they experience.

Analyses by Kinahan (1991) in Namibia show a long and complex interaction between hunting populations and pastoralists with transitional social orders that no longer exist. It is easy to imagine how this type of social nexus could result in intricate patterns of linguistic borrowing. Nurse (2000) looked at two languages in East Africa, Daiso and Ilwana, from this point of view, trying to determine which types of vocabulary were inherited from the fund of common Bantu and how borrowed and other extraneous forms had arisen.

Related to, but distinct from pidgins and creoles, are *lingua francas* or vehicular languages. The development of larger polities and the extension of long-distance trade networks required the evolution of networks of speakers of languages that were by no means creolised but were suitably developed for the expression of political authority and trade. *Lingua francas* were highly significant in pre-colonial Africa, but they have seen considerable extension since the growth of the nation-state, as formal and informal languages of communication are required over a wide area. Islamisation was clearly an important element in the spread of vehicular languages. Hausa, Chadian and Sudanese Arabic, Swahili, Soomaali, Kanuri, Fulfulde and Dyula spread in the context of military and trade expansions. But not all large vehicular languages were the products of Islamisation; Lingala, Sango, Kikongo, Amharic, Mõõre, Yoruba, Efik, Akan/Baule and Wolof seem to have spread, often in a military or trade context, but prior to or unrelated to Islam (Heine 1970;

Blench in press, a). Interestingly, many of these languages have become less important in the post-colonial phase of cultural expansion, suggesting a failure to make the transition to a trade and administrative language. Hausa, Soomali and Bambara, by becoming effectively or actually national languages, have extended their reach still further.

Vehicular languages come and go, leaving their traces in the culture of the peoples who once spoke them. For example, Kanuri is a language in manifest retreat. Once Kanuri-speakers controlled an empire that had suzerainty over much of northeast Nigeria, and adjacent Niger and Cameroun. Speakers of Chadic languages immediately due south of Yerwa (i.e. Maiduguri) spoke Kanuri as a second language, and adopted Kanuri titles, dress and other aspects of Kanuri culture. Colonialism managed to subvert this highly effectively, for not only has Kanuri collapsed as a second language, but Hausa is making inroads even in Maiduguri, their capital (Broß 2002). Despite this, Kanuri culture remains highly visible among the peoples they once dominated; their languages retain Kanuri loanwords, their chiefs retain Kanuri titles and Kanuri styles are visible among their pottery (Gronenborn 1996).

How old are language phyla and where do they originate?

What drives phylic dispersals?

Archaeologists confronted with a map showing the major African language phyla tend to ask how old they are and where they originated. These are classic questions in the history of Indo-European studies and have been answered to some extent, both for Indo-European and for Austronesian. Although some authors (e.g. Ehret 1993, 1995b, 2001) have confidently published dates for Afroasiatic and Nilo-Saharan, these remain controversial, as do the reconstructions on which the dates are based. This section therefore considers what methods might be used to estimate the antiquity of a specific phylum.

The first important point is that unless you accept glottochronology, dates for phylic dispersals can really only be calibrated through correlations with archaeology. A date for ca. 6000 BP is usually accepted for Austronesian because of archaeological finds in Taiwan and related sites in Oceania (Bellwood 1998). But such calibration is only possible in turn if there is consensus among scholars concerning the internal structure of a language phylum, which is often not the case. This disagreement is particularly marked in the case of Afroasiatic where almost every likely and unlikely internal structure has been canvassed (see §6.).

Another debate prominent in the literature is just how old language phyla can be. Some mainstream literature on historical linguistics suggests that the existence of temporal limits that standard methods cannot breach, a view that probably emanates from the Indo-European establishment, since a date of as recent as 6000 BP is often attributed to PIE. A figure sometimes put forward is 10,000 years, although this seems to have little to commend it except a satisfying row of zeroes. Indeed, Nichols (1992) has tried to establish innovative strategies precisely to try and capture much greater time-depths. Campbell (2000) presents an entertainingly sceptical review of the various methods used to estimate time-depth in historical linguistics. At the other end of the spectrum, proposals have recently circulated for Proto-Australian, forms that would be ancestral to the previously isolated language phyla of Australia (Evans in press). This would put a date greater than 50,000 BP on some of these forms. Although such speculations are hardly subject to immediate empirical verification, they should not be rejected *a priori*; we simply do not know enough. The task at hand is to build models with the materials available.

Geographical expansions of phyla are not unmotivated, there must be some economic or social innovation to account for them. The challenge is to trawl the archaeological and linguistic record for possible factors. Three broad categories can be suggested;

a) Technological: a group gets hold of a new technology that significantly increases its ability to kill animals, catch fish or exploit plant resources. Related to this are innovations in transport. The

adoption of the horse or new methods of constructing water-craft may make available new resources even where capture techniques remain static.

b) Climatic: major improvements can increase the competitiveness of a group *in situ* by lengthening the time available for non-food-gathering activities, while deteriorations might cause dispersal of hunting bands in search of water and animals
c) Social/ritual: a group innovates a social or ritual system that is so attractive that other groups are assimilated

Of these, c) would be by far the most difficult to detect either archaeologically or linguistically, in part because the assimilative process would most probably eliminate all reconstructible traces of the innovative system. Nonetheless, it is not an unlikely occurrence. It has been proposed to explain the dominance of Pama-Nyungan in Australia (McConvell & Evans 1997, 1998) and is certainly visible in recent African history (see §2. for the spread of vehicular and predatory languages). Technology and environmental change have the advantage that they are visible in the archaeological and geomorphological record. They may be accessible through linguistics, especially a technological change such as the adoption of a new type of stone tool or the introduction of iron-working. Environmental change can be inferred somewhat more indirectly, for example, by the transfer of a plant name from a humid to a species typical of a drier zone.

The establishment of a correspondence between the early expansion of a language phylum and climatic or technological change inevitably depends on what date is assigned to the phylum. However, linguists have no means to establish such dates independently; indeed many consider that data on differential rates of language change shows that such a 'clock' *cannot* be calibrated. To calibrate language expansion against archaeology effectively, it is essential to develop a hypothesis concerning the driving force for the expansion and to have a broad sense of the subsistence strategies of its speakers. It should be clear that where there is no driving force, the pattern is rather like Siberia, very small neighbouring groups whose languages are so different from one another they have apparently been diversifying for millennia. The languages then become isolates or very small phyla adjoining one another without any significant change in geographical extension. Similar situations occur in Arnhem Land, Australia and at the western end of New Guinea, and in the Colombian Amazon, where large numbers of isolates occur.

A proposal to account for phylic expansion that has recently had much airtime is agriculture. The adoption of cultivation systems leading to demographic and ethnolinguistic expansion has been suggested for non-African phyla, notably Indo-European (Renfrew 1987) and Austronesian (Bellwood 1996). The contributors to Bellwood & Renfrew (2003) review the application of this hypothesis to other language phyla. Such a model faces two immediate problems[16] when applied to Africa;

a) No terms unambiguously related to agriculture have been successfully reconstructed in the proto-language of any of the African language phyla[17].
b) All the evidence for agriculture in Sub-Saharan Africa is late; early dates for sorghum have collapsed and there is no evidence for any cultivated plants before 4000 bp (Neumann 2003)

The objection from relative dating is a strong one; Niger-Congo is the most coherent of Africa's language phyla, suggesting that Afroasiatic, Nilo-Saharan and Khoesan must be older still. If so, then to suggest that any type of agriculture was implicated in the initial phase of phylic expansion would be difficult to accept. The main expansions of African language phyla must have taken place when the speakers were hunter-gatherers or possibly livestock managers.

[16] There would seem to be problems with Indo-European, depending on whether the crop names proposed for PIE can really be attributed to the proto-language.

[17] The possible exception to this is Ehret (1993) for Nilo-Saharan; but the proposed link with early agriculture collapsed with the redating of the Sudan sorghum and Ehret now accepts Nilo-Saharan was pre-agricultural.

It seems rather unlikely that there will be one unifying force that underlies phylic expansion; combinations of several factors may be involved. It is also merely an assumption that it will have an archaeological profile. Moreover, within large language phyla, different subgroups may have a different logic underlying their migrations. For example, within Niger-Congo, the Bantu, Neolithic cultivators in the tropical forest, were almost certainly driven by forces quite different from early Niger-Congo speakers, who were presumably hunter-gatherers living in an arid environment.

Building a date from internal diversity: an Afroasiatic case study

Whatever we think about glottochronology, it is usually accepted that there is a broad correlation between diversity and age. We assume that the existence of numerous language isolates in Papua and Australia is indicative of a language history stretching back to the first settlement more than 50,000 years ago and conversely that the closeness of Polynesian languages indicates a recent expansion. The internal diversity of the branches of a phylum is evidently a matter of controversy, as is the relationship between that diversity and the overall age of the phylum. Nonetheless, it is an indicator linguists frequently use, albeit informally. §2.4.4 discusses various concepts of diversity; this section shows how they can be built into an estimate of the age of a phylum, using Afroasiatic as an example (cf. below for further details on Afroasiatic). Placing potentially verifiable dates on the dispersal of language phyla must involve building on known historical facts. If we can place *ante quem* dates on particular families or subgroups then at least proposals for dates of phylic expansion can derive from overall estimates of internal diversity. Afroasiatic is particularly suitable for such an approach, since three of its branches, Egyptian, Semitic and Berber have early and dated written texts. Table 2.12 shows the approximate earliest dates for written sources and the number of languages in the branch;

Table 2.12 Written attestations of Afroasiatic

Egyptian	5000 BC	Single language
Semitic	2800 BC	74 closely related languages (although 35 are Arabic dialects)
Berber	500 BC	Single language changing clinally across its range (NB Grimes (2000) lists 26 dialects)

The northern branches of Afroasiatic share the common feature that they are extremely undiverse. However, the 'southern' branches of Afroasiatic which are located wholly within Africa have numerous languages and are also internally diverse (Table 2.13);

Table 2.13 Diversity of African branches of Afroasiatic

Branch	Number of languages[18]
Chadic	195
Cushitic	47
Omotic	28

Source: Grimes (2000)

Raw numbers are not enough unless some estimate of diversity is also included. The Ethnologue tends to split speech-forms and give a misleading impression of diversity. Thus, it appears from the Ethnologue that Berber and Omotic include roughly the same number of languages. But all Berber 'languages' are close to mutual intelligibility, whereas Omotic languages are so diverse that there has been considerable discussion about whether Omotic is a well-founded group.

This lack of diversity in the northern branches of Afroasiatic would usually be taken as evidence of a late expansion; Polynesian and Bantu are both treated in this way, and there is a strong case for treated the closely related Semitic languages as an expansion similar to Bantu (see discussion in Blench 1999b). If this

[18] Counts from the Ethnologue (2000). Ethnologue is extreme in splitting tendencies and, for example, lists all Arabic and Berber dialects as separate languages.

is so, then to account for this the diversity of Afroasiatic *within* Africa would signal an age considerably greater than the written attestations in the Near East. Given the already considerable age of Egyptian, it would be perverse not to see the original dispersal of Afroasiatic as at least 10,000 years old. But it should be emphasised that such a date is only an initial estimate; the next step is to try and tie these hypotheses with the known archaeology of Ethiopia and adjacent regions.

An obvious question emerges from the data presented above; if Chadic is more diverse than all the other branches of Afroasiatic put together, why not consider the Chadic-speaking area the homeland of Afroasiatic? Here we have recourse to the most unsatisfactory aspect of the argument; Chadic is indeed diverse but not as diverse as Omotic and Cushitic. Potential forms reconstructible for Proto-Chadic are quite numerous. In addition, the linguistic geography of Chadic looks intrusive (cf. Map 6.1). Scattered languages of other affiliations (notably Plateau and Adamawa) are found all along the southern edge of the Chadic languages, especially in Nigeria. This suggests that the Proto-Chadic speakers reached a point somewhere north of the main body of Niger-Congo and began dispersing southwards, either weaving between resident populations or assimilating them. Arguments from the degree of internal diversity remain very speculative; it is hard to put them on any quantitative basis.

Chronologies of diversification and spread

Apart from the issue of the age and homeland of individual phyla, we also need to be able to model the diversification and spread of language groups and assign a convincing time-scale and interpretation of this spread. For many language phyla this must be a relative chronology; we know that Nilotic languages are subsequent to Eastern Sudanic, but there are no convincing dates for either grouping as yet. The essential tools required to establish such a chronology are;

a) an internal classification of the phylum with a relative chronology
b) reconstructions of lexical items indicative of particular subsistence strategies

Although it is presently impossible to attribute unimpeachable dates to any of the ‘unwritten’ language phyla of the world, with the possible exception of Austronesian (ca. 6000 BP?) believable dates *are* available for significant subgroups, for example, Bantu, Polynesian, Turkic and Uto-Aztecan. All of these show comparable patterns of diversification, suggesting that over 2-4000 years a language group will retain several thousand identifiable common roots and membership will remain transparent. The default assumption should be that over longer periods, phyla diversify at approximately the same rate, allowing for local variation. Such a view is not intended to reintroduce glottochronology, but it does imply that we should be able to give a relative ranking of the antiquity of different phyla by estimating their approximate internal diversity. Very rough dates can thus be assigned to their dispersal, which at least makes the hypothesis of links with archaeological horizons feasible.

In terms of linking linguistic reconstruction, subsistence strategies and archaeology, some very real possibilities are emerging with specific African language subgroups. Berber, the branch of Afroasiatic spread between Egypt and southern Mauritania, has historically been strongly associated with livestock production. Blench (2001a) shows that all major species of domestic ruminant except the camel can be reconstructed for Proto-Berber, suggesting extremely strongly that its earliest speakers were not only livestock producers but pastoralists. As an example of this, Table 2.14 shows the data for ‘goat’;

Table 2.14 Proto-Berber 'goat' *t-aɣaḍ-t

Lect	Attestation	Gloss
Ghadamès	**tēɛaṭ**	*chèvre*
Awgila	**tɣåṭ**	*capra*
Nefousa	**tɣideṭ**	*capretta*
Siwa	**tɣaṭ**	f.
Chleuh	**taɣaṭṭ**	*chèvre*
Figuig	**tɣaṭṭ / tiɣiḍett**	*chèvre*
Zenaga	**tāḍ**	*chèvre*
Nefusi	**tɣaaṭ**	f.
Sokna	**iɣid**	kid
Tayiṛt	**taɣat**	kid
Mzab	**tɣaṭṭ**	*chèvre*
Kabyl	**taɣaṭ**	*chèvre*
Middle Atlas	**taɣaṭṭ**	*chèvre*

Source: Blench (2001a)

'Goat' (and indeed 'sheep', 'cow' and terms describing animal classes, such as 'ram') can be reconstructed for Proto-Berber, suggesting that speakers of this language were thus pastoral people. There is good evidence for the 'Capsian Neolithic' expanding from N. Africa from 6000 bp onwards, reaching Dhraina, near Nouakchott in Mauritania at 3980 bp (Vernet 1993:214, 217, 232) and it seems reasonable to identify this as the Berber expansion. If these assumptions are correct, Berber is still only a single branch of Afroasiatic; much more work will need to be undertaken to provide convincing models for all its subgroups and to fit them together.

Another example from Nilo-Saharan is the reconstruction of terms associated with pastoral production. Rottland (1997) has compiled all the existing reconstructions for Proto-Nilotic and for its subgroups. They indicate very clearly that the speakers of Proto-Nilotic herded domestic animals, but also that they did not originally possess bleeding-arrows, a subsistence strategy now strongly associated with East African herders. Table 2.15 shows some examples of lexical items that reconstruct in Nilotic and its branches.

Table 2.15 Nilotic reconstructions relating to domestic animals

Gloss	Reconstructed form	Level
Cow	***ḍɛŋ *pl.* ḍʊk**	Proto-Nilotic
He-goat	***k-waʀɔ**	Proto-Nilotic
Dog	***gok**	Proto-Nilotic
Milk	***ca(kɔ)**	Proto-Nilotic
Bleeding arrow	***lʌʌŋ**	Proto-Kalenjin
Cowbell	***twʌʌl**	Proto-Kalenjin
Ox	***kiruuk**	Proto-Southern Nilotic
Calf	***mɔɔr**	Proto-Southern Nilotic
Sheep	***rɔm**	Proto-Western Nilotic
Sheep	***kɛɛɲ**	Proto-Southern Nilotic
Cow-barn	***luak**	Proto-Western Nilotic
To milk	***kɛr**	Proto-Southern Nilotic

Source: extracted from Rottland (1997)

One of the most striking conclusions that can be drawn from this is the speakers of Proto-Nilotic were unfamiliar with sheep, which must have reached them after the preliminary dispersal of the core group. This is surprising, since 'sheep' can be reconstructed in the Cushitic languages of adjacent highland Ethiopia. But

it probably reflects the fact that sheep are much more susceptible to high humidity diseases than goats and cattle and the early period of Nilotic expansion was almost certainly situated in the swamps of the Sudd, where many speakers live today. Although sheep have become adapted to higher humidity, they still require more veterinary care than goats and this absence of a lexical reconstruction argues that at this period, adaptation had yet to occur.

Identifying homelands

Calibrating linguistic dates through archaeology also implies a hypothesis as to the homeland of a phylum; the two questions are intertwined. If we align a phylum or a branch of it with a particular archaeological culture and thereby assign a date to it, we also assume by implication that the homeland of the language grouping is in the same place. Simple as this is to outline in principle, in practice it has proven difficult to reach unambiguous results. As Mallory (1997) has shown for Indo-European, despite a century and a half of research, four competing models exist for its homeland and, more worryingly, it is unclear what sort of evidence would help decide between them. So the situation in Africa is far from unusual. Even so, some phyla have so far proven very resistant to any alignment with a particular archaeological culture, Nilo-Saharan being one of these. Its great time-depth and internal diversity make possible a great many candidates, none with very compelling claims.

The second major procedure is historical geography, the assumption that a homeland can be detected from the distribution of present-day languages. In principle this would appear to make sense. For example, in Austronesian, all the most diverse languages occur in Taiwan, where the indigenous Formosan languages form primary branches and all the remainder of the phylum falls into a single grouping (Blust 1999). Similarly, in reconstructing Algonquian in North America, Siebert (1967) and Goddard (1994) both use a version of the 'age-area' hypothesis, although they reach different conclusions. Applying this principle to Nilo-Saharan, it is clear that the majority of subgroups, including some of the most diverse and distinctive, such as Kuliak, Gumuz and Shabo, are found in the region between Sudan, Ethiopia and Uganda (Map 4.1). As a consequence, this is a likely homeland for the phylum, irrespective of any archaeological findings. However, alternative scenarios are easily imagined; Proto-Nilo-Saharan could have originated further north or further south and the speakers simply moved to this region at a very early period. The subsequent assimilation of relic languages in its home area would have obliterated the evidence for this.

Language phyla do not always form neat, coherent geographical blocs and outlying languages are often important indicators of early dispersals. In the case of Niger-Congo, the main body of languages is in West Africa, but Kordofanian, is in the Nuba Hills in the centre of Sudan (Map 5.1). Is this because the Nuba Hills are the homeland of Niger-Congo and the speakers of West African languages migrated westward, or are the Kordofanian speakers lost West Africans? These questions may eventually be resolved, particularly through the use of ecological reconstructions. Similarly, language groupings that spread over a large area, such as Bantu, can cause controversy (Flight 1980). Malcolm Guthrie, a landmark scholar of comparative Bantu, was convinced that the Bantu originated somewhere in the centre of their geographical zone, perhaps in Zambia, while Johnston and Greenberg argued that they must have spread south and east from their nearest relatives in Cameroun (Johnston 1919-1922; Greenberg 1972). Greenberg's view is now generally accepted, and in retrospect, Guthrie's is difficult to interpret. But for other large, complex and widespread groups such as Mande, these questions are by no means resolved.

A subset of historical geography is what may be called ecological reconstruction. The assumption is that if we can reconstruct flora and fauna of a particular environment, then this gives primary indications of the ecology in the place where the phylum first emerged. This approach to Indo-European has proven fruitful; indeed one of the first proponents of historical palaeontology, Julius von Klaproth, noticed the importance of reconstructing a word for 'birch'. This approach depends on two factors being in place;

a) that convincing reconstructions for key ecological indicators are present
b) that the time-depth of the phylum is widely accepted and the historical ecology of the region is known

b) is of particular importance in the African case, since the boundaries of ecological zones have shifted over time, probably more dramatically than in Eurasia. For example, some 10 kya the Sahara extended to the West African coast and the rain forest was confined to two small patches in Liberia and Nigeria. If we reconstruct lexical items that indicate an origin for African language phyla in the semi-arid zone, it turns out this is barely informative, since much of the region was semi-arid. It may be that we can reconstruct specific faunal items that had a more restricted distribution, but our knowledge of the diachronic biogeography of African fauna and flora is slight, to put it mildly.

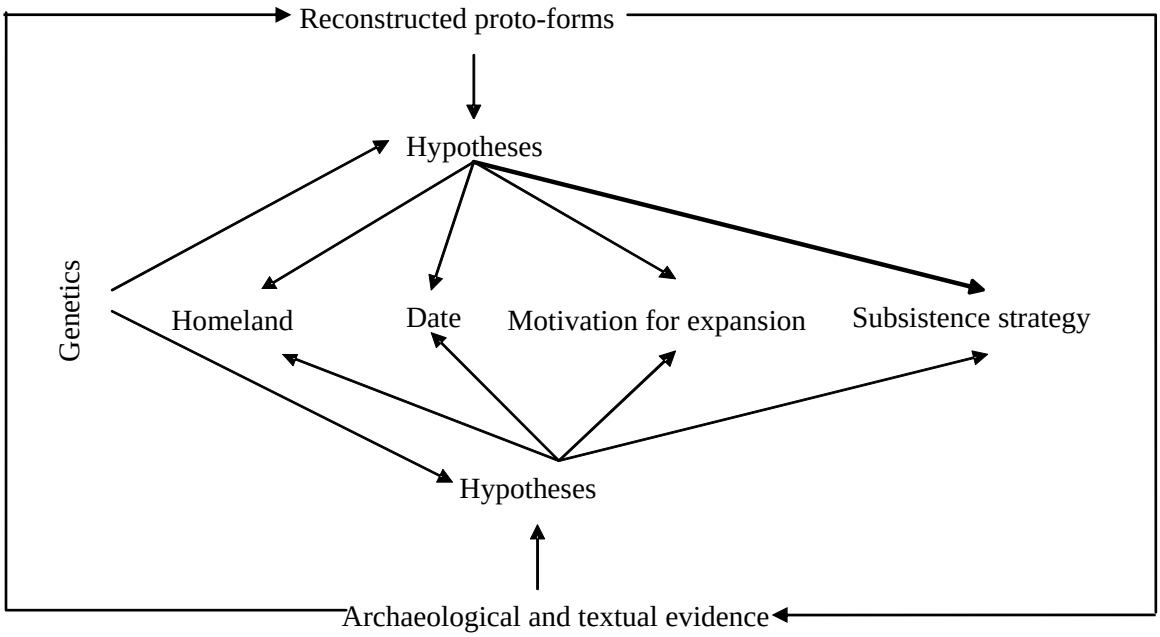
Another aspect of this is the apparent difficulty in actually reconstructing key indicator species. There are good reasons why apparently salient large animals may not reconstruct. The same appears to be true of salient flora, such as trees. So far, not a single proposal for the reconstruction of a wild plant exists in any African language phylum[19]. This might be partly due to a lack of documentation, but this is now doubtful. Plant names seem to shift and be replaced in Africa in ways that make this type of reconstruction impossible. The contrast is striking with two well-known phyla, Indo-European and Austronesian, where reconstructions of plant names provide strong pointers to the ecology of their homelands (cf. Li 1994 for Austronesian).

Feedback loop models

There is certain amount of circularity in arguments linking reconstructed forms to archaeological horizons that in turn reinforce the credibility of the reconstructions. Put more positively, hypotheses relating to dating language phyla involve a series of feedback loops. Figure 1.1 shows these loops as they apply to building a convincing model that relates historical reconstruction in linguistics with archaeology and genetics. Although hypotheses generated by different disciplines should ideally be developed independently, at least in the initial phase, this is rarely the case.

[19] If you turn to the Bantu Lexical Reconstructions 3, posted on the Tervuren website, some starred forms for trees such as the baobab appear, but it turns out these are highly local reconstructions that cannot be attributed to proto-Bantu. Blench (2004) considers this issue in detail for two tree species, the baobab and the silk-cotton (*Ceiba pentandra*).

Figure 1.1 Feedback relations between archaeology and historical reconstruction



In future, a diagram like this will certainly have a more integrated place for genetics, but the lack of present consensus on exactly what role genetics can play in the interpretation of phylic expansion means that it is only cast in a supporting role. In other words, archaeologists and linguists are pleased if genetics appears to support their hypotheses, but they are unlikely to change them because of a recent article in the *American Journal of Human Genetics*.

PART II. AFRICAN LANGUAGE PHYLA

3. THE PATTERN OF AFRICAN LANGUAGES

African languages are conventionally divided into four continental phyla, Niger-Congo, Nilo-Saharan, Afroasiatic, Khoesan as well as Austronesian on Madagascar (Greenberg 1963a, Blench 1993b, 1999b). Two of these phyla have significant numbers of speakers outside Africa; Afroasiatic, because of the expansion of Arabic northwards and eastwards and Austronesian, which is mainly centred on SE Asia and Oceania. Using the estimates from Ethnologue (Grimes 2000), there are some 2000 African languages spoken today. Language numbers are distributed very unevenly across the phyla (Table 3.1);

Table 3.1 Numbers of African languages by phylum

Phylum	**Number**	**Source**
Niger-Congo	1489	Grimes (2000)
Nilo-Saharan	80	Bender (1996a)
Afroasiatic	339	Grimes (2000)*
Khoesan	70	Güldemann & Vossen (2000)
Austronesian	1 (in Africa)	Grimes (2000)
Unclassified	4	Author

*Arrived at by deducting 34 Arabic dialects from total

In the case of Khoesan, many languages have become extinct in historic times and only inadequately transcribed data remain. Civil insecurity in Angola has meant that it is unknown whether important

languages like the unclassified Kwadi are still spoken. New Niger-Congo languages continue to be reported every year, although none of these have radically challenged existing classifications.

The classification of African language phyla has a wayward history, in part because of the simultaneous use of very different paradigms. There are four main categories that can be distinguished (Table 3.2);

Table 3.2 Types of classification applied to African language phyla

Category	Sense
Genetic	Languages that go back to a common ancestor
Typological	Languages that share common features (phonological, morphological etc.) but which have no necessary genetic connection
Areal	Languages that are geographically proximate and may share features that are not evidence for genetic affiliation
Referential	Systems that assign a classification purely for ease of reference.

It may seem that these four would be quite distinct, but in fact they tend to slide into one another, where an individual author is arguing for genetic affiliation. For example, Niger-Congo is often said to be characterised by the presence of nominal affixes signifying noun-classes. Greenberg (1963a) used this as a major plank in assigning the Kordofanian languages to Niger-Congo. But alternating nominal affixes also occur in scattered Nilo-Saharan languages (Daju, Koman, Kadu); in other words a feature that was considered to be an indicator of genetic affiliation turns out to be purely typological. When Doke (1945) and Guthrie (1948) first set out their stalls for the classification of Bantu, they were explicitly referential, numerical and geographical schemes intended to help bring order to a large number of languages whose relationships were then unknown. Later, as Herbert & Huffman (1993:58) point out, Guthrie (1967-71) began to refer to his numbered zones *as if* they genetic, as if the historical relations between the alphanumeric groups had somehow been demonstrated. The Nuba Hills in Sudan represent are a clear example of areal features confounding perceptions of genetic affiliation. Although the languages of the Nuba Hills include both Niger-Congo and several quite different groups of Nilo-Saharan, a common lifestyle and extensive intermarriage and cultural interaction has created a zone with many areal features in common. There is thus a tendency to refer to 'Nuba Hills Languages' as if they represented a genetic unity[20]. The argument of this book is organised mainly around African language phyla and thus places emphasis on genetic affiliation, but it is important to recognise that both typology and areal features also have implications for prehistory. It is essential to ensure that the type of classification employed in a given argument is clearly delineated.

This division into phyla owes much to the work of Joseph Greenberg (1963a), although there have been many changes and additions since his proposals were first set out. The coherence of the first three phyla is generally accepted among scholars although single, authoritative sources that provide the type of proof usual in Indo-Europeanist or Austronesianist circles are lacking. This has led some non-Africanists to consider these phyla undemonstrated and perhaps no more than a series of independent groupings exhibiting contact characteristics (for comment on Niger-Congo see Dixon 1997). Until recently, most Khoesan scholars were sceptical of the unity of Khoesan, partly because of the inadequate documentation of so many languages and partly because of the wayward transcription of clicks (e.g. Westphal 1962, 1963; Köhler 1981). However, following new research in the 1980s and a clearer perception of how sound correspondences work with clicks most Khoesanists now consider that Southern African Khoesan does form a group (Traill 1986; Voßen 1996). Two languages, Kwadi and Eastern ǂHõã, have resisted integration in the North/Central/South scheme now widely adopted. In both cases, poor documentation makes any final judgment provisional. Hadza and Sandawe, both spoken in Tanzania, are conventionally assigned to Khoesan because they have clicks, but evidence for joining them to Southern African Khoesan is sorely lacking.

[20] On a larger scale, this is the case with Papuan; the 1000+ languages within Papuan include numerous isolates yet are also linked by many areal features. They are treated in many classification overviews and archaeology papers as if they they a genetic unity.

The remainder of this chapter describes the individual language phyla of Africa in greater detail, and discusses the sometimes acrimonious debates over their classification and internal structure. It runs through possible models for the dating and homeland for each phylum and then synthesises them in a final section.

4. NILO-SAHARAN

Is Nilo-Saharan a phylum?

The Nilo-Saharan languages stretch from Tanzania to Mauritania and isolated pockets of speakers are found in Upper Egypt. Nilo-Saharan has the distinction of being the 'youngest' of the world's language phyla to be identified; prior to Greenberg (1955, 1963a, 1971) there was no literature suggesting that a disparate group of languages stretching across Africa constituted a single phylum. Westermann (1911) developed a concept of *Sudansprachen* that encompassed both Nilotic languages and Niger-Congo, but he dropped this in later publications, while Tucker and Bryan (1966) treat many Nilo-Saharan languages as 'isolated units'. The first monograph on the phylum is Schadeberg (1981a), followed by Bender (1981a, 1983a,b, 1989, 1991a,b, 1996a,b, 2000b) and Ehret (1989, 1993, 2001). The validity of the phylum has been effectively asserted by a series of Nilo-Saharan conferences running since 1981. Mikkola (1998, 1999) has re-examined the original proposals for Nilo-Saharan etymologies and tested them against external data, concluding that they broadly support the unity of the phylum. The internal diversity of Nilo-Saharan is such that doubts about its coherence remain, particularly among non-specialists, but to all intents and purposes it can be treated as established.

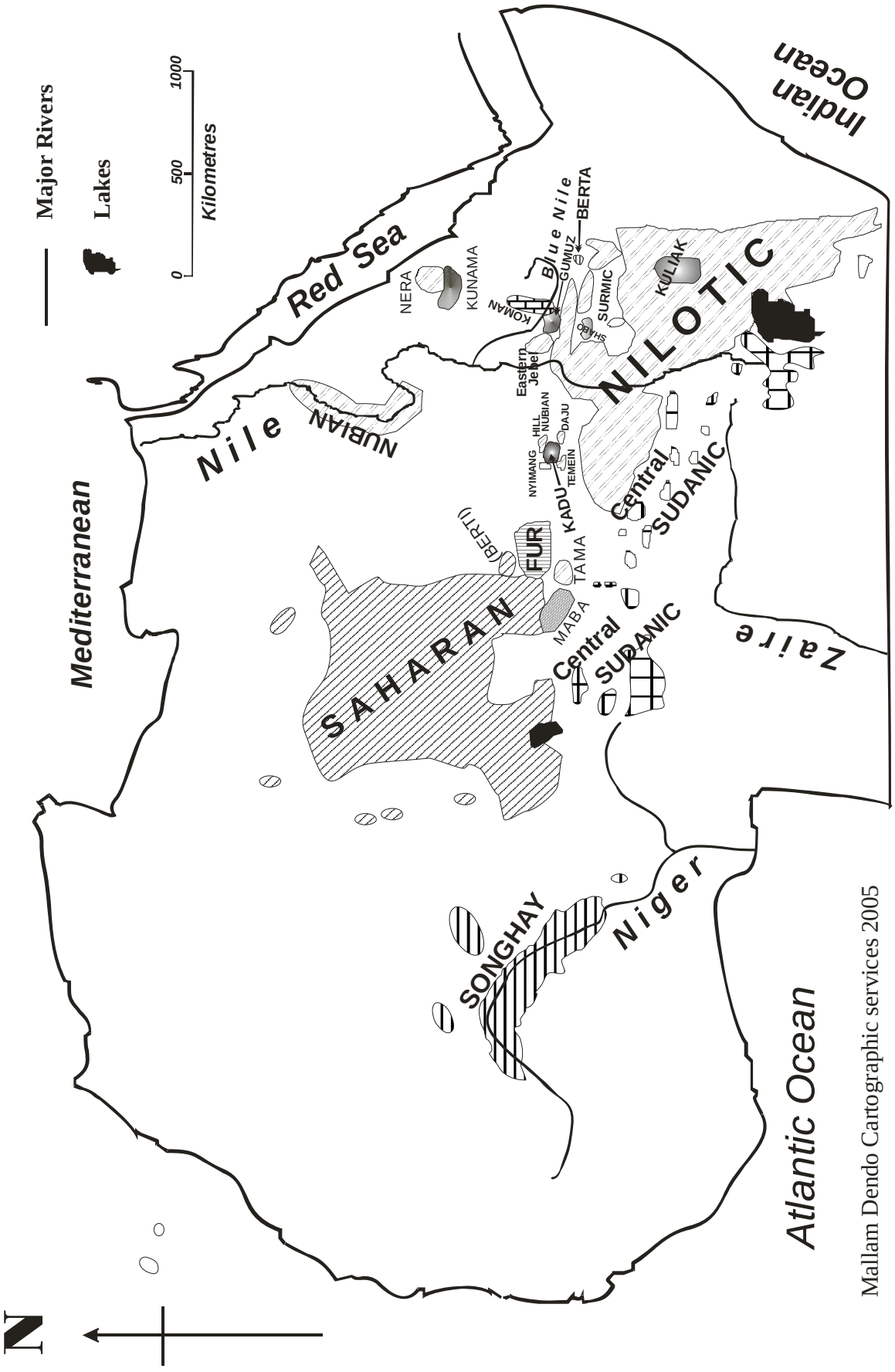
Map 4.1 shows the modern-day distribution of Nilo-Saharan languages. A striking feature of this phylum is the extreme fragmentation and dispersal of even major subgroups such as Eastern Sudanic. Part of this may be attributed to the disruptive effects of the slave trade across Central Africa in recent centuries, but it seems likely that this is more pertinently a reflection of the period when group sizes were very small, practised either foraging, pastoralism or a low-input agriculture, and moved freely when climatic or security conditions were unfavourable.

What languages are part of Nilo-Saharan?

Greenberg's Nilo-Saharan has undergone considerable expansion and renaming since his first proposal. Greenberg (1963a) gives the following groups as Nilo-Saharan;

Songhay
Saharan (Kanuri, Teda, Zaghawa etc.)
Maban (Maba etc.)
Fur
Chari-Nile (A now unused composite of Eastern and Central Sudanic, Berta and Kunama)
Koman (Koma, Gumuz, Mao)

Greenberg (1971) included Meroitic within Nilo-Saharan although his evidence for this assignation was very tenuous. Despite this it now seems that this intuition was correct.



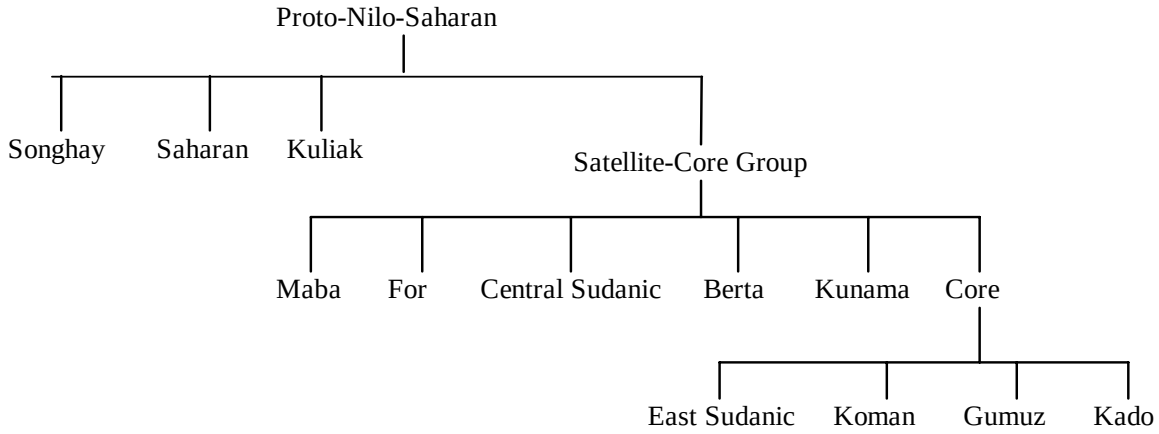
Map 4.1 The Nilo-Saharan languages

Greenberg's Eastern Sudanic put together many groups now considered independent branches of Nilo-Saharan, including Ik, while his larger grouping, Chari-Nile, included Berta and Kunama. The tendency of more recent research has been to treat many of these as distinct, particularly the Kuliak languages (which include Ik). In addition, the discovery or reclassification of some languages has added further to the complexity of the picture of Nilo-Saharan. Bender's writings always assume a maximal set of members for Nilo-Saharan as follows;

Songhay	For	Berta	Kuliak
Saharan	East Sudanic	Kunama	Kadu
Maban	Central Sudanic	Gumuz	Koman

Bender (1996a:27) lists Shabo, a small language spoken in Western Ethiopia, under East Sudanic, although noting the possibility that it is a separate branch of Nilo-Saharan, as Fleming (1991) argued. Bender's most recent classification is based on grammatical isomorphs and shared innovations (Figure 4.1);

Figure 4.1 Nilo-Saharan in the classification of Bender (1996b)



The essential feature of the classification is a split between the outliers (Songhay, Saharan and Kuliak), a secondary split between 'Core' and 'Satellite' (Maba, For, Berta and Central Sudanic) and the remaining languages including Koman, Gumuz, East Sudanic languages and Kadu (=Kadugli-Krongo).

The Nilo-Saharan classification in Ehret (2001) is strongly at variance with the views of Bender. Ehret (1995a) always excludes Shabo and Kadu (which he calls Krongo for unknown reasons, Krongo being the name of a single language) and in his latest discussion of Kadu argues for a Niger-Congo affiliation (Ehret 2000b). Although Ehret (2001) has only reached print a few years ago, pre-print versions have been in circulation since the early 1980s and indeed Bender has published at least two critical evaluations of a manuscript dated 1984 (Bender 1996a:171 ff., 1996b:12 ff.). Blench (2002) is a critical comparison of the methods and results of these two authors. This book takes the view that both Kadu and Shabo are valid members of Nilo-Saharan and follows Bender's more conservative view of both the structure of Nilo-Saharan and the potential for reconstruction of proto-forms.

Reconstructions of Nilo-Saharan subgroups

Nilo-Saharan has benefited from a number of reconstructions of individual subgroups, some which consider culture-historical issues in interpreting the results. These are set out in Table 4.1;

Table 4.1 Published reconstructions of NS subgroups

Subgroup	References	Comment
Eastern Sudanic	Bender (1996c)	
Nilotic	Dimmendaal (1988), Rottland (1997)	Rottland (1997) includes references to unpublished work on subsets of Nilotic
Southern Nilotic	Ehret (1971), Rottland (1982)	
Eastern Nilotic	Voßen (1982)	Includes oral-historical interpretation
Surmic	Yigezu (2001)	
Central Sudanic	Bender (1992)	
Sara-Bongo-Bagirmi	Boyeldieu's (2000 but ms. available since 1993)	Includes oral-historical interpretation
Daju	Thelwall (1981a,b)	
Kuliak	Heine (1976), Ehret (1981)	
Koman	Bender (1984)	
Kadu	Schadeberg (1994)	
Maba	Edgar (1991a, b)	
Saharan	Cyffer (1981, 1996, 1998, 2000)	Mainly morphology and syntax, no reconstructed forms have been proposed
Songhay	Nicolai (1981)	Not strictly a reconstruction

It will be seen that the bulk of effort has been concentrated on the Eastern Sudanic languages, with Nilotic groups the main focal point. This is undoubtedly a reflection of the cultural prominence of the speakers and their relative accessibility. However, rather like Bantu, Nilotic represents a recent expansion and is only a small fragment of the internal diversity of Eastern Sudanic. Important Eastern Sudanic groups like Surmic (Dimmendaal & Last 1998) have now been studied in some detail, although the reconstructions by Yigezu (2001) remain unpublished. Missing from the above table are For, Gumuz, Kunama, Berta and Saharan. The first four are essentially single languages, although sometimes with marked dialectal variation, but the absence of a reconstruction of Proto-Saharan is an important lacuna. One of the four languages of Saharan, Berti, became extinct during the twentieth century and it is regrettable that only fragmentary wordlists were obtained. The comparative Songhay of Nicolai (1981) provides a great deal of information, but is not a reconstruction as such. Much new data has become available on Songhay since that publication (e.g. Heath 1998a,b, 1999) and it is unfortunate that the most recent publication on Songhay is not a reconstruction (Nicolai 2003).

Nilotic is one group where we might hope to make sense of its expansion in more recent times. Nilotic speakers today are strongly associated with cattle-based pastoralism and there is a tendency to assume that the aggressive military-edged expansion documented for the nineteenth century can be read back into the past (Blench 1999a). Ehret (1971) presents a relatively simple story of herders expanding southwards into a Cushitic-speaking area and competing for pasture and cultivable land. Rottland (1982) who collected data on considerably more languages, including those spoken by hunting-gathering groups, argues for a more nuanced picture of expansion. The reconstructions of the migrations of the Lwoo people by Crazzolara (1951-54) shows their gradual movement from the Southern Sudan into what is now Uganda. Voßen (1982), in his detailed reconstruction of the culture history of the Eastern Nilotes, comments on the importance of cultivation in Proto-Eastern Nilotic reconstructions, suggesting the livestock production did not have quite the importance assumed elsewhere.

The other group for which there is rich ethnohistorical data to accompany linguistic reconstructions is Sara-Bongo-Bagirmi, spoken between Chad, Sudan and Central African Republic (Boyeldieu 2000). Boyeldieu begins by recalling a science fiction story, published before the First World War, which envisaged Bagirmi, the language of a small state in Central Africa, becoming the *lingua franca* of Africa in the year 9040, when Europe has sunk beneath the waves (Van Gennep 1911). This is still in the future, but it is pleasant to see an African language being given such high status in fiction. The Sara-Bongo-Bagirmi languages are today remarkably scattered, often spoken in small islands among quite different languages, and they are mostly

known for the Sara language complex which extends over much of southern Chad (Map). Boyeldieu (2000: Map V.) is able to show through a detailed reconstruction of the historical phonology of the group that their origin must lie on the border of Sudan, where only remnant languages are now spoken and that the much more extensive populations of Sara speakers in western Chad are secondary expansions. This exciting demonstration contradicts previous models of the Sara expansion, which were probably based more on geographical guesswork than the comparative method.

The issue of Meroe and its language

Meroitic civilisation has never quite attracted the same level of attention as ancient Egypt, but nonetheless, a substantial urban polity existed on the Nile between 8th century BC until about 350 AD, when it was destroyed by Axumite armies. They were succeeded by the Christian Kingdoms of Nubia, which arose from the devastation and made use of many of the same structures. The inhabitants of Meroe smelted and iron and built pyramids, albeit small ones, as well as using hieroglyphs and writing in the Egyptian language. By the first century BC, hieroglyphs gave way to a Meroitic script that adapted the Egyptian writing system to an indigenous language. Meroitic is an alphabetic script with 23 signs used in a hieroglyphic form (mainly on monumental art) and in a cursive. The cursive version was widely used; so far some 1278 texts are known. This new alphabet was phonetic, assigning syllabic values to hieroglyphs and occasionally using hieroglyphs in their original sense to explicate the texts, rather as Chinese ideograms are still printed alongside Japanese today. However, the vast majority of Meroitic inscriptions are uninterpretable because the language is unknown.

Meroitic was previously considered to be degraded Egyptian, which accounts for the failure to read it. Needless to say, as with any unknown script, many attempts have been made to decode it. Some of these are very bizarre, such as the proposal that Meroitic was Tocharian, an extinct Indo-European language of north-west China. The World Wide Web has created a new forum for individuals to publish their attempts at decipherment without the usual constraints of scholarship. Most serious attempts assumed that the original language is Afroasiatic, if only because the inscriptions are written in hieroglyphs. But there is no particular reason to think this must be the case. The proposal that it was Nilo-Saharan was made in the early 1960s, but only recently has enough progress been made with decipherment to assert this with confidence. Bender (1981b) attempted to show that it was more likely that Meroitic was Nilo-Saharan than a form of Egyptian. Rilly (2004) has recently argued in some detail that Meroitic was an Eastern Sudanic language, probably related to Nubian, which seems entirely credible. There is a general resistance among Egyptologists to assuming there was intense interaction between Nilo-Saharan and Egyptian language speakers and typically, etymological conspectuses do not search the Nilo-Saharan literature very fully (see Takacs 1999, 2001).

How old might Nilo-Saharan be?

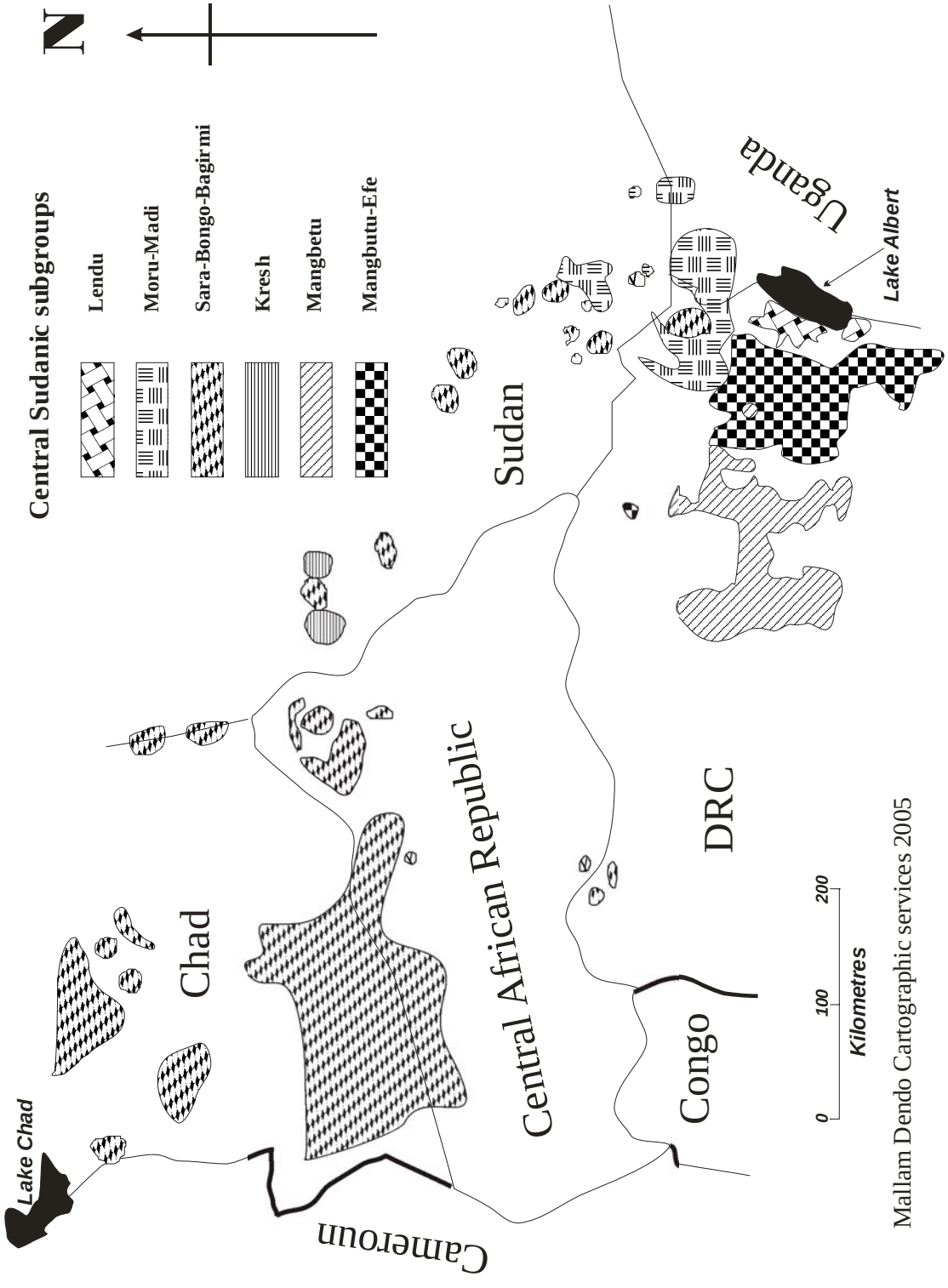
The linguistic geography of Nilo-Saharan is something of an enigma, since its core families are all clustered around a single area, namely the Ethio-Sudan borderlands (Bender 1975b), and yet it has far-flung branches, notably on the Niger, around Timbuktu and the Inland Delta and around Lake Chad (Map 4.1). Songhay and the Teda/Kanuri branch of Saharan are large and vigorous groups. Following Bender's classification, these West African branches are also linguistic outliers, early branchings from the Nilo-Saharan tree. Bender's reconstructions of Proto-Nilo-Saharan do not include domestic plants and animals and indeed little to indicate subsistence; no starred forms for 'bow' or 'arrow', for example. Ehret (2001) does propose forms indicating agriculture and livestock production; for reasons given above, a conservative approach to accepting these is taken here, following Bender. This is very much in line with the internal diversity of the phylum; speakers of Proto-Nilo-Saharan would have been more like the Ik than like the Maasai. Indeed, Ik, with its scattered and almost extinct relatives, can be imagined as the Nilo-Saharan speakers who stayed at home.

What, then, would induce the far-flung migrations that characterise Nilo-Saharan? The most likely solution is climatic and environmental change, if only because this induces radical shifts in hunted and gathered resources. Around 20,000 years ago, the Pleistocene hyper-arid period (the Ogolian) set in, one of the most dramatic dry periods in the recent African past (Rossignol-Strick & Duzer 1979; Petit-Maire & Riser 1983). Lasting until about 12,000 BP, it saw the Sahara reach the West African coast. Hunting-gathering peoples must have been highly mobile simply to stay alive (Macdonald 1998). Much of the Sahara would have been completely uninhabitable and the early expansion of Nilo-Saharan languages would have been in the Ethio-Sudan borderlands. Nilo-Saharan speakers would have sought aquatic resources and game at ever more remote sites. Without bows and arrows (microliths only appear in the archaeological record for West Africa from about 12,000 BP onwards) and thus an ability to capture large game on open savannas (MacDonald 1997) watercourses would have been important channels of migration because of their relatively abundant food resources. One such watercourse that would have been open at that period to connect East and West Africa would have been the Wadi Hawa, which runs approximately from the Nile Confluence to the eastern reaches of Chad. This may have been an important corridor for a generalised flow of diverse Nilo-Saharan speakers across the centre of Africa.

Before the full complexity of Nilo-Saharan became apparent, an association with the so-called 'Aqualithic', a complex of bone harpoons and 'wavy-line' decorated pottery in Central Africa some 8000 years old, was common in the literature (Sutton 1974, 1977). Apart from the relatively recent date, the coherence of the Aqualithic as an archaeological culture has been much questioned in recent years (Muzzolini 1993). The 'wavy-line' pottery is rather too widespread to be associated with any part of Nilo-Saharan (it occurs in the Canaries) but the presence of bone harpoons from Khartoum to Timbuktu makes a certain amount of sense. From 12,000 BP onwards the climate was generally improving across middle Africa, with lake levels the highest ever recorded during the period 9500-8500 BP (Grove 1993:36). This would have encouraged the exploitation of aquatic resources, demographic increase and demic diffusion. So the culture of harpoons and aquatic resource exploitation could have travelled with Nilo-Saharan peoples such as the Songhay and Saharan speakers along the 'Nile to the Niger' corridor.

One of the problems of drawing neat maps showing the distribution of Nilo-Saharan groups is that their relative diversity and thus their likely ages do not appear to fit into a sequenced chronological schema. The Kuliak languages, which include Ik, Soo and Nyangi, as well as other now-vanished 'Dorobo' languages of Central Kenya, are manifestly quite similar to one another (Heine 1976), and it would be difficult to attribute to the present-day languages an antiquity similar to Nilo-Saharan. Indeed, a nucleus some 2-3000 years ago would seem more credible. But Kuliak, as all authors agree, is very separate from the main stream of Nilo-Saharan. So the ancestors of the Kuliak would have split from Nilo-Saharan proper at an early stage in its evolution. The Kuliak languages of today must once have been part of a much more complex and widespread branch and presumably there were once many other languages in the group, now assimilated. What has remained is a recent burgeoning, rather like the Southern Cushitic languages in Afroasiatic.

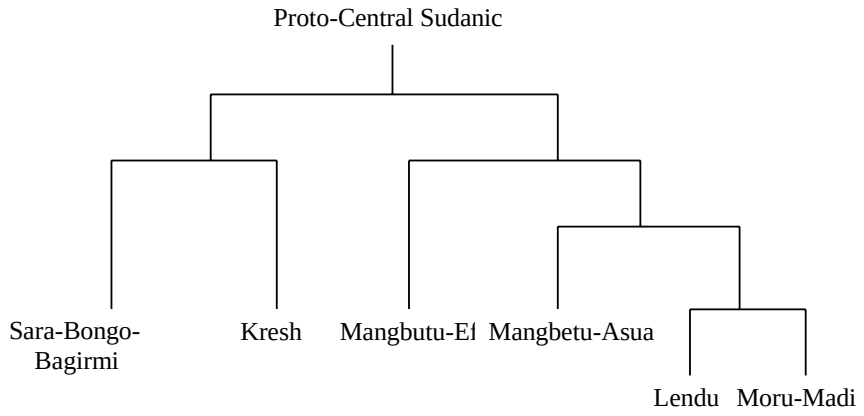
On a larger scale, the Central Sudanic languages, which stretch between Chad and NE Zaire, illustrate a similar situation (Bender 1992; Boyeldieu 2000, 2004). Although numerous and complex compared with Kuliak, Central Sudanic languages still contain many reconstructible roots. Central Sudanic consists of some 40-50 languages, depending on how Sara languages are counted, divided into six main branches (Figure 4.2). Central Sudanic has lexicostatistic percentages that go as low as 10% and a pattern of broad geographical fragmentation (Map 4.2).



Map 4.2 The Central Sudanic languages

Source: redrawn from Boyeldieu (2004)

Figure 4.2 Internal structure of Central Sudanic



Source: Boyeldieu (2004)

The puzzle is to explain how Central Sudanic has become so territorially dispersed. The core of its diversity appears to be west of Lake Victoria on the Uganda-Zaire border, although most languages are far to the northwest, in the Sara area. Fragmented population islands connect them, including some relatives of Sara-Bagirmi in the extreme southwest of Sudan. Separating them today is the great eastward salient of the Ubangian languages which extend from North Cameroun to Southern Sudan. Bouquiaux & Thomas (1980) pointed out that the Ubangian expansion must have taken place north of the forest prior to the Bantu expansion and they assign it a tentative date of 35-4000 BP. The clearer picture now available of the structure of Central Sudanic shows that in what is now Central African Republic, the Ubangian expansion must have broken up a continuous chain of Central Sudanic languages from NE Zaire to the borders of Cameroun. The Sara languages subsequently underwent a secondary expansion north of Ubangian.

Another problematic dispersal within Nilo-Saharan is that of the speakers of Nubian languages, a small, coherent group within Eastern Sudanic. Nubian languages occur on the Nile, where they are known from inscriptions and texts from the 6th to the 15th century and are spoken today in Upper Egypt, in the Nuba Hills and far to the west in Darfur and Kordofan (Thelwall 1982). Some of these the outlying speech-communities, such as Haraza and Birgid, are actually or virtually extinct (Rilly 2004). Even more surprisingly, the two Nubian languages spoken on the Nile, Kenzi/ Dongolawi and Nobiin, are not closely related to one another. The explanation for this dispersed pattern is as yet unclear; were the speakers of Proto-Nubian originally in the west, and migrated eastwards or were there many more groups which were subsequently assimilated leaving only small islands of speakers?

The fragmentation of Central Sudanic and Nubian provides a useful model for thinking about the impact of mobility in landscapes with scarce water, migratory hunting resources and very small, flexible communities. Small ethnolinguistic fractions can split and move through the terrain of quite different language groups, soon losing touch with their source communities. In an exceptional case, they settle in an area of rich resources, expand demographically and soon appear to be the nucleus of a language family. Thus Nile Nubian, with its large populations and written literature, was originally assumed to be the source community of the Nubian outliers. This is now thought to be very unlikely on linguistic grounds; historical linguistics can often show that the underlying history is quite different from the account written from the perspective of a dominant group. Nile Nubian is more probably a late development from the more diverse Kordofanian and Darfur Nubian languages.

The patchy diversity of Nilo-Saharan clearly does not yield a neat chronological layering. Many subgroups of Nilo-Saharan, such as For, Maba, Nera and Kunama, are really only single languages, giving no real indication of their antiquity. We assume that many more languages and subgroups which once existed have now been overprinted by newer groupings and that what today are single-language branches once had numerous related languages. As a consequence, it is possible to put forward dates for some Nilo-Saharan subgroups on the basis of their internal diversity, but for single-language branches, the only way of assigning a chronology is to link them with a grouping for which a tentative date exists.

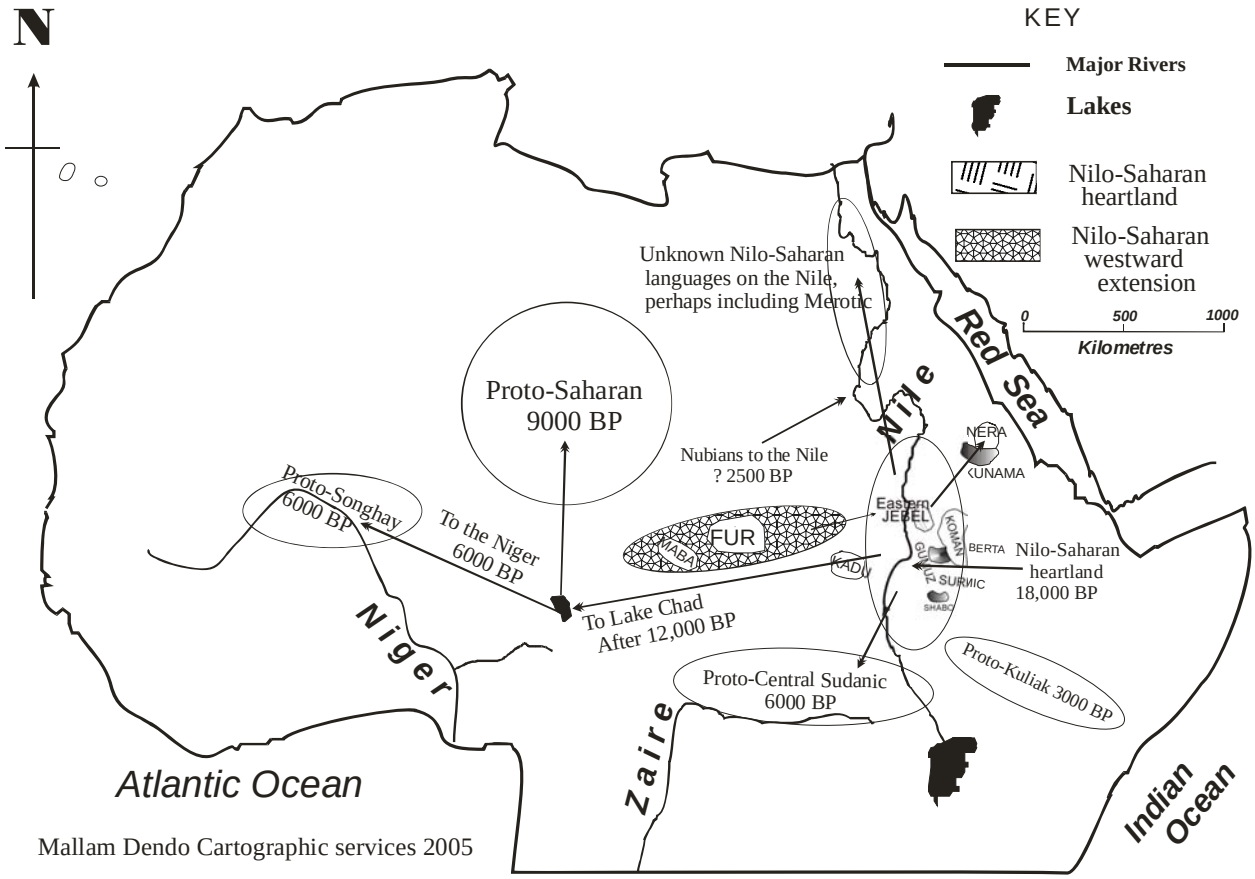
On this basis, Table 4.2 puts forward some suggestions for the dates of dispersal of the larger groups within Nilo-Saharan and some tentative archaeological correlations for some dispersals. The dates are estimates that need to be treated with great caution.

Table 4.2 Chronological table of possible events in the history of Nilo-Saharan dispersal

Date BP	Event	Archaeological/ climatological correlate
18,000	Initial dispersal of Nilo-Saharan	Pleistocene hyper-arid begins. Scattered hunting and fishing populations
after 12,000	Individual hunting-gathering groups spread west and north, ancestors of Saharan and Songhay begin move westwards. Ancestors of East Sudanic, Fur, Maba, Koman, Gumuz etc. begin to occupy area from Ethiopia to Eastern Chad	Decreasing aridity microliths, pottery, grindstones
9000	Proto-Saharan begins to occupy Sahara proper	Saharan Neolithic
8000	Proto-Songhay move across to Niger system	bone harpoons?
6000	Dispersal of Central Sudanic	proto-agriculture, tuber transplanting etc., small ruminant keeping
4000	expansion of Nilotic following adoption of pastoralism (? from Cushitic-speakers)	
4000	eastward movement of the Niger-Congo Ubangian-speakers scatters Central Sudanic speakers	
3000	Dispersal of Kuliak languages from northern Uganda as pastoralists move into the region	
2500	Nubians move towards the Nile and displace resident Afroasiatic speakers	
2500	Kunama associated with proto-urbanism in	
2000	Kadu languages expand	

Map 4.3 represents these dispersals graphically;

Map 4.3 Hypothetical early dispersal of Nilo-Saharan



A Niger-Saharan macrophylum?

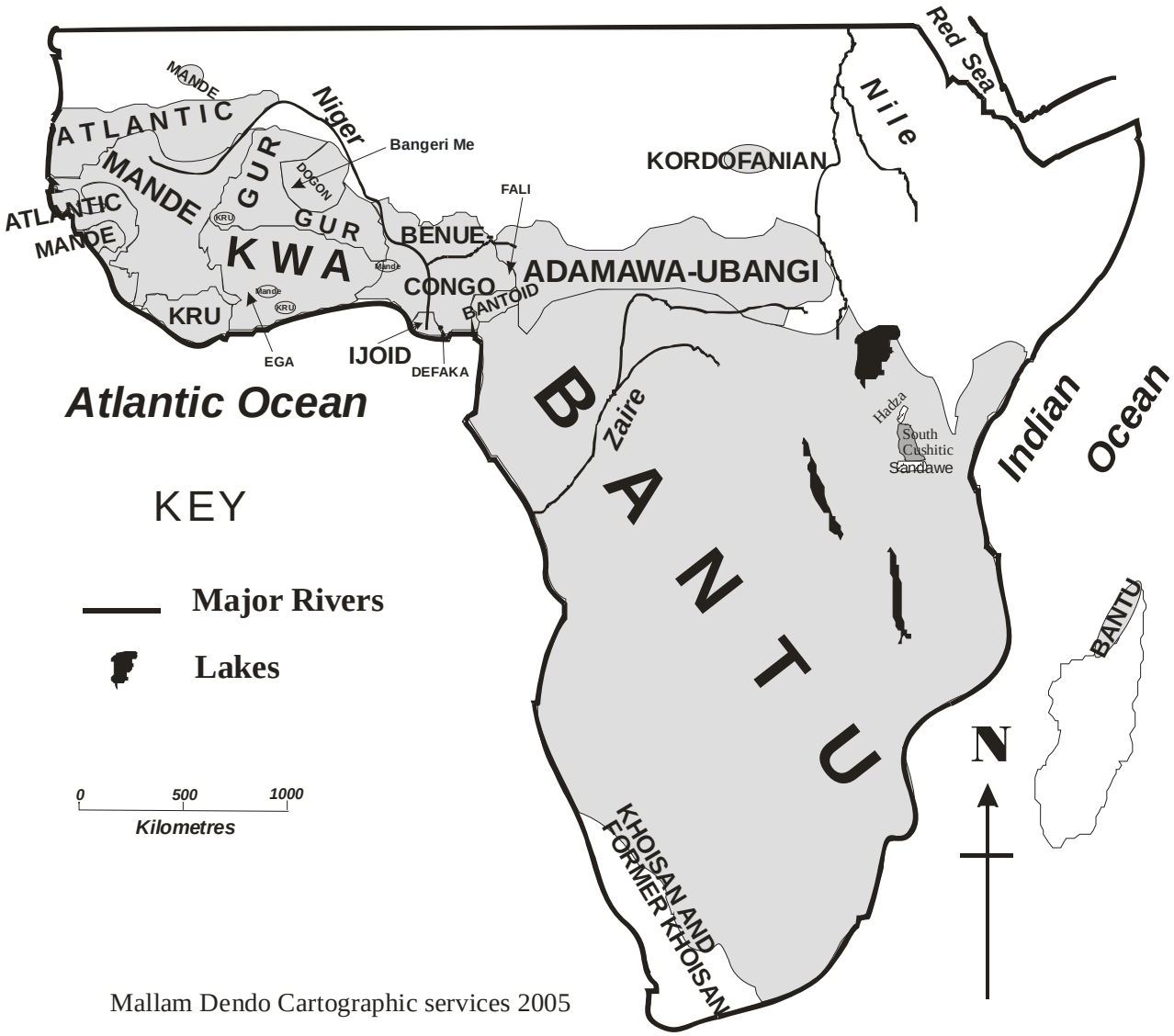
The idea that Niger-Congo and Nilo-Saharan were related has a long history in African language studies. Westermann (1911) combined Niger-Congo and Nilo-Saharan into 'Sudanic' in his first synthesis of African lexical data. Edgar Gregersen (1972) put forward both morphological and lexical similarities as evidence for a macro-phylum conjoining Niger-Congo and Nilo-Saharan, for which he proposed the name 'Kongo-Saharan'. Creissels (1981) listed the many morphological and lexical similarities between Mande and Songhay, which are too striking and numerous to be due to chance convergence or extensive borrowing, and questioned the division between Niger-Congo and Nilo-Saharan. Blench (1995a, in press b, d) has presented substantial further lexical and phonological evidence to support this macro-phylum, for which he proposes the name 'Niger-Saharan'. He suggests that Niger-Congo, rather than being united with Nilo-Saharan at the highest level, is a lower-level branch within Nilo-Saharan – a realignment that recalls Greenberg's demotion of Bantu in relation to Niger-Congo.

5. NIGER-CONGO

The Niger-Congo phylum has more languages than any other in the world, 1489 according to the most recent estimates (Grimes 2000) and it occupies a greater land area than any other African phylum. It includes the well-known Bantu languages, which spread over nearly all of Eastern and Southern Africa, although they are only a minor sub-branch of Niger-Congo. Map 5.1 shows the present-day distribution of Niger-Congo languages. If compared with Nilo-Saharan (Map 4.1), one difference is immediately apparent. Niger-Congo languages form large territorial blocks with much less of the fragmentation and geographical isolation characteristic of Nilo-Saharan. Typically, this suggests both more recent expansions and the gradual spread of more sedentary populations colonising areally rather than moving rapidly along line features such as

waterways. Nonetheless, Niger-Congo has its own perplexing problems; why should Bantu have covered such a large area and how is it that the Kordofanian languages are isolated from the remainder by a large stretch of Nilo-Saharan speakers?

Map 5.1 Niger-Congo languages



Because of the important role the Bantu languages have played in constructing archaeological models of the peopling of this region, it is important to understand how the classification of Niger-Congo as a whole has developed (Williamson & Blench 2000).

How was Niger-Congo classified?

The German scholar, Diedrich Westermann, first sketched the phylum we now call Niger-Congo. His first comparative book (Westermann 1911) established a basic division between 'East' and 'West' Sudanic; 'East Sudanic' was what would now be called Nilo-Saharan. His second major publication was devoted to 'West Sudanic', present-day Niger-Congo, which he divided into six families: Kwa, Benue-Cross [modern Benue-Congo], Togo *Restsprachen* (now the Central Togo languages and considered a part of Kwa), Gur, West Atlantic, and Mandingo [now Mande] (Westermann 1927). Westermann proposed a large number of Proto-

West Sudanic (PWS) reconstructions and compared them with Meinhof's Proto-Bantu reconstructions. Westermann's reconstructions still form the basis for much of the reconstructed Niger-Congo lexicon.

Joseph Greenberg took a fresh look at the classification of African languages in a series of articles published between 1949 and 1954 which were later collected in book form in Greenberg (1963a). He combined Westermann's West Sudanic and Bantu into a Niger-Congo phylum [later expanded to Niger-Kordofanian, a formulation that was subsequently dropped and only survives among archaeologists]. Within Niger-Congo, Greenberg largely retained Westermann's subgrouping, with the following differences;

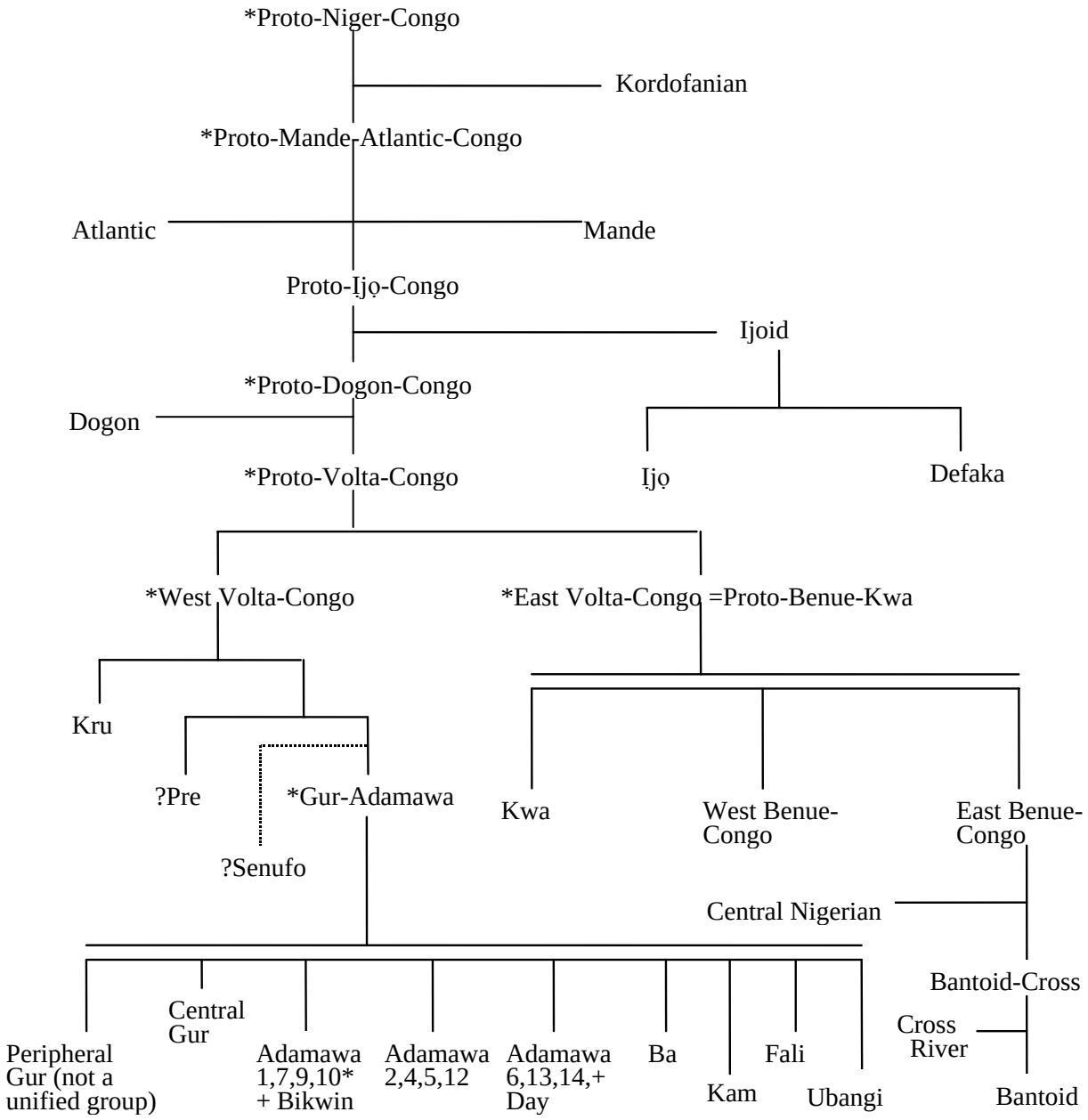
a) Songhay was removed from Gur and added to Nilo-Saharan
b) Mandingo was renamed Mande
c) Central Togo was incorporated into Kwa
d) Benue-Cross was renamed Benue-Congo
e) Bantu was placed as a subgroup of a subgroup of Benue-Congo
f) Fulfulde was added to the group of West Atlantic which contained Serer and Wolof
g) a new family, Adamawa-Eastern, was added to the phylum
h) finally, in 1963, Kordofanian, previously treated as a small separate phylum, was reanalysed as co-ordinate with Niger-Congo as a whole, and consequently the phylum was renamed Niger-Kordofanian (or Congo-Kordofanian).

Greenberg's work was initially controversial but was gradually accepted by most scholars. However, Greenberg did not propose a tree structure; his groups were presented as a flat array and Niger-Congo remained innocent of any historical interpretation. Bennett and Sterk (1977) were the first to undertake a major reclassification of Niger-Congo, mainly based on lexicostatistics and lexical innovations, and to propose a branching structure with historical implications. In their view, Kordofanian and Mande were the first families to break off from the rest, giving a three-way initial split. The remaining families were sampled lexicostatistically. The results led to a family tree in which the next family to separate was West Atlantic; the remaining families were treated as Central Niger-Congo, splitting into North and South. North Central Niger-Congo was Gur, Adamawa-Eastern and Kru; South Central Niger-Congo comprised Western and Eastern, possibly with Ịjọ. Alternatively, both Kru and Ịjọ were placed as co-ordinate branches of Central Niger-Congo. Bennett and Sterk concentrated on South Central Niger-Congo, where they broke up Greenberg's Kwa, not only by removing and promoting Kru and Ịjọ, but by renaming his group b (often known as Western Kwa) as 'Western South Central Niger-Congo', while combining the remaining groups with his Benue-Congo as 'Eastern South Central Niger-Congo'.

This branching structure, suggesting hypotheses about the prehistory of speakers of Proto-Niger-Congo, gave rise to intense discussion during the 1980s. *The Niger-Congo languages* (Bendor-Samuel 1989) modified Bennett and Sterk's proposal by replacing 'Niger-Kordofanian' with 'Niger-Congo' as the overall name for the phylum (Williamson 1989). The initial three-way branching was retained, as was the next branching between Atlantic (a simplification of 'West Atlantic') and Volta-Congo ('Central Niger-Congo'), with Ijoid tentatively forming a third branch. Volta-Congo was presented with a more conservative flat array comprising Kru, New Kwa ('Western South Central Niger-Congo'), New Benue-Congo ('Eastern South Central Niger-Congo'), North Volta-Congo ('North Central Niger-Congo') and, tentatively, Dogon, no longer considered Gur. A system of nomenclature proposed by John Stewart was adopted in which the direct ancestors of Bantu, from Niger-Congo to Benue-Congo, all had compound names ending in '-Congo', while lower nodes naming relatively closely-related groups ended in '-oid'.

Figure 5.1 presents a version of the family tree of Niger-Congo as understood in the 1990s (Williamson & Blench 2000). Lexical evidence for uniting Kordofanian with Niger-Congo is difficult to establish, and it was therefore presented as the first branch to split. There is no clear evidence for either Mande or Atlantic as the next division, and therefore they were shown as equal branchings from the remainder. Volta-Congo and Gur-Adamawa are shown with doubled lines, following a convention established by Ross (1988) to indicate the diversification of a dialect continuum.

Figure 5.1 A 1990s version of the internal structure of Niger-Congo



Source: Williamson & Blench (2000)

A tree like this was highly provisional, partly because some branches are much better known than others. Until recently, Dogon was treated in reference books as if it were a single language (e.g. Bendor-Samuel *et al.* 1989) despite the work of Bertho (1953), but Hochstetler *et al.* (2004) makes clear that there are no less than 17 languages under the Dogon rubric and that the family is highly internally divided.

The Ijoid languages (Map 5.2), spoken in the Niger Delta of Nigeria, also represent a puzzle (Alagoa *et al.* 1988). The Ijoid languages are all extremely close to one another, except for a small language, Defaka (Jenewari 1983; Williamson 1998), but they are very remote from the other branches of Niger-Congo, both formally (i.e. in terms of syntax and morphology) and lexically. This rather suggests they have been resident elsewhere for a long time, and reached the Niger Delta quite recently, fanning out from a nodal point. This does not entirely explain Defaka, which is markedly different from the rest of Ijoid and has some features reminiscent of the reconstructed Ijoid proto-language. There must once have been more languages related to

Defaka which have since disappeared, reflecting an early wave of migrants to the Delta almost erased by the expansion of Ịjọ proper or the incoming Lower Cross and Ogonoid groups. Their fishing skills suggest that their origin may be a mobile fishing people from the Upper Niger, somewhat like today's Sorko people (Ligers 1964-1969). As Map 5.2 shows, there are Central Delta (Cross River) languages encapsulated *within* Ijoid. However, the Inland Ịjọ lect Oruma is encapsulated by Central Delta, and all the three Inland lects, although now placed under West Ịjọ, show some similarities with East Ịjọ, suggesting they were once contiguous with it, and separated by the arrival of the Central Delta peoples. Central Delta communities are primarily farmers and hence could easily co-exist with the primarily fishing Ijo.

Map 5.2 Ijoid and the surrounding languages

Kordofanian consists of four very distinct families whose relation to one another is far from clear. Recent studies suggest that the membership of Kordofanian is still fluid (e.g. Norton 2000 on Asheron). Schadeberg

(1981e, 1989) argued that the system of noun-class affixes links together two of the four branches, but this still leaves the question of the position of the Rashad and Katla languages. Indeed, Schadeberg (1981d) also pointed out some time ago that Kordofanian languages are otherwise extremely diverse and it is hard to find other common isoglosses.

Another problem for the classification of Kordofanian is the Kadu, or Kadugli-Krongo, languages, also spoken in the Nuba Hills of Sudan. Greenberg (under the soubriquet 'Tumtum') originally classified them as Niger-Congo in 1963, but noted they were distinct from the other Kordofanian languages. Kadu languages are now usually held to be Nilo-Saharan following a suggestion by Schadeberg (1981d) supported by Dimmendaal (1987). Stevenson (1991) followed up with more detailed arguments and Bender (1996a) has incorporated Kadu into his successive overviews of Nilo-Saharan. This view has largely triumphed, with only Ehret (2000b) remaining a significant objector.

One reason Greenberg assigned the Kadu languages to Niger-Congo is the presence of a fully operative nominal prefix system, quite similar to those in Bantu. This *is* mysterious, because it seems rather unlikely such a system would be borrowed wholesale. However, the recent availability of significantly larger amounts of data has made it possible to see there are other problems in deciding the place of Kadu, in particular, the presence of a surprising number of Niger-Congo roots, including some that appear to be absent in the Kordofanian languages proper (Blench in press g).

Map 5.2 is a 'standard' view of Niger-Congo and one which has been much reproduced. But in many ways it is highly unsatisfactory. Trees like this represent an attempt to keep fixing up the older models, in spite of increasing evidence that they no longer fit the data. There are at least three sets of assumptions that have historically underlain Niger-Congo classifications that must now be seriously questioned, crypto-typology, crypto-geography and the absence of 'orphan' languages.

Typology and genetic affiliation ought to be quite distinct, but in fact it is often difficult to separate judgments about affiliation from perceptions of typology, especially where a distinctive morphology is involved. Greenberg admitted that 'grammatical' features (by which he meant the presence of alternating nominal affixes) played a major role in assigning Kordofanian to Niger-Congo. In modern terms we would say he was influenced by a typological feature. Similarly, although Bennett & Sterk (1977) claimed that lexicostatistics lay behind their influential re-ordering of Niger-Congo, it is clear that the languages with functioning or fossil suffixes were aligned in North Volta-Congo (Kru, Gur and Adamawa). The temptation to place Mande at a high level in the Niger-Congo 'tree' results from the absence of a nominal class system. In reality, as Westermann had demonstrated in 1927, Mande shares many *more* lexical innovations with other branches of Niger-Congo than, for example, Ịjọ or Dogon.

Given the mobility of African populations, their present locations are unlikely to be a guide to their place in Niger-Congo. But perceptions of geography have played an important role in the historical classification of African languages. For example, the Ịjọ languages were classified with Kwa by Westermann and later Greenberg, despite their manifest distinctiveness, because they were located in close proximity to Yoruboid, Edoid and Igboid. Dakoid was classified with Adamawa because it is surrounded by Adamawa languages; as Bennett (1983) observed, examination of the available material hardly supports this. It may seem obvious, but excluding location is crucial in restructuring Niger-Congo. The classification of Bijogo of the Bissagos Archipelago in Guinea-Bissau is one example; Bijogo has been classified with Atlantic, because it is geographically in the centre of the other Atlantic languages. But it has been observed that it shares numerous lexical items with Benue-Congo that are not otherwise found in Atlantic and a linguistic argument to link it with Atlantic is conspicuous by its absence.

Another more covert influence is the sense of a broad geographical sweep of Niger-Congo from NW to SE. Once Kordofanian is excluded, there is a strong temptation to view Niger-Congo as spreading out across West Africa towards the heartland of Bantu in a crypto-evolutionary schema. So Mande and Atlantic, in the far west, are place near the top of the tree and Dogon and Ịjọ somewhere further down in line with their

location. But Dogon and Ịjọ are notable for lacking lexical items common to the other branches of Niger-Congo; logically they should be somewhere near the top of the tree.

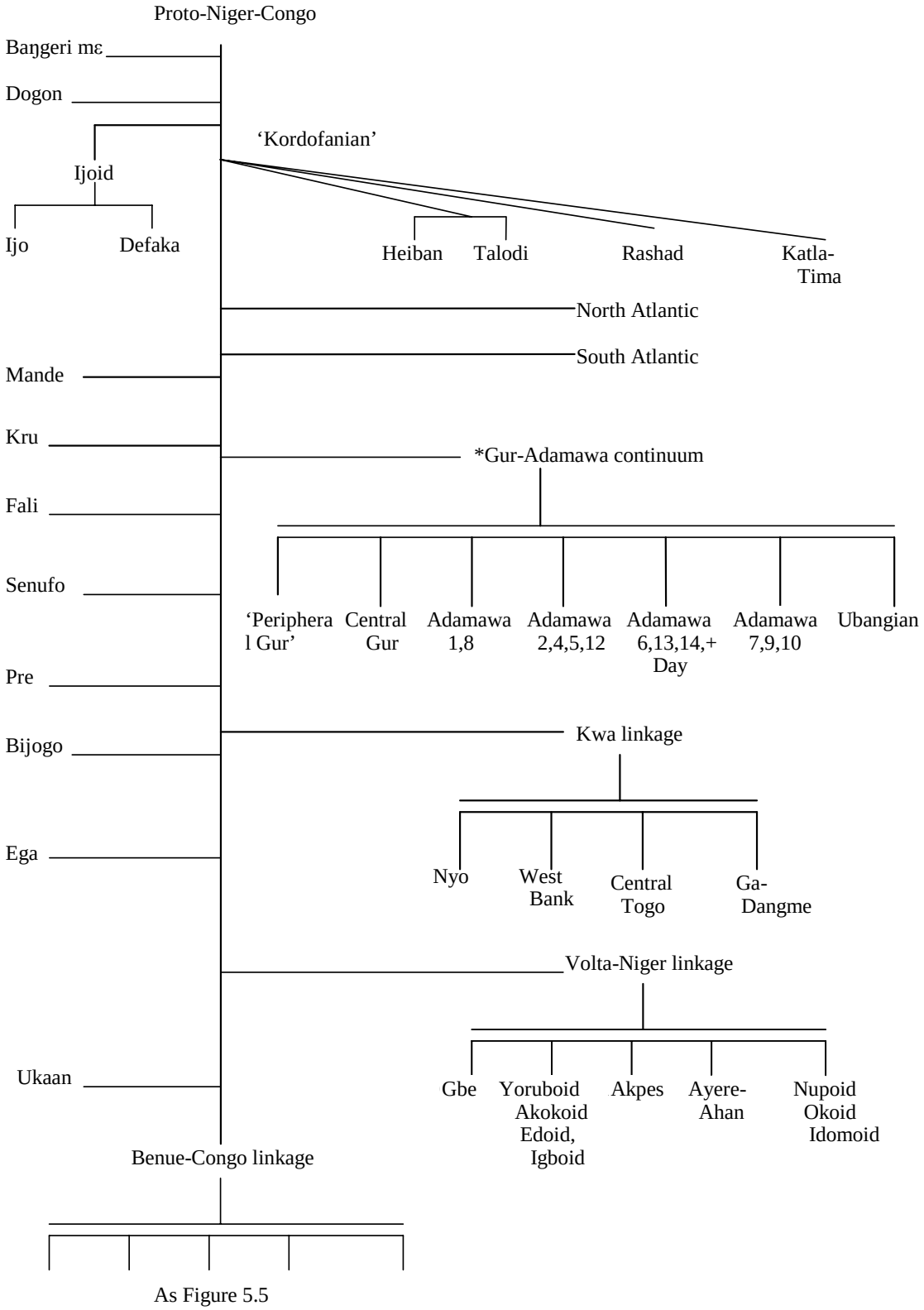
Just as elegance is a spurious but admired feature of mathematical proofs, so historical linguists enjoy neatness, and this includes the incorporation of all available languages into an overarching schema. In some ways this is a version of Ockham's razor, the assumption that entities should not be multiplied beyond necessity. Niger-Congo scholars have never had the same levels of tolerance of language isolates as prevails in Papuan and Amerindianist studies, with the curious consequence that such languages are largely ignored or lumped together with their neighbours without discussion. A good example of this is Fali, a language classified by Greenberg as Adamawa on geographical grounds. There has been disquiet about its affiliation since the 1980s, but its place within Niger-Congo has not be re-analysed. Orphan languages inevitably share some lexical items with their neighbours and this has often been considered adequate to place them within a branch. This paper takes the strong view that neatness is satisfying but may simply not be true and that we have to accept that a spiky tree can have uneven branches. In particular, there is a tacit assumption that older families ought to be more diverse, although this is clearly not true in other regions of the world.

In the light of this, I put forward a radically new tree of Niger-Congo (Figure 5.3), with the caveat that this has yet to be tested in publication. The main principles of the redrawn internal structure are;

a) unclassifiable languages are treated as viable single branches
b) crypto-geographic principles for drawing the tree are rejected (e.g. placing Bijogo outside Atlantic completely)
c) many branches treated as unified are now represented as rakes and linkages

The tree is drawn to keep agreed or consolidated units on the left side and rakes and linkages on the right. The placing of the isolates should be regarded as very tentative, especially as their actual status as Niger-Congo languages is not considered proven in some cases.

Figure 5.3 Niger-Congo restructured



Source: Blench (2004b)

Niger-Congo is thus relatively old and diversified, at roughly the same level as Afroasiatic, but manifestly younger than Nilo-Saharan. Reconstruction of the proto-language of Niger-Congo has been hamstrung by the absence of reliable data for many branches and in particular for Kordofanian, which has long been isolated by war, famine and the discriminatory policies of the Sudanese government. Valuable overviews of

small groups of Niger-Congo exist, although many are still unpublished. Table 5.1 shows the main reconstructions that have been published or circulate in electronic form;

Table 5.1 Reconstructions of Niger-Congo and its subgroups[21]

Group	Reference I	II
Niger-Congo	Westermann (1927)	Mukarovsky (1976-1977), Williamson (2000a)
Kordofanian	Schadeberg (1981a,b)	
Mande	Kastenholz (1996)	Dwyer (ined.), Vydrine (ined.)
Atlantic	Doneux (1975)	
Ijoid	Williamson (in prep.)	
Gur	Manessy (1979)	
Gurunsi	Manessy (1969)	
Oti-Volta	Manessy (1975)	
Gbaya	Moñino (1995)	
Central Togo	Heine (1968)	
Yoruboid	Akinkugbe (1978)	
Edoid	Elugbe (1989)	
Igboid	Williamson & Ohiri-Aniche (in prep.)	
Plateau	Gerhardt (1972/3, 1983)	
Cross River	Connell (1991)	
Mambiloid	Connell (ined.)	
Eastern Grassfields	Elias, Leroy, & Voorhoeve (1984)	
Manenguba	Hedinger (1987)	
Bantu	BLR3	includes all other PB reconstructions

It is striking that there are whole areas of Niger-Congo where virtually nothing exists. Kru, Adamawa-Ubangian, many Kwa and Eastern Benue-Congo groups remain illuminated only by accounts of single languages. Even those that have been published are now in significant need of updating in the light of new information. Few, if any, of these authors have drawn any historical conclusions from their proto-forms and there are as yet no proposals linking archaeological horizons with particular Niger-Congo subgroups. So a historical interpretation of the phylum remains a major lacuna.

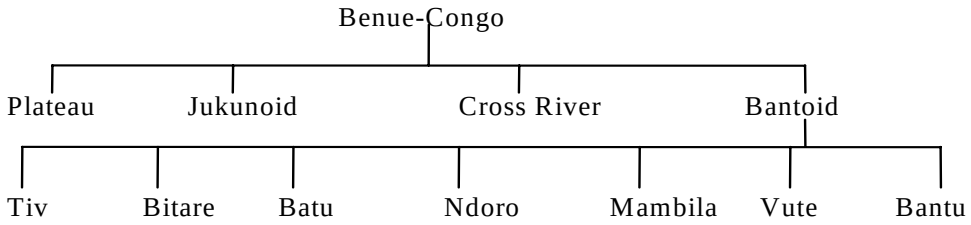
Many texts refer to Bantu as if it were unproblematic, as if the boundaries of Bantu were well-known and the internal relationships of Bantu languages agreed. Unfortunately, this is far from the case. The concept originated with Wilhelm Bleek who first introduced the term *Bâ-ntu* in 1858 (Silverstein 1993) although the connection between dispersed Bantu languages had been observed as early as the seventeenth century (Doke 1961). The definition of 'Bantu' comes from a variety of sources, most importantly the work of the linguists Bleek (1862, 1869), Meinhof (1910), Johnson (1919/1922), Doke (1945) and Guthrie (1948, 1967-71). Most references to Bantu use Guthrie's classification, which included most of the languages of Southern Cameroun and all languages south and east of there (Maho 2003). Guthrie established an alphanumeric zoning of Bantu languages still widely used even by those who dissent strongly from his methods and conclusions. His logic is relatively clear; he named the northwesternmost language in his sample, Lundu, in south-western Cameroun, as A10 and continued towards eastern and southern Africa. But Guthrie was aware that there were languages outside this area that had Bantu-like characteristics; he just had no coherent way of dealing with them. As far back as Johnston (1919/1922), it was recognised that languages in West Africa had concord and alternating affix systems. Johnston gave these the unfortunate name 'semi-Bantu', but was unclear whether this was genetic, coincidence or somehow 'influence' from Bantu proper. Guthrie considered the problem briefly in his excursus 'Bantuisms in non-Bantu languages' (Guthrie 1971,4:107-111) but concluded that the links with languages such as Efik were so reduced as to be of little importance

[21] An initiative to reconstruct Niger-Congo has begun at the instance of the Santa Fe project and a preliminary workshop is to be held in Paris in October 2004.

historically. This issue puzzled linguists for a long time until it was gradually realised that the types of affix system so prominent in Bantu were in fact found all over Niger-Congo, but often in residual or reduced forms. Bantu had simply preserved and then elaborated an old system.

The question then became whether there was any really distinctive boundary between Bantu and the languages related to it. Bantuists continue to defend the integrity of their discipline but the truth is that no-one has ever uncovered any lexical or morphological isoglosses that somehow mark out Bantu from its closest relatives. Greenberg (1963a) underlined this by treating Bantu as merely a branch of Benue-Congo, i.e. the adjacent languages of southern and eastern Nigeria and Cameroun (Figure 5.4). He says 'the Bantu languages are simply a subgroup of an already established genetic subfamily of Western Sudanic [i.e. Niger-Congo, broadly speaking] (Greenberg 1963a:32).

Figure 5.4 Greenberg's view of the place of Bantu

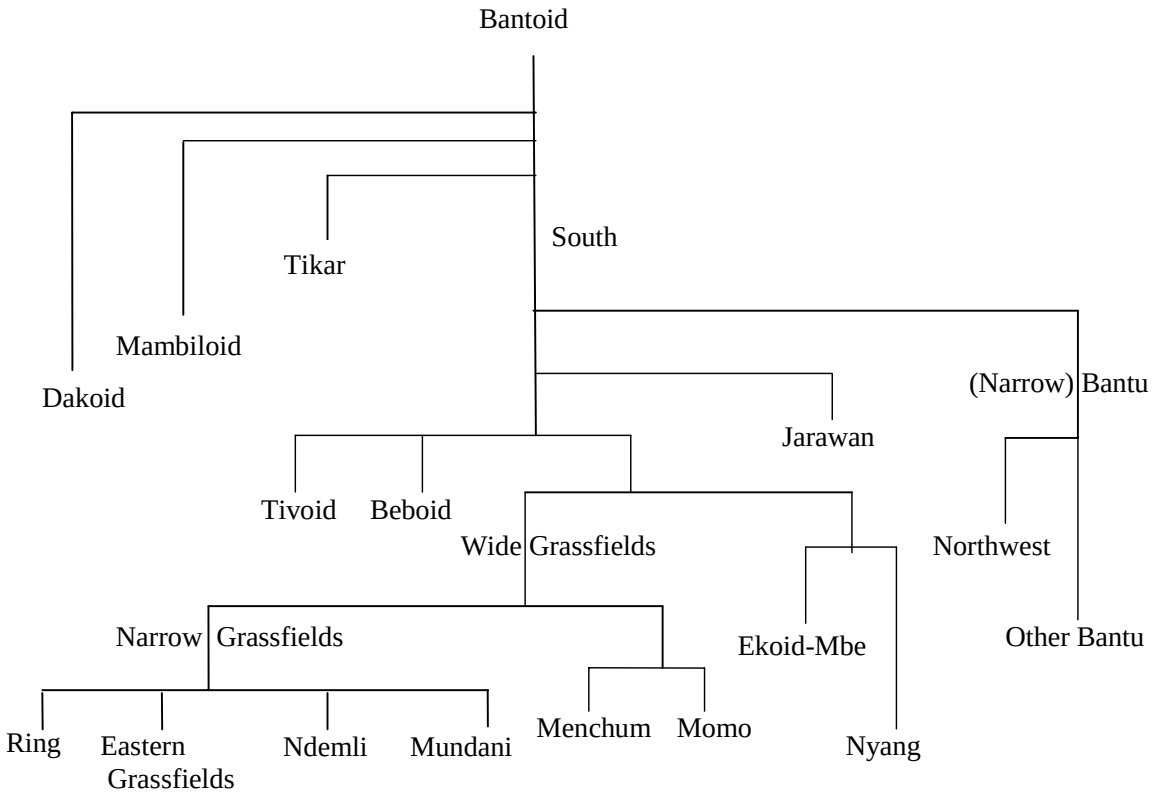


Greenberg (1963a:35) also clearly stated 'Supposedly transitional languages are really Bantu'. In other words, many languages without the features supposed to define Bantu are in fact genetically affiliated to Bantu.

Greenberg's approach to Bantu was refreshing and made historical sense in a way that Guthrie's views never had. Broadly speaking, Greenberg's classification has been vindicated by subsequent scholarship. But since the 1960s, data has become available on the vast and complex array of languages in the 'Bantu borderland', i.e. the region between Southern Cameroun (where Guthrie's Bantu begins) and Eastern Nigeria. Greenberg's simple co-ordinate branch model is no longer tenable and something richer and more nuanced is required to understand the linguistic ethnohistory of the region. There is little agreement about the relationship between the 'Narrow Bantu', as defined by Guthrie and others, and the large number of related languages with Bantu-like features, now usually known as Bantoid. In Bouquiaux *et al.* (1980) new evidence is presented for linguistic features of particular subgroups of Bantu, with a focus on Cameroun. Piron (2001) represents the most recent attempt to classify Bantoid, and presents both lexicostatistical analyses and shared innovations.

Figure 5.5 shows a speculative summary that includes all the language groups that have been described that as it were 'stand between' Eastern Benue-Congo and Narrow Bantu. These languages are very numerous (>200) and also highly diverse morphologically. It seems likely that new languages are yet to be discovered and more work in historical reconstruction will improve our understanding of how these languages relate to one another.

Figure 5.5 Classification of Bantoid languages



Nurse (1996) reviews all major modern attempts to classify Narrow Bantu. The most widespread agreement is that there is a Northwest Bantu; these languages are both more distinct from the rest and from one another. Beyond this there is little agreement; an East and a West Bantu have been proposed but clear evidence for these groupings is lacking. Since Johnston (1919-1922) there have been very few attempts to justify Bantu subgrouping apart from Ehret (1999); more typically, authors complain about Guthrie's alphanumeric coding but use it anyway. Tervuren Museum has published or circulated a series of lexicostatistical analyses, most recently Bastin *et al.* (1999). All the proposals for Bantu reconstructions are combined in an internet database, Bantu Lexical Reconstructions III[22], which puts forward roots and notes their distribution according to Guthrie's alphanumeric system (Schadeberg 2002).

Niger-Congo in the diaspora

While considering the likely ancient origins of Niger-Congo it is also worth remembering that Niger-Congo languages have also spread recently across the Atlantic as a consequence of the slave trade and only now is their role coming to be appreciated. Slavers were obviously not concerned with the languages of their victims and it is merely chance that Afro-Asiatic and Nilo-Saharan languages tend to be spoken inland and so were less affected by the trade. The first major linguistic record of the slave trade is Sigismund Koelle's *Polyglotta Africana* (Koelle 1854), a massive comparative wordlist of the languages spoken by freed slaves in the colony of Sierra Leone in the 1840s. Koelle also included biographies of the individuals he interviewed and the routes by which they fell into the hands of the slavers, giving an invaluable image of the interior of Africa at a time when few outsiders had survived exploratory missions.

The slaves carried their languages to the New World and in many cases continued to speak them for some considerable time. In some cases, well established Niger-Congo languages like Yoruba and Kikongo were

[22] Described in Schadeberg (2002). The URL is http://linguistics.africamuseum.be/BLR3.html

parlayed into ritual languages used in the ceremonies of syncretic religions such as Santeria. Haiti and Cuba in particular have remained reservoirs of these Niger-Congo languages up to the present and a dictionary of Cuban Yoruba has been published. But most of the transplanted languages died out, often leaving lexical and grammatical traces in the modern creoles spoken in many regions. For example, we know that Nupe, spoken by up to a million people in west-central Nigeria, was also spoken in Brazil in the 1850s under its Yoruba name, Tapa (Rodrigues 1932). A few words typical of the Southern United States are of Bantu origin, for example 'cooter' (=turtle), 'gumbo' (a type of stew) and 'goober' (=peanut).

Equally intriguing are 'Djuku' and 'Chamba', spoken in Surinam. These are the names of 'dance-drum' societies and also of types of creoles. However, the Jukun and Chamba peoples live in adjacent regions of east-central Nigeria in the valley of the Benue. It seems more than likely these peoples are the source of the New World ethnonyms. If we look carefully, is it possible words of the Jukun and Chamba languages may also survive?

How old is Niger-Congo?

Potential archaeological correlates of Niger-Congo

Niger-Congo is the largest and most widespread phylum in the world, yet we have little idea of its age or where it originated. Unlike Bantu, other branches of Niger-Congo have never been shown to correlate with any identified archaeological culture. Although their speakers may have expanded into nearly empty terrain in the early period, recent local expansions and interactions with other phyla have obscured any simple pattern. The distribution of languages that can be seen today represents more recent movements of peoples and linguistic diffusion overlain on one another, like writing anew on a scraped parchment. West Africa is devoid of well characterised archaeological cultures such as Urewe ware, and it has proven difficult to identify existing materials with specific language groups. So any hypotheses must depend on rather broad-brush models that combine known subsistence patterns with linguistic geography.

A general feature of the archaeology of West Africa is the relative absence of dated sites of a level of antiquity comparable to Eastern and Southern Africa (Allsworth-Jones 1987). Indeed, Robert *et al.* (2003) describe what is the first properly stratified site for the West African Palaeolithic, in the Dogon area of Mali. Surface finds of stone tools indicate sporadic Middle Stone Age (MSA) occupation. Evidence from Bingerville Highway (Chenorkian & Pradis 1982; Chenorkian 1983), Birimi in Northeastern Ghana[23] (Casey 1998, 2000), Huysecom & Sow in Mali (2001), Gabon (Clist 1995) and Shum Laka in Cameroun (de Maret 1993, 1995) and Mercader & Marti in Equatorial Guinea (1999) confirms that West Africa had a low-density population of hunter-gatherers during the Pleistocene. This remains a weak array of evidence for such an apparently habitable area and cannot entirely be an artefact of the pattern of excavation. For whatever reason, West Africa was only populated extremely sparsely until the end of the Pleistocene, some 12,000 years ago (Muzzolini 1993). Indeed, most researchers have claimed the Sahara, which stretched much further south than at present, was unoccupied. But with the coming of the Holocene, lake and rivers across West Africa began to refill and there is more evidence of human settlement. In the Western Desert of Egypt and in the Central Sahara, pottery and grinding stones appear by 10,000 BP (Wendorf, Schild & Close 1984; Roset 1987). Microliths now occur in the archaeological record, and sites such as Iwo Eleru in SW Nigeria contain a wide variety for tools for harvesting and processing wild grains (Shaw 1973, 1977, 1978-79). Shaw identifies this as Facies A, an aceramic phase, typical of savannah, and lasting from 12-6000 BP. The contemporaneous appearance of microliths and the end of the hyper-arid phase suggests that the two are related; and that both would reflect a major population expansion.

One feature of the Niger-Congo region is the virtual absence of residual languages. What languages the MSA hunter-gatherers spoke must remain unknown. Only in Southern Africa, where the expanding Bantu-

[23] A flake industry with a strong Levallois component has been found stratified under a sterile layer below an LSA component with an OSL minimum date of 30,000-35,000 years (Casey *et al.*, 1997).

speakers encountered the Khoesan, does a real mosaic of farmers and hunter-gatherers still exist. But within much of the core Niger-Congo area, only Jalaa in Nigeria and Laal in Chad (see Table 8.1 and Map 8.1) seem to be true remnants of an earlier diversity that must have characterised the continent. These fragments both hint at a more ancient stratum of hunting-gathering populations in West Africa, present at the time of the Niger-Congo expansion but almost completely absorbed by them. Niger-Congo must have expanded and assimilated all the resident groups and must therefore have had highly convincing technological or societal tools to bring this about. Presumably languages considered to be Niger-Congo might show traces of an unrelated substrate language that would reflect these displaced speech-forms, as among the Negrito populations of the Philippines (Reid 1994). Apart from projecting archaeological data backwards, linguistic geography must also be taken into account in modelling the early dispersal of Niger-Congo. Although Niger-Congo and Nilo-Saharan may constitute a single macro-phylum, the uncertain nature of this hypothesis argues that their dispersal should be modelled separately pending better information about the dispersal of Nilo-Saharan.

One difficulty in explaining Niger-Congo is that the Kordofanian groups are geographically extremely remote from the other branches of the phylum (Map 5.1). Indeed, Kordofanian is today entirely surrounded by Nilo-Saharan languages. Three possible explanations can be proposed to account for this;

a) West Africa represents the homeland of Niger-Congo and Kordofanian is an early migration
b) The homeland was somewhere between the two regions
c) Kordofanian represents the homeland and the West African branches an early migration

Much now depends on our interpretation of the internal branching of Niger-Congo; if the Kordofanian branches are the earliest division, as previous models assumed, then the hypothesis of a migration from Kordofan seems reasonable. But if the view espoused in Figure is adopted, Niger-Congo was well established in West Africa before Kordofanian split away, hence its movement was eastwards, perhaps from the Lake Chad region and to be identified with the improved climate after 10,000 BP. Kordofanian represents a series of outliers which show few lexical links with the other branches of Niger-Congo in terms of the reconstruction of subsistence items. Archaeological work in the Nuba hills might be productive, but there is no present likelihood of this due to the recurring political problems in Sudan. West Africa is undoubtedly the centre of gravity of Niger-Congo, where its expansion and ramification took place and it is there that we should seek the underlying causes.

If we can assign a hypothetical date to Proto-Niger-Congo we can seek its possible correlates in the archaeological and climatological record. In the case of Niger-Congo, the principal clue is the dating of Bantu. The Bantu languages, despite their broad geographical spread, represent a recent development, whose relationship to one another is well attested and which share a large number of phonological, morphological and lexical isoglosses. It is usually accepted that the Bantu expansion contained a major element of migration, ‘demic diffusion’ in archaeological language. In other words, the gradual expansion of the Bantu languages corresponded to a physical movement of population. There seems to be convincing evidence for this, both in Eastern and Southern Africa and in Gabon. The evidence for Gabon is most striking as it shows a ‘Neolithic’ population appearing quite suddenly in the archaeological record at the Epona II site ca. 3500 BP (Clist 1995:149). This incoming populations have lifeways significantly different from the resident foraging populations and bring pottery and village settlements. If these are identified with the first wave of Bantu migration from Cameroun, then Niger-Congo, of which Bantu is a recent branching, must be substantially older. Given the internal diversity of the phylum it would be unreasonable if it were not more than twice as old, i.e. earlier than 7000 BP. Most linguists would assume a greater time-depth still to explain the internal diversity of Niger-Congo, but this date is intentionally set as conservatively as possible. For something more precise we need to turn to other types of evidence.

A model for the expansion of Niger-Congo

Throughout the Pleistocene, West Africa had a scattered hunting-gathering population speaking languages of unknown origin and affiliation. At some point before 7000 BP, the speakers of Proto-Niger-Congo began to expand, so effectively that almost all linguistic traces of the pre-existing populations disappear. A preliminary hypothesis would be to identify the expansion of Niger-Congo with the improving climate at the beginning of the Holocene, i.e. about 12-10,000 BP onwards, which would be a reasonable date in the light of the diversity of Niger-Congo. The expanding group, ancestors of the present-day Niger-Congo speakers, would also have been hunter-gatherers, but in possession of some advantage which induced the *in situ* populations to switch languages and become culturally completely absorbed. Such a process has a parallel in Australia, where Pama-Nyungan expanded over four-fifths of the continent in the last few thousand years, eliminating all trace of the languages spoken by the pre-existing populations (McConvell & Evans 1998).

An inevitable question is whether Niger-Congo expansion might be linked to agriculture, as has been suggested (e.g. Renfrew 1992; Ehret 2002a,b). There are two reasons for discounting this; the notable absence of archaeological evidence for cultivated plants of the necessary antiquity and the lack of convincing reconstructions of crop names or terms unambiguously associated with agriculture. Many finds originally identified as cultigens now appear to be gathered wild grains; the earliest evidence for forest zone crops is *Elaeis guineensis* (oil palm) and *Vigna unguiculata* (the cowpea) at Kintampo 1400-1250 BC. The origins of agriculture in West Africa have been the subject of considerable debate (e.g. Murdock 1959; Harlan *et al.* 1976a). Neumann *et al.* (1996) and Neumann (2003) have reviewed the archaeobotanical evidence and find no case for agriculture prior to 2800 BP. To emphasise this important point, she says;

> 'In the archaeobotanical assemblages of the Early and Middle Holocene until 1800 BC, only wild plants have been found, indicating that foraging economies were very successful' (Neumann 2003:77)

Neumann (2003:73) is very critical of linguistically-based reconstructions that attribute a great antiquity to agriculture without reference to the archaeobotanical evidence. She says, 'Unfortunately these assumptions are sometimes treated as facts in the popular literature..'. It can therefore be assumed that all the principal diversification and the establishment of the major branches of Niger-Congo occurred while speakers were still using hunting, fishing and gathering as the principal subsistence strategy.

Many linguists, myself included, have been reluctant to accept this, for the reason that at first sight there appear to be crop names, particularly for 'yam' and 'sorghum', reconstructible to greater time depth than these dates for agriculture would imply. The explanation is almost certainly that West Africa *is* an important centre for the independent domestication of crops but that as a consequence all the important staples were exploited in their wild form prior to domestication and these wild forms have continued as food sources up to the present day. As a consequence, there has been little or no significant change in vernacular terms; foragers became transplanters and then farmers but kept the same terms for the wild plants that became crops. When we seek reconstructions that unambiguously indicate agriculture, there are none; no word for field, hoe, yam-heap is reconstructible to any significant time-depth. Ehret (1984, 2002b), usually a proponent of early agriculture, admits that evidence for crops in Niger-Congo is shaky at best. A study by Blench (1996) of crop names in Bantu and Bantoid languages showed that the only crops that reconstruct to any deep level are those with wild relatives which are anyway part of the indigenous flora of West Africa. Connell (1998b) tabulates words for both yam and oil-palm among the Cross River-speaking peoples in southeast Nigeria as well as words associated with their processing. While the basic foodstuffs appear to reconstruct to Proto-Cross River, results from processing terminology are inconclusive. This indicates that while the wild foods were known at the level of the proto-language, their organised exploitation only came in after the family had broken up.

Foraging and transplanting thus seem to have continued until relatively recently in West Africa; indeed, as Neumann (2003:75) points out, the inception of agriculture is remarkably late compared with other regions of the world. Given this, it is important to develop a nuanced picture of the subsistence strategies involved. Hunter-gatherers are not all alike and evidence from regions where hunting-gathering existed in the recent

past, such as eastern and southern Africa and Australia, suggests that different groups pursued interlocking strategies. Until recently, Mbuti pygmies were divided into net-hunters and bow-and-arrow hunters (Turnbull 1961). Riverine and lakeshore exploitation systems clearly have a considerable antiquity in northern and eastern Africa (see review in Stewart 1989 and also Blench 1997a). The most conservative assumption concerning such strategies in the prehistory of West-Central Africa is that there were two crucial technologies, spear-hunting and fishing/riverine exploitation (including shellfish, crustacea and snails). Projectile points, presumably spears, have a considerable antiquity in North Africa. Similarly, there is evidence for substantial exploitation of aquatic resources, although the cultural unity implied by the 'Aqualithic' is no longer accepted (Macdonald 1998:42).

The exact era of the adoption of the bow and arrow in West-Central Africa is unknown. From the point of view of lithic technology, arrows are simply tipped like small spears. In a pre-metal era, the techniques of binding a stone arrowhead or a spear-point to a shaft would have been virtually identical. In most other parts of the world, notably Australia, spear-throwers were developed to increase the range and impact of spears. Africa is exceptional worldwide terms in not having the spear-thrower, which makes spear-hunting significantly more efficient. The bow is functionally analogous to the spear-thrower in increasing the range of the individual hunter. Saharan rock-paintings show bows and arrows, but none are sufficiently well-dated to permit unequivocal statements about their introduction into West Africa. Microlithic technology appears in the West African record by 12,000 BP. More significantly, however, is the archaeological culture known as the Ounanian, recorded in modern-day Mali by 9-10,000 BP (Clark 1980; Raimbault 1990). Ounanian points look very much like arrowheads and it would not be unreasonable to suppose that when bow and arrow hunting began in West Africa it introduced a major technological revolution. Hunters could travel further and shoot animals at greater distances and were probably able to rapidly out-compete the *in situ* gatherers and (perhaps) spear-users.

In a neat case of a match between linguistics, technology and palaeoclimatic evidence, it turns out that there *is* evidence for the possession of the bow and arrow by Niger-Congo speakers. The evidence is tabulated here because of its importance to the overall argument. Table 5.2 shows the evidence for reconstructing 'bow' in Niger-Congo;

Table 5.2 The root#-taN- for 'bow' in Niger-Congo languages

Family	Subgroup	Language	Attestation	Comment/Gloss
Dogonic		Tɔrɔ	**tó**	
		Donno Sɔ	**tò**	
Ijoid	Izọn	Kolokuma	**tɛ̃ĩ**	'to shoot'
Kordofanian	Talodi	Tegem	**tʰɑɑi**	
Mande		Boko	**sa**	
		San of Toma	**sa**	
		Mana	**sã'**	
Unclassified		Pre	**ta**	
Atlantic		Bassari	**ɑ-tŭmb**	
		Gola	**ta**	'to shoot with bow'
Kru		Seme	**tã**	
Gur		Dagare	**tam-o**	
		Moore	**ta-ba**	
		Mampruli	**toro**	
		Buli	**tɔmɔ**	
Adamawa	Mumuye	Mumuye	**ta**	
	Vere-Duru	Momi	**taa-u**	
Ubangian		Gbaya	**kusaa**$^{+}$	
Kwa		Akposo	**kutá**	
		Twi	**òtá**	
Benue-Congo	Nupoid	Nupe	**tanci**	
		Igbo	**ọ́tá**	
	Kainji	Piti	**o-ta**	
Bantoid	Tivoid	Tiv	**ta**	
Bantu		*PB	***bo-ta**	

Many Kordofanian peoples do not use the bow and arrow today, so it is a fortunate chance a cognate has survived. Table 5.3 sets out the corresponding evidence for 'arrow' in Niger-Congo. At times 'arrow' can interchange with 'spear' and 'needle'.

Table 5.3 A deep-level root for 'arrow' in Niger-Congo languages

Family	Subgroup	Language	Attestation	Gloss	Comment
Dogon		Tɔrɔ (plains)	**kɛ́n**		
		Donno Sɔ	**kén**		
Ijoid		Ogulagha	**ɔkãĩ**		
		Basan	**ʊkpɔ́n**		
Mande		Dan of Santa	**sàà-gā**		**sàà** = 'bow'
		Boko	**kaa**		
		Lebir	**kà**		
Atlantic		Bassari	**ɛ-ngʌ̀r-ɛŋ**		?C
		Gola	**o-gaN**		
Kru			**?**		
Gur		Mampruli	**gma-ɣo**		
	Gurunsi	Lyele	**kyam**		
	Gurunsi	Kabre	**kama**		
Senufic	Senufo	Senar	**ŋ-aɣa**		
Adamawa		Mumuye	**ʃɔ̀n**		
Ubangian		Zande	**àgùànzá**		
		Mundu	**gbànjá**		
		Gbaya	**góo**		
Kwa		Ga	**ga-ĩ**		
		Twi	**a-gan**		
Benue-Congo	Igboid	Igbo	**a-gaN**	needle	
	Edoid	Ẹdo	**o-gaN**	spear	
	Plateau	Mada	**gbi(ŋ)**	arrow	
	Plateau	Mada	**mgbi**	needle	
Bantu	PB	BLR3	**gúɪ**	arrow	D E G J K M N R S

There is considerable overlap between the meanings of 'bow' and 'arrow' and compounds such as Dan **sàà gā** probably consist of common Mande **saa** for 'bow' plus 'arrow'. The Dogon forms also mean point, spike and also the awns of wild grasses, which suggests a link with the root #-**kaN** for 'thorn'. Disappointingly, no Kordofanian language so far has an attested cognate of the Niger-Congo root for 'arrow', but their rarity in the Nuba hills makes this less surprising.

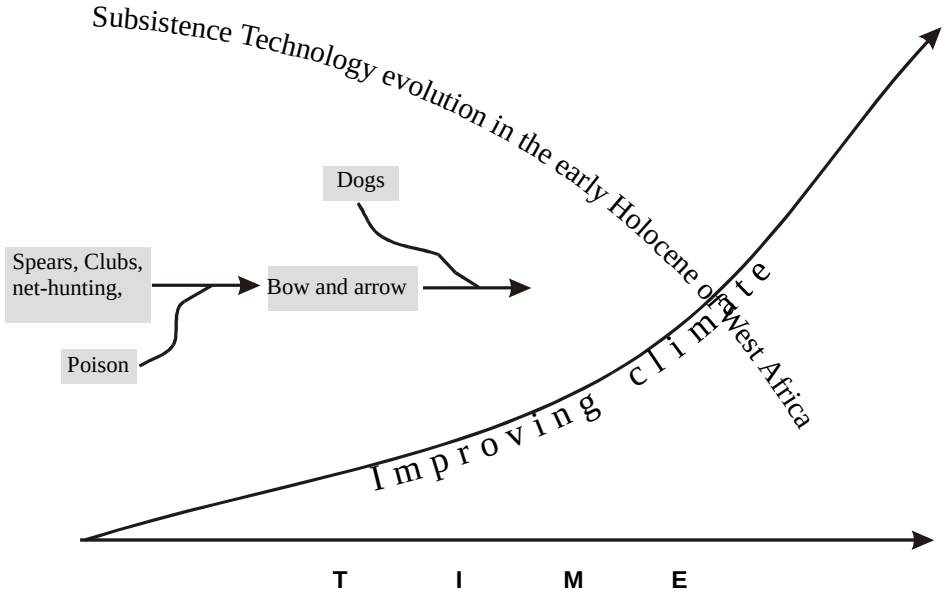
There are two other possible stimuli to the development of bow-and-arrow hunting; poison and the dog. Arrow poisons are still used widely throughout sub-Saharan Africa (Neuwinger 1994). African arrow-poisons were known to the classical world through the Red Sea coastal trade and are referred to in Threophrastus' *Historia Plantarum*. Plants such as *Strophanthus* spp. were cultivated in West Africa specifically to manufacture poisons (Burkill 1985: 180). Poisons make it possible for single individuals to hunt large land mammals and reduces the danger of hunting, since the dying animal does not have to be approached until it is actually dead. In addition, animals can be hunted from cover at a greater distance than with spears. There is no clear linguistic evidence for poison, as it tends to take its name from the ingredients. Moreover, arrow-poisons are regarded as conceptually distinct from poisons used in sorcery. Nonetheless, it is reasonable to assume that it was either introduced with the bow and arrow or developed soon after.

In addition to the poisoned arrow, another element may have been the dog. Clutton-Brock (1984) has previously suggested a connection between the widespread adoption of the dog and individual hunting. The function of dogs to flush out game, run it down and retrieve it for lone hunters would be appear to be an attractive reason for their widespread adoption. The dog was first domesticated about 14,000 BP and seems to have spread very rapidly to most parts of Eurasia (Clutton-Brock 1984). Recent DNA studies have linked the dog to the Eurasian wolf, and there may have been several related domestications. Gallant (2002:51) dates the introduction and spread of the dog in Africa at >7000 BP. The dog is deeply embedded in African language phyla and appears to reconstruct to both Proto-Niger-Congo (Table 12.16) and Proto-Afroasiatic. Dogs are not yet known from any African archaeological horizons this ancient, but the dog must be earlier than the archaeological record shows, if linguistic and cultural embedding are any guide (§12.). Dogs are

used to today all over the continent to accompany hunters to the bush, and are also prime sacrificial animals (for a review of the dog in African culture see Frank (1965)).

The linguistic evidence for the preliminary expansion of Niger-Congo is suggestive in this case. The acquisition of a radical new technology in conjunction with improving climate would certainly provide the necessary combination of factors to spark the expansion of a language phylum. These inter-related factors are tentatively diagrammed in Figure 5.6.

Figure 5.6 Schematic view of the initial expansion of Niger-Congo



If we accept such a model for the expansion of Niger-Congo as a whole, we still need to account for the formation of major subgroups such as Mande, Atlantic and Ijoid. In the absence of convincing reconstructions and very weak archaeology, this may be the case for some time to come. In some cases, Kwa for example, there is simply no evidence either from reconstruction or geography that would form the basis of a hypothesis. But linguistic geography can be of some assistance here, particularly in exploring the likelihood of riverine expansions. With some misgivings, Table 5.4 puts forward dates and possible motives for expansion for the families of Niger-Congo. The dates are arranged in order of antiquity, not in the hypothetical order suggested by the genetic tree, and in many cases the two are strongly at variance. There is no necessary correlation between the age of a family estimated from its apparent internal diversity and the date at which it appears to split from the Niger-Congo tree. In the case of Ijoid, for example, it is sufficiently different from other Niger-Congo languages to assume it split off at an early period in the development of the phylum. But Ijoid is not itself very internally diverse and is therefore unlikely to be very old. This requires that a body of related languages once existed which have all disappeared, leaving Ijoid proper as a late secondary expansion. It must be assumed that the ancestors of groups such as the Dogon either remained stable for a long period and then began to expand in the recent past, or that they were always diverse but a 'bottleneck' created a more uniform pattern in the recent past. It will be noted that none of the branches are as old as the family itself if the model presented is accurate; the very earliest forms of Niger-Congo can no longer be clearly distinguished, and episodes of levelling and assimilation must have occurred prior to the establishment of the existing branches.

Table 5.4 Niger-Congo language families and possible dates and motives for expansion

Family	Date BP	Possible reason for split/expansion
Atlantic	8000	Atlantic languages are extremely internally diverse compared with Mande and the unity of the family has been questioned and especially the inclusion of Bijogo. Although the most well-known Atlantic language, Fulfulde, is spoken by pastoralists, the great majority of Atlantic speakers are coastal fishing people and they may havespread down the Guinea coast by exploiting aquatic resources.
Kordofanian	7500	The isolation of Kordofanian in the Nuba Hills, encapsulated within Nilo-Saharan languages and now Arabic, suggests an isolated movement eastward, probably of a series of hunting bands in search of game in the early period following the introduction of the bow and arrow.
Mande	6000	Mande languages have spread from north to south with scattered outliers in Nigeria and Cote d'Ivoire. Mande shares the common Niger-Congo roots for 'cow' and 'goat' and perhaps the Proto-Mande were an isolated livestock-keeping population at the edge of the desert, which expanded southwards as habitat change created potential space for livestock keeping. Reconstructions implying cropping are not present in the proto-language.
Kru	6000	Kru speakers are all cultivators today but the presence of a remnant Kru language in Burkina Faso and in the lagoons of Ivory Coast, suggests that speakers came down the rivers in a broadly southwest direction
Gur-Adamawa	6000	Gur and Adamawa-Ubangian form a continuum, spreading from Burkina Faso to Chad, now broken by the southward expansion of Chadic (Kleinewillinghöfer 1996). The west to east direction of their spread argues for a dispersal of hunting-gathering bands.
Kwa	5500	No evidence, although the dispersal of Kwa along the West African coast suggests that they correspond to the Benue-Congo speakers and spread southwards to the coast along river systems such the Volta.
Benue-Congo	5500	The centre of expansion of Benue-Congo is probably the Niger-Benue Confluence (Armstrong 1981) and it seems likely that the source population was dependent on aquatic resources. But this is not characteristic of speakers today, who are typically farmers. However, farming cannot be reconstructed to Proto-Benue-Congo and the initial reason for their expansion is unknown.
Ubangian	4500	Bouquiaux & Thomas (1980) assign a date of about >3000 BP to the eastward expansion of Ubangian, but it is likely to be earlier than Bantu, hence a proposed date of 4500 BP. The direction of spread is west to east, north of the Central African rainforest, at right angles to the north-south direction of most of the rivers in this region. This could be an expansion of foragers with incipient transplanting agriculture.
Bantoid	4500	Bantoid languages, like Dogonic, are territorially coherent but highly diverse. The speakers may well have been early exploiters of tubers and oil-palms, like Cross River speakers, gradually developing processing technology.
Bantu	4000	The Bantu expansion, despite its rich reconstructed proto-language, remains a mystery. The evidence for geographic expansion is strong and presumably reflects improved subsistence techniques. Yet this is too early for iron and it must be that vegeculture was incipient, especially the use of palms and tubers. Phytolith evidence for bananas at ca. 2500 BP (Mbida *et al.* 2000) suggests the possibility that the introduction of SE Asian food crops played a role in this expansion. Later Bantu expansion into Southern Africa is associated with agropastoralism and this in turn may be connected with the introduction of zebu cattle (Huffman 1990).
Dogonic	4000	Dogonic languages are territorially coherent but diverse. Cattle reconstruct in Dogonic but not sheep and goats, suggesting the Dogon may originally have been agropastoralists.

Ijoid	3000	The Ịjọ peoples seem always to have been fishing people and terms associated with fisheries reconstruct in abundance to Proto-Ijoid. Linguistic geography suggests either they entered the Delta from the north, scattered the resident Cross River speakers and dispersed both east and west or that they were orginally in the east of the Delta, together with the hypothetical Defakoid speakers and were pushed westwards by Cross River speakers, who later entered the Delta as farmers.

It would be desirable to have better foundations in historical linguistics and a richer archaeology to advance dates and hypotheses such as these. Bantu, far more than other groups of Niger-Congo, has been the subject of conflicting attempts at historical interpretation. Guthrie (1962, 1967-71) considered it to have originated somewhere in present-day Zambia. Greenberg (1955) situated its homeland in NW Cameroun, a view previously espoused by Johnston (1919-1922). These disagreements created problems for archaeologists and in the 1960s, various compromise models were developed to try and incorporate both views (Oliver 1966). Guthrie is now considered simply to have been wrong and the north-western origin is generally accepted.

What is exciting about Bantu is that cultural reconstructions make it possible to develop hypotheses about the lifestyle of the speakers of the proto-language. This idea goes back to Johnston (1886) and a number of writers since such as Dalby (1976), Bennett (1983), Obenga (1985), Herbert & Huffman (1993), Vansina (1995), Schoenbrun (1997, 1998) and Ehret (1998, 1999) and have proposed overall or local interpretations based on this body of reconstruction. Jan Vansina's (1990) *Paths in the rainforest* is a ground-breaking combination of oral tradition and linguistics with at least some archaeology. Vansina (1995:52) prefers an early date, 5000 BP, for the beginning of the Bantu expansion on the basis of glottochronology. This seems unlikely, because it puts back the genesis of Niger-Congo to a problematically early date. Vansina (1995:61 ff.) also gives the banana, in the form of the triploid plantain AAB, an important role in impelling the early movement into the forest (see also Rossel 1998).

The widely accepted model has the Bantu splitting into at least two groups, one heading east along the northern edge of the rainforest and the other staying in the west and moving south and southeast through the rainforest. The relatively recent date of these events has made it possible to link particular groupings with pottery styles in a manner that is so far not possible elsewhere in Africa (Phillipson 1977). Eggert (1992), while taking a critical approach to simplistic correspondences between pottery styles and Bantu subclassification, nonetheless makes it evident that the different ceramic traditions, notably the *Pikunda-Munda*, on the Sangha and neighbouring rivers in Congo-Brazzaville and which date to ca. 2200 BP represent an 'aquatic settlement' of this inhospitable region. Wotzka's (1995) detailed study of archaeological pottery types in Central Africa links the intrusion of the 'Imbonga' style of ceramic on the main waterways of the DRC, dated 400-100 BC, to the incoming Bantu populations. Denbow (1986, 1990) describes the ceramics of Tchissanga near the mouth of the Congo, which consistently date to around the 6th century BC, and are linked to the Okala traditions in Gabon and those of Ngovo in the DRC. He links these to a major movement of Western Bantu-speakers towards the Kalahari, where they encountered Khoesan speakers. Leakey *et al*. (1948) first defined the 'dimple-based ware' that is characteristic of much of the East African region. This was later-renamed Urewe ware and is essentially similar to Kwale ware and first occurs in sites near the coast as early as 200 AD (Forslund 2003). There is every reason to link this with the expansion of the Bantu east from the Great Lakes region to the coast. Urewe has been found in Mozambique and at Nelspruit in South Africa (Huffman 1970, 1980, 1989a,b, 1998) and this is potentially linked to the coastal movement southwards of the Eastern Bantu. Herbert & Huffman (1993) proposed that the other major ceramic tradition south of the rainforest, the so-called 'Kalundu' tradition, is linked with the Western Bantu. In their version, the bearers of the Kalundu tradition emerge from the rainforest and migrate both eastward and southeast, eventually interlocking with the Urewe tradition somewhere in Zambia.

Not all versions of the Bantu expansion accept this model. Vansina (1995) based his account on the lexicostatistical work on Bantu carried out at Tervuren museum (subsequently published as Bastin *et al.* 1999). In this version, there was a very rapid movement to the Great Lakes and a secondary movement, partly by sea, southwards into Gabon. He then postulates a Proto-West and Proto-East Bantu and subsequent expansions. More radically, he claims that the 'Bantu expansion' as a migration event is conceptually

misconceived and that we should return to the 'wave' models of early twentieth century Indo-European scholars, imagining rather the large-scale propagation of language and culture among largely *in situ* populations. This view has not commanded widespread acceptance in the scholarly community both because of its great reliance on lexicostatistics and because it is difficult to match up with the archaeology, which does appear to support actual human migration. Another quite different approach is that of Ehret (1998) who provides an idiosyncratic account of the Bantu expansion east of the forest. He proposes a 'Savanna-Bantu' group which cross-cuts Guthrie's zones and which subdivides into Western, Central and Mashariki. Ehret (1999) attributes significant cultural innovations to each specific group, although he remains a lone voice in the Bantuist community.

The potential for correlations between the distribution of the Bantu languages and genetics would seem to be high, and unpublished evidence suggests that there are sequences that link geographically distant Bantu-speakers with each other and with their immediate relatives in Cameroun (Mark Thomas p.c.). Pereira *et al.* (2001, 2002) have looked at some Southern African populations with a perspective of tracking European incursions and the impact of the slave trade. Mateu *et al.* (1997) look at the island populations of Bioko and São Tome and show that the Bubi of Bioko are the result of the ancient migration of a small founder population with virtually no admixture, whereas the populations of São Tome are more mixed and result from multiple recent movements (the São Tomeans were transported by the Portuguese from the mainland in the 17th century and have no language of their own). Clist (1998) notes that although there was apparently an LSA population on Bioko, the Bubi probably reflect the earliest Neolithic pottery, the Carboneras tradition, presently dated to 560 AD.

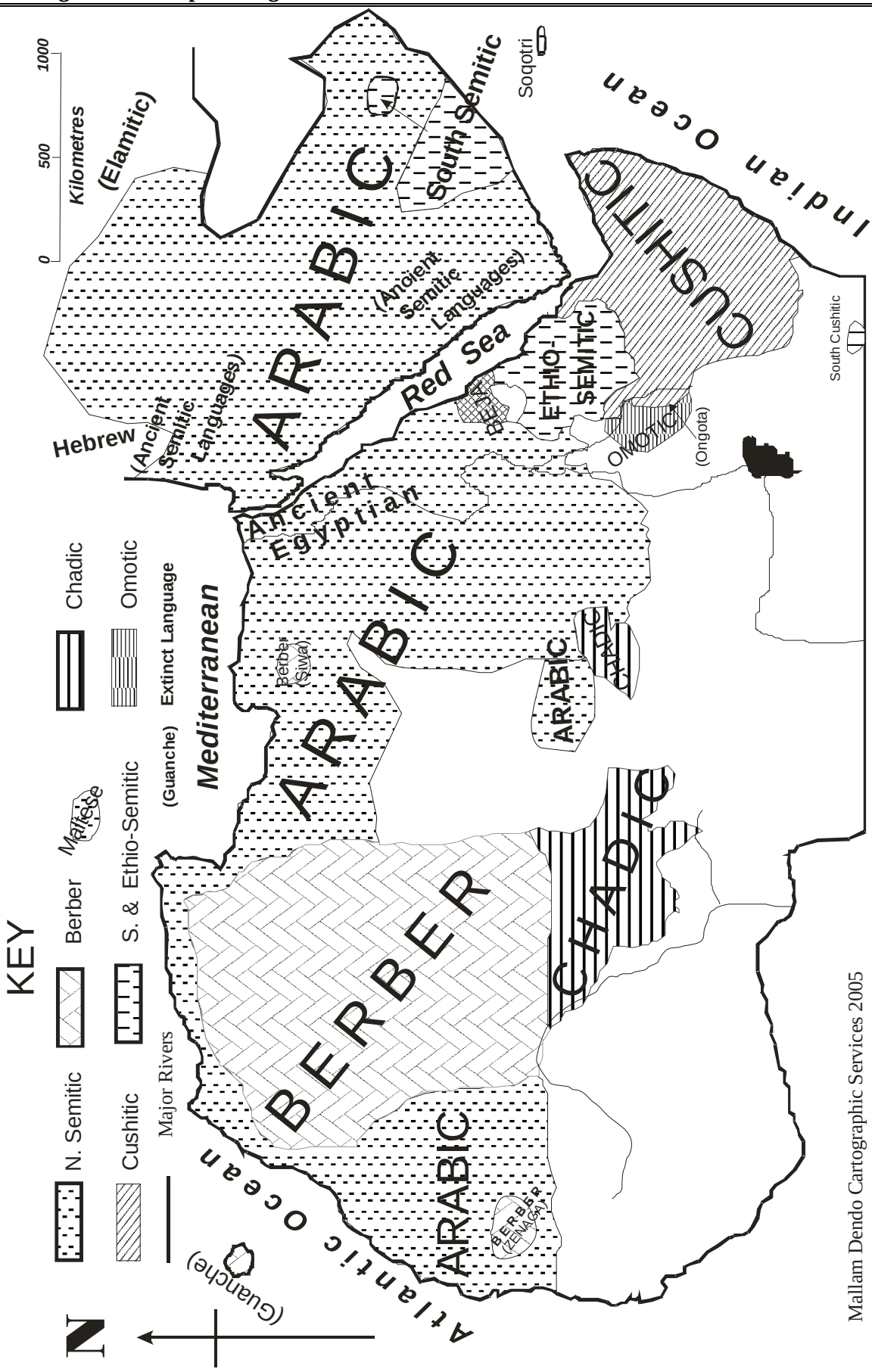
A quirky aspect of the Bantu expansion usually excluded from textbook accounts is the 'Bantu who turned North'. A group of languages, the Jarawan Bantu languages, are scattered across north-central Cameroun and west into Nigeria, on the Benue and south of Bauchi in Central Nigeria (Gerhardt 1982). Although these are perfectly standard Bantu languages, they are typically not represented on maps of 'The Bantu' because of the unevenness they would introduced into the graphic representation. Moreover, there is no explanation for this curious distribution and no archaeological or genetic work to explain such a contrary migration.

The striking distribution of Bantu languages has caught the attention of linguists and prehistorians for a century and a half and a great body of data has been amassed and collated. Despite a number of local studies, the larger picture of Bantu remains very confused, partly because of methodological disagreements between linguists, partly because of patchy coverage of the archaeology. Modelling the much larger population movements and language shifts that underlie the great phyla that cover the continent will prove even more challenging.

6. AFROASIATIC

The distribution of Afroasiatic and the history of its classification

The Afroasiatic (Hamito-Semitic, Afrasian) language phylum consists of some 400 languages spoken mainly in Africa but with extensions (of Arabic, its most well-known member) through the Middle East into Russia. Map 6.1 shows the present-day distribution of Afroasiatic languages with extinct languages such as Egyptian marked with by bracketed names. As Ruhlen (1991:86) observes, their distribution is extremely skewed, since one language, Arabic, has more than 100 million speakers, i.e. as much as all the other languages combined. Hausa, with up to 25 million speakers, is numerically the next most important language.



Map 6.1 Present-day distribution of Afroasiatic languages

The Afroasiatic language phylum has a somewhat ambiguous status among the major language phyla of the world. Its classification and history are by far the most controversial of the language phyla of Africa. 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. Ruhlen (1991:87 ff.) gives a useful concise history of the classification of the languages that constitute the phylum. Yehuda Ibn Quraysh, who lived in Fez, Morocco, in the tenth century, was the first to compare the phonology and morphology of Hebrew, Aramaic and Arabic in his book *Risāla* (Téné 1980), which is also the first appearance of comparative linguistics in relation to any phylum. Guillaume Postel (1538) was the first to explicitly recognise the kinship of Semitic languages in modern times. Ludolfi (1661a,b) pointed out the affinity of Ethiosemitic (Amharic and Ge'ez) with the near Eastern languages and the name 'Semitic' was first proposed by Schlözer (1781). Berber and some 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 (1862) who linked Egyptian, Semitic, Berber, Cushitic and Hausa, the only known Chadic language at the period. At the same time, Lottner (1861) showed that Egyptian, Semitic, Berber and Cushitic were genetically related, bringing in the languages of the Horn of Africa for the first time. Lottner also speculates on a method for dating the proto-language, 'groundforms' in his terminology, by reconstructing back from known attestations, not dissimilar to that proposed here.

In the late nineteenth century, a dreadful confusion began to creep into Afroasiatic studies, a fusion with crypto-racial theories. The underlying idea was that the biblical and Near Eastern languages associated with Shem, i.e. Semitic, were sister languages to an anarchic mass of languages in Africa, named 'Hamitic' after another son of Noah. The name 'Hamito-Semitic' enshrined this racial myth. The high prestige of Semitic meant that speakers of Hamitic had to be elevated above ordinary Africans and were thus identified with the tall cattle herders of East Africa who were considered more noble and aristocratic than the ordinary farming populations (for one account see Henige 1974). This actually put the linguistic analysis in something of a fix because some of these pastoral peoples spoke Nilotic or other Eastern Sudanic languages, some spoke Cushitic, and others, such as the Tutsi in Rwanda, had switched to speaking Bantu languages. The lifeways of Fulfulde herders in West Africa even led Meinhof (1912) to conclude that this Niger-Congo language must also be 'Hamitic'.

Once embedded, ideas like this are hard to dislodge, and Hamito-Semitic is by no means expunged from the lexicon, hence the confusing titles of various collections of conference proceedings (cf. Bynon 1984; Jungraithmayr and Müller 1987). Diakonoff's (1965) monograph on Hamito-Semitic was followed by a *Hamito-Semitic Etymological Dictionary* published in the 1990s (Orel & Stolbova 1995) although the *St. Petersburg Journal of African Studies* has now switched to 'Afrasian' (e.g. Diakonoff *et al.* 1993). Even disregarding the Hamitic hypothesis, a term such as Hamito-Semitic gives a primacy to Semitic that is entirely without linguistic justification[24]; this spurious conception drew originally on racial ideas and later, on the perceived prestige of Near Eastern languages. Apart from Afroasiatic, Greenberg's term, other proposed names include Afrasian (Diakonoff 1988; Bender 2003b), Lisramic (Hodge 1976) and more strangely, Lislakh. These have not been widely adopted and Afroasiatic has persisted, along with its SE Asian analogue, Austroasiatic.

There can be no doubt that the revolution in Afroasiatic goes back to Greenberg (1955, 1963a). Although Cohen (1947) had previously published a comparative vocabulary of 'Chamito-Semitic', Hausa was his only example of a Chadic language. Greenberg first mapped out Afroasiatic as we understand it today and phylum-level studies largely continue within the framework he established. From the point of view of intellectual history, greater credit should undoubtedly be given to Leo Reinisch, the great Austrian scholar of the languages of the Horn of Africa. Reinisch (1909) linked Cushitic and Chadic with Semitic and Egyptian,

[24] 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 rather suggests that Chinese should be classified with Bodic.

concluding on grounds of linguistic geography that Afroasiatic (*Chamitische* in his terminology) must have originated in Africa. Reinisch's conclusions are rarely cited and were probably so unwelcome in 1909 that they proved difficult to absorb.

Afroasiatic has been the subject of a number of overviews, beginning with Müller (1862). Historically, the most important of these have been Cohen (1947), Greenberg (1963a), Diakonoff (1965, 1988) and Hodge (1971, 1976). Hayward (2000) presents a more modern view, the first to give appropriate space to the Omotic languages of Ethiopia. Some indication of earlier priorities in the field can be gauged from the fact that in Hodge (1971), 40 pages are devoted to a single language, Egyptian/Coptic, and only 12 to the whole of Chadic. In the mid-1990s, two very different perspectives on the phylum were published, both accompanied by substantial bodies of data, Ehret (1995) and Orel & Stolbova (1995), comparative lexicons of Afroasiatic with proposals for sound correspondences. Strikingly, these voluminous studies propose very different internal structures for Afroasiatic and a list of protoforms at odds with one another.

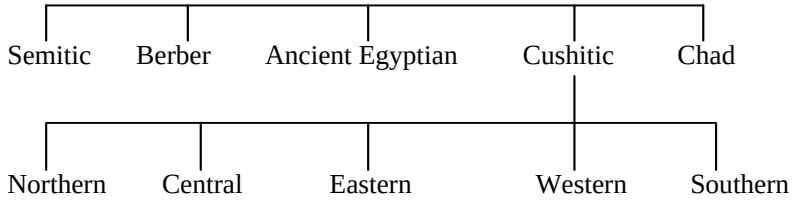
An aspect of Afroasiatic worth noting is the important role played by scholars whose focus has been text. Sacred texts of Judaism and Islam have disproportionately influenced the reconstruction of Afroasiatic. Interpretations have been, even more than usual, a mirror to the intellectual preoccupations of each scholarly generation. Ancient Egyptian has always been studied by Mediterranean-oriented scholars and this is reflected in interpretations of its sound-system. The undoubted African contribution has been largely ignored or implicitly denied. This has also influenced archaeological interpretation of the dispersal of Afroasiatic. Starting from a Semiticist perspective inevitably leads to the conclusion of a Near Eastern origin (e.g. Militarev 2003).

Developing a structure for Afroasiatic

Different models of the internal phylogeny of Afroasiatic

Earlier writers on Afroasiatic demarcated its branches but left it with no internal structure, a view replicated in Cohen (1947), Greenberg (1963a) and Orel & Stolbova (1995). Greenberg's classification broadly follows Cohen (1947) in allowing five co-ordinate branches, with Cushitic subdivided into five further co-ordinate branches (Figure 6.1);

Figure 6.1 The principal subdivisions of Afroasiatic in Greenberg (1963a)



Greenberg was the first to outline Chadic as a distinct language family, eliminating the typological elements that had confused Lukas' (1937) classification.

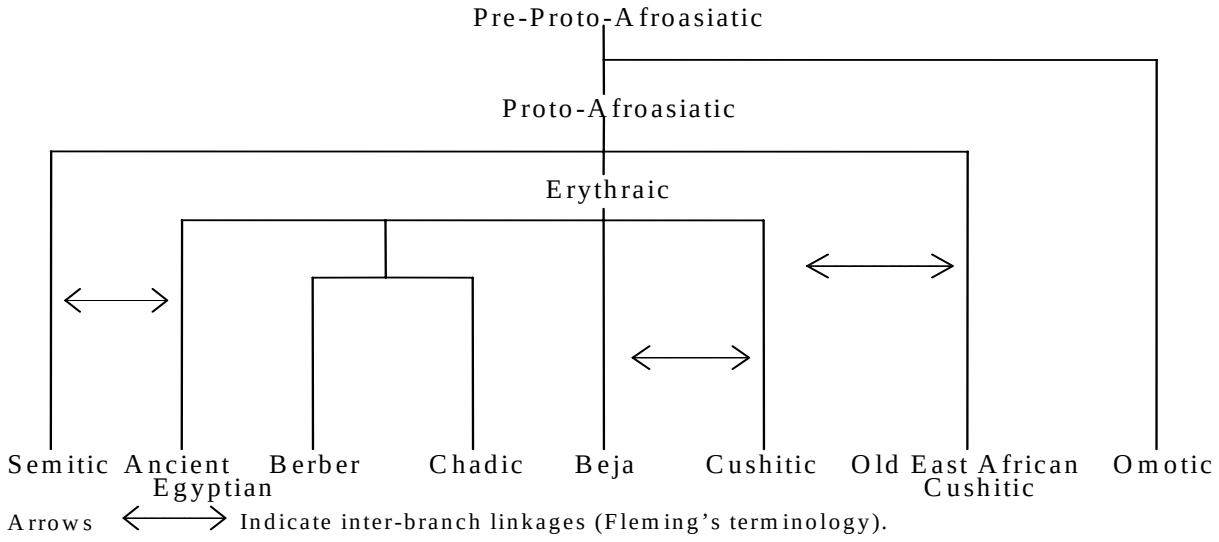
The most significant development since this period has been the recognition that Greenberg's 'Western Cushitic' is a distinct branch of Afroasiatic. To mark this separation, it was renamed Omotic (Bender 1975a). All significant scholars have now accepted the coherence of Omotic as a group and agree on its assignment to Afroasiatic. Researchers such as Lamberti (e.g. in Lamberti & Sottile 1997) would prefer to retain Omotic within Cushitic, but these are now in a minority. In the case of Cushitic, there has also been considerable discussion about whether its subdivisions really constitute a family and some schemes treat Beja [Northern], Ethiopian Cushitic [Agaw & Eastern] and Southern Cushitic as distinct branches. Ehret (1987) proposed 'Proto-Cushitic' forms making explicit the hypothesis that these branches were a unity. The position of two Cushitic languages remain uncertain. Dahalo, a language with clicks spoken in the interior of the northern Kenya coast was claimed by Ehret (1980) to be Southern Cushitic, but fuller data (Tosco 1991,

1992) have made this classification doubtful. At the same time, Yaaku (Greenberg 1963b; Heine 1975), a now extinct language of hunter-gatherers in northern Kenya, was formerly thought to be Eastern Cushitic but may also be an independent branch of Cushitic.

One of the most troubling aspects of Afroasiatic studies is the way that almost every author comes up with a different family tree, combining agreed subgroups in varied fashions. The preconceptions of long-established traditions of scholarship in Egypt and the Near East are responsible for disagreements that have significant consequences for our understanding of its history. Most scholars of Afroasiatic (Fleming 1983; Ehret 1995; Bender 2003b) have argued for a structure that places the origin of Afroasiatic within Africa, usually in the Horn of Africa, with Omotic considered the primary branching. However, a significant minority place Semitic in primary position and conclude that Afroasiatic must have originated in the Near East (e.g. Militarev 1990, 2003). Debates like this have a strong ideological flavour; the association of Semitic culture with 'high civilisation' frequently marginalises purely linguistic issues.

Internal structures for Afroasiatic are almost as numerous as the scholars who have considered the issue. One of the earliest attempts at deriving a tree for Afroasiatic based on lexicostatistics is Fleming (1983:22) (Figure 6.2);

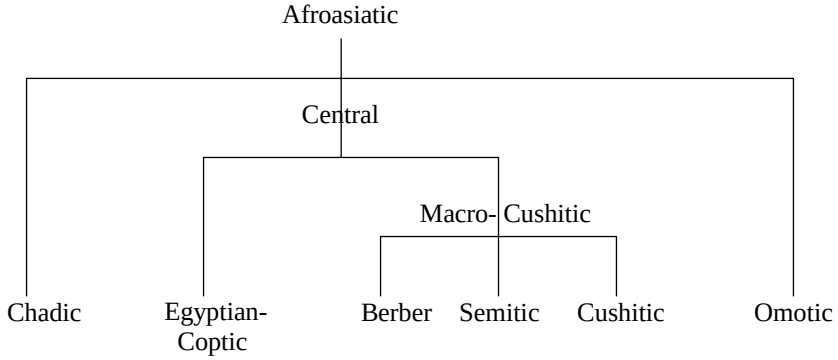
Figure 6.2 Fleming's Internal Classification of Afroasiatic (Fleming, 1983:22)



The most important features of this are the close alignment of Berber and Chadic, the establishment of Omotic as the earliest split, and the division of Cushitic into three distinct branches. The use of 'inter-branch linkage' to denote connections that are not really borne out by the figures but which seem intuitive, is a somewhat problematic piece of *bricolage*.

Never one to go with established doctrine, Bender (1997) has proposed a radically new structure for Afroasiatic ('upside-down Afrasian' in his terminology). His revised tree is as follows (Figure 6.3);

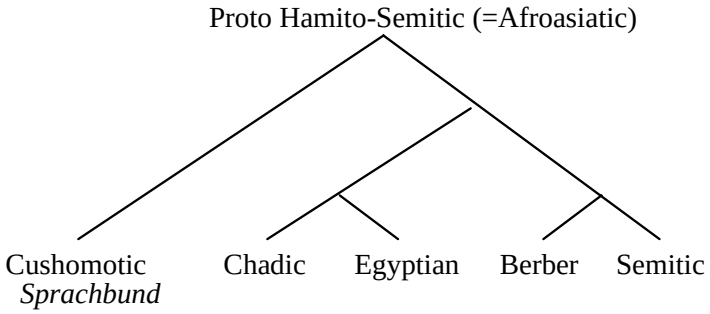
Figure 6.3 The internal structure of Afroasiatic according to Bender (1997)



The surprising features of this are that Omotic and Chadic are given equal status in terms of primary branching and that Egyptian is not linked to Berber and Semitic. 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 canvasses the possibility that Indo-European is 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.

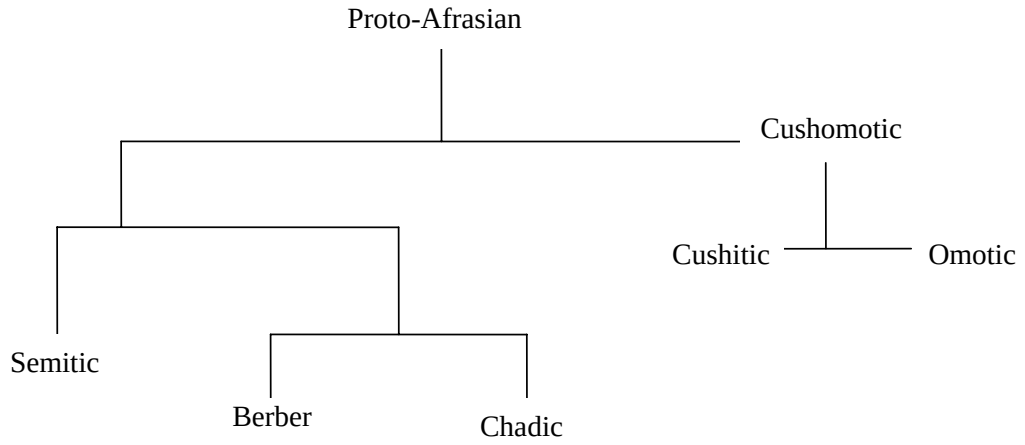
The view of the Hamito-Semitic establishment, exemplified in Diakonoff (1998) and Orel & Stolbova (1995), is that Chadic and Egyptian share a close relationship and that this was the primary engine of Afroasiatic expansion, with the Omotic and Cushitic languages somehow the product of mixing in Ethiopia. Usually these authors do not go into print with family trees, so Figure 6.4 represents graphically the implications of their text;

Figure 6.4 Internal Structure of Afroasiatic (after Orel p.c.)



Another entry in the Afroasiatic stakes is Militarev (2000:303), who bases his tree on a new paradigm of glottochronology proposed by Starostin, projecting rates of diversification based on the rate of change between Egyptian and Coptic. Militarev arrives at the following tree (Figure 6.5);

Figure 6.5 The internal structure of Afroasiatic according to Militarev (2000)



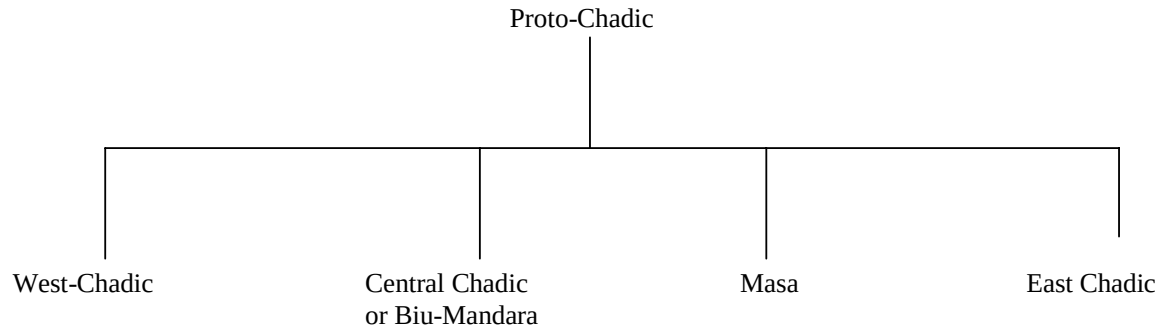
Militarev assigns the oldest data to Proto-Afroasiatic, ca. 12-11,000 BP, which fits with his assumption that the proto-language was spoken in the Middle East, and that its speakers were the Natufians.

Controversies

Chadic

Chadic languages are by far the most numerous of all Afroasiatic subgroups and also the least well-documented, with new and different languages still being recorded for the first time. The internal classification of Chadic remains controversial. Greenberg (1963a) left Chadic with nine rather ill-defined subgroups, but Newman and Ma (1966) reduced this to three major divisions, later expanded to four by separation of the Masa group (Newman 1977), an argument not accepted by all Chadic scholars (Tourneux 1990). 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 north-eastern languages such as Ngizim. Figure 6.5 shows a compromise tree, leaving Masa as a separate branch;

Figure 6.5 Divisions of Chadic



The diversity of Chadic is very perplexing and it is usually assumed it arises from intensive interaction with resident populations in many different areas. The expansion of Hausa, a somewhat atypical West Chadic language, has often confused analyses of the group as a whole (Schuh 1982).

Elamite

The Elamitic language was spoken in the region of modern-day south-western Iran from the 3rd millennium BC - 8th Century BC. It has resisted classification, in part because of the fragmentary nature of much of the epigraphy. McAlpin (1981) argued in a series of publications that Elamite should be classified with the Dravidian languages, spoken in South India, and the 'Elamo-Dravidian' phylum has entered many reference books. However, Václav Blažek (1999) has now argued in detail that Elamitic is not an outlier of Dravidian, but is instead related to Afroasiatic, either as a 'seventh' branch or as a co-ordinate phylum. Blažek proposes a structure where Afroasiatic is related to Dravidian at a higher level and Elamite forms a bridge between the two. Whether the apparent cognates between Elamite and Afroasiatic are indicative of a genetic relationship or simply a case of extensive loanwords remains to be explored. Although the case is not fully accepted, the arguments of Blažek are certainly strong enough to suggest that this hypothesis has to be taken seriously.

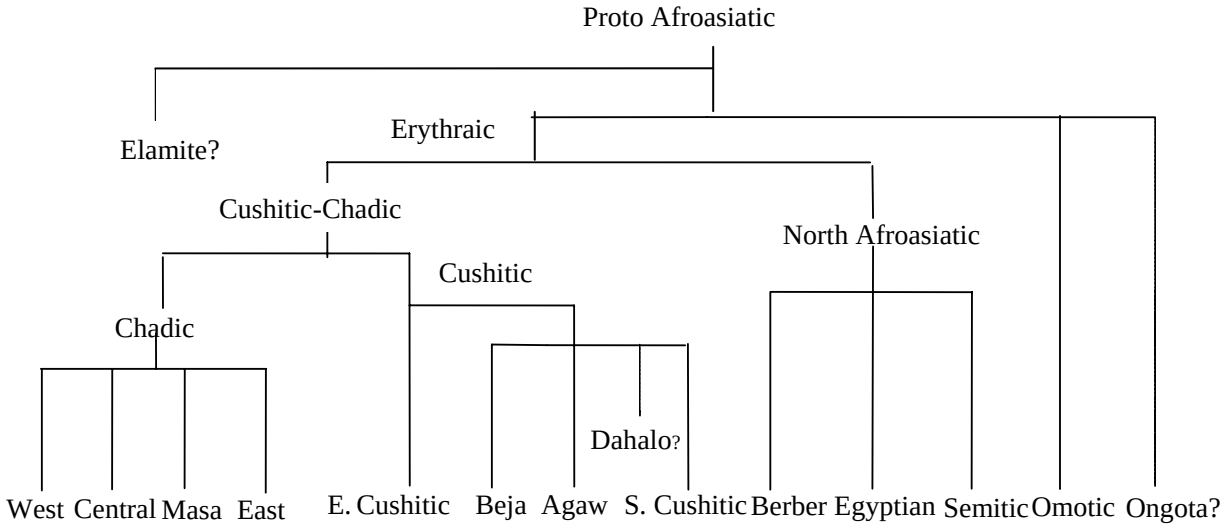
Ongota

The Ongota [=Birale] language is spoken by around six speakers in south-western Ethiopia. Some lexical and grammatical data on this language show links with neighbouring Cushitic languages such as Tsamay (Fleming *et al.* 1992; Kusia, Dinote & Siebert 1994; Fleming 2002). Fleming expresses the opinion that this will prove to be a separate branch of Afroasiatic, although no argument to this effect has been published. Ongota is therefore tentatively added to the Afroasiatic tree. The Ongota people seem to have been hunter-gatherers until recently and represent one of the residual peoples of Africa, like the Hadza or Laal. Further study of their vocabulary for hunting and resource exploitation would clearly be a high priority.

Synthesis

This diversity of opinion concerning the structure of Afroasiatic makes it difficult to establish a coherent parallel with archaeological results. Ehret (1995) has proposed a model of Afroasiatic which seems to chime with evidence from internal diversity of individual branches. Figure 6.6 shows a composite view of Afroasiatic using Ehret's 1995 structure and some of his proposed names for the nodes (e.g. North Afroasiatic and Erythraic), but incorporating my own views and some of the recent proposals made concerning Elamitic and Ongota.

Figure 6.6 Proposed Afroasiatic Classification



Ehret (p.c.) has recently expressed the view that Chadic and Berber are classified together which would be at variance with the tree presented here.

The reconstruction of Afroasiatic

The conflicting reconstructions of Afroasiatic as a whole are problematic but reconstructions of the main subgroups can be correlated with archaeology. Table 6.1 shows the principal reconstructions published for particular subgroups of Afroasiatic. The traditions of Afroasiatic studies lean more towards comparative lexicons than reconstructions proper, particularly in Semitic and Berber studies.

Table 6.1 Reconstructions of Afroasiatic subgroups

Group	Primary reference(s)	Additional reference(s)
Omotic	Bender (1975a, 1988, 1994, 2001, 2003a)	
Cushitic	Ehret (1987)	
Eastern Cushitic	Sasse (1979)	
Southern Cushitic	Ehret (1980)	Kießling (2002), Mous & Kießling (in press)
Agaw	Appleyard (ined.)	
Chadic	Newman & Newman (1966), Newman (1977)	Jungraithmayr & Ibriszimow (1995)
Semitic	Fronzaroli (1969)	Cohen (1994-1999), Militarev & Kogan (2000)
Berber	Kossmann (1999)	Nait-Zerrad (1998, 1999, 2002)

Not all of these reconstructions match one another. Ehret's (1987) reconstructions in his Cushitic study do not concur with Sasse and Afroasiatic reconstruction (Ehret 1995) quotes Chadic forms that do not match Newman (1977). It is noteworthy, given the volume of work on Semitic, that we still do not have a reliable reconstruction of the family, as opposed to comparative wordlists. The method of Cohen (1994-1999) is simply to gather together all Semitic forms with the same consonantal structure, virtually regardless of meaning. In some ways, this is a monument of scholarship but in terms of the history of Semitic, virtually useless, as it is clear that not all the forms are cognate. Indeed, the only studies that really proceed along the established lines of the comparative method are Kossmann (1999) and Kießling (2002), Mous & Kießling (in press).

Modeling the dispersal of Afroasiatic languages

Questioning the Near Eastern origin of Afroasiatic is almost a taboo subject among scholars with a Semitic or Egyptological background, but researchers based in the more diverse African branches concluded long ago that its most likely homeland was in Sub-Saharan Africa, more specifically in SW Ethiopia, the present location of its most fragmented branch, Omotic, and the 'centre of gravity' of Cushitic (e.g. Reinisch (1909); Ehret (1995); Bender (1997); Blench 1999b). The correlation with the Natufian culture of the Near East (Militarev 2000) fails the primary test of explaining the geography and internal diversity of African Afroasiatic. Although it is likely that many northern languages have been eliminated, it is still very hard to model the expansion of Afroasiatic on the assumption that it originated in the Near East. This would be structurally equivalent to assuming Austronesian originated in New Zealand or Niger-Congo in the rainforests of Central Africa.

For reasons given in §2., Afroasiatic should be several millennia older than its known written texts, thus 9-10,000 years BP. If the genetic tree of Afroasiatic is as in Figure 6.6, then some implications for the history of the speakers are apparent. Proto-Afroasiatic must have been spoken in Ethiopia, in approximately the same area where Omotic is spoken today. Omotic is highly internally diversified, and there is no hint that Omotic speakers have ever been located elsewhere than their present homeland. Once Omotic and perhaps

Ongota had split away, the primary division would then have been with the branch named here 'Erythraic' (i.e. Cushitic and Chadic) and North Afroasiatic, i.e. Berber, Egyptian and Semitic. Omotic would thus be a remnant of a highly diverse scatter of languages spoken by foragers, probably heavily dependent on the wild *enset* plant, as well as being honey-hunters, since 'honey' reconstructs well in Proto-North Omotic (Bender 1988).

A feature of Afroasiatic noted by various writers (e.g. Bender 1982; Bechhaus-Gerst 1991/2, 1996) is its rich vocabulary of domestic animal terminology, which reconstructs back at least to Proto-Cushitic. Omotic languages remain associated with populations that were hunter-gatherers until recently and one possibility is that the initial split between Cushitic and Omotic was between incipient pastoralists and groups retaining a hunter-gatherer lifestyle. There is some evidence for a similar split between the Khoe and the San in southern Africa, although of much more recent date (Boonzaier *et al.* 1996).

Once a nucleus was established, Cushitic languages would have spread extremely rapidly in all directions. There is evidence for Cushitic as a substrate in Bantu languages of East Africa in places other than the sites of the remaining Southern Cushitic languages (e.g. Ehret & Nurse 1981). Modern-day Southern Cushitic represents a tiny island of closely-related languages in a sea of Bantu farmers, but Cushitic languages were probably once spoken as far south as modern-day Zambia. They have been almost eliminated by the Bantu expansion and later the southward movement of Nilotic pastoralists. The Beja (Northern Cushitic in some terminologies) of the Red Sea coast of Sudan, spread northwards to their present location on the Red Sea coast, and perhaps as far as the Nile (Haaland 1996) but otherwise remained static. The ancestors of present-day East-Central Cushitic speakers were probably centred in their present-day location in west-central Ethiopia as they seem to have dispersed in every direction. Bechaus-Gerst (1984/5, 1996) has argued that languages related to Highland East Cushitic were once spoken on the Nile and Blench (1999d) that one group of these Nile Cushites migrated westwards to become the ancestors of the Chadic speakers.

It is very tempting to see the Proto-Cushites as pastoralists, since terms both for cow and small ruminants can be reconstructed to Proto-Cushitic (Ehret 1987). Table 6.2 shows the principal terms for 'cattle' in all four Cushitic subgroups, with a sample of languages cited in East Cushitic, which is the most diverse;

Table 6.2 Evidence for the reconstruction of 'cattle' in Proto-Cushitic

Subgroup	Language	Attestation and gloss
Beja	Beja	**rɛu** (cattle, property)
Agaw	Xamtanga	**ləwa**
East	Burji	**láli** (=cattle)
	Gawwada	**ló/-o**
	Afar	**laa**
	Aweer	**l'ói'**
	Borana	**loon**
	Konso	**low-aa**
South	Iraqw	**ɬee**

Omotic terms for cattle are not cognate with Cushitic and the South and North Omotic terms are not cognate with one another. This indicates that cattle were introduced well after the break-up of Proto-Omotic. Bender (1988:129) has considered the evidence for the subsistence patterns of Proto-Omotic speakers. He concludes that they knew the dog and the donkey [probably the wild ass] and the cereal *ṭef*. Apart from the dog, these other items would have been part of the indigenous fauna and flora. Hence there is no evidence that Proto-Omotic speakers were agriculturalists -indeed it would be surprising if they were, given the internal diversification of Omotic.

The archaeological evidence for early cattle on the Ethiopian Plateau is problematic and disputed (Barnett 1999: Table 3.6) and no date earlier than 3500 BP is accepted. However, Egyptian iconography seems to suggest far earlier dates; Breasted (1906:305) observes that the Egyptians were importing humpless short-horned cattle from the 'Land of Punt' (usually identified with Ethiopia) in the middle of the 4th millennium

BC (Barnett 1999: Fig. 3.7, illustrating the temple relief at Deir el Bahari showing these cattle). Older records of cattle in Ethiopia will almost certainly be uncovered. It is also possible that the centre of Cushitic is north or west of the Ethiopian Plateau proper; there are solid records of cattle in the Middle Nile valley around 6000 BP (Barnett 1999: Table 3.6). The situation is somewhat similar with ovicaprids; the oldest osteological evidence is ca. 2500 BP (Dombrowski 1971) but rock-paintings are likely to be earlier, while Hellenistic records suggest that Ethiopian sheep were extensively traded by the period of Alexander.

The Southern Cushites pose something of a problem. The membership of Southern Cushitic is disputed; Ehret's (1980) original proposal includes Dahalo, Ma'a (=Mbugu), Asax, Qwadza with more well-known languages such as Iraqw and Burunge. However, doubts about Dahalo (Ehret *et al.* 1989; Tosco 1992) and Ma'a (Mous 2001, 2004) have crept in and it seems that no more speakers of Qwadza and Asax exist[25], making further analysis problematic. Mous & Kießling (in press) have recently published a definitive reconstruction of extant Southern Cushitic. These languages are however, extremely close to one another and do not suggest the great antiquity that this version of Afroasiatic history would predict. Southern Cushitic was presumably once much more complex and widespread; indeed it would be attractive to identify it with the Pastoral Neolithic of Kenya (Robertshaw 1990) although the dates for the sites described are somewhat young, 2500 and 2000 BP. Barthelme's (1977, 1984, 1985) excavations near Lake Turkana suggest that pastoral peoples with cattle and small ruminants occupied the region from 4500-4000 BP, which concurs better with the model outlined here. Barthelme (1985) also raises the possibility of either mixed systems of fishing and herding, such as Nilotes like the Dinka practise today, or ethnic stratification where fishing peoples were distinct from herders. It is therefore likely that what survives today is a very recent expansion of just one small subset of a much larger and more ramified subgroup of Cushitic.

The Agaw, or Central Cushitic languages, spoken in northwest Ethiopia, are also very close to one another, and yet they are very distinct from their nearest neighbours, the Eastern Cushitic languages (Appleyard 1984). Similarly, they must once have been members of a much larger and more complex grouping, and were probably once also more widespread. The other languages would have been assimilated, with the ancestor of modern Agaw undergoing late secondary expansion. Comparative data on the Agaw languages show that the main livestock species and cereal crops all reconstruct to Proto-Agaw, which is not very informative in understanding the original split from Cushitic, since this must have occurred in the pre- or proto-agriculture period.

An intriguing aspect of the Agaw languages is the partial conversion of their speakers to Judaism in some unknown past era. The Falasha are well-known and their Orthodox Judaism permitted their movement to Israel as part of the return of the diaspora; their language, however, has almost entirely been replaced. The Qemant, often described as 'Pagan-Hebraic' seem to have absorbed elements of Jewish identity and then lost the thread again, developing a mixed religion with Hebraic elements combined with indigenous motifs. Sadly, the Qemant language (Kemantney) has almost disappeared, replaced by Amharic, just as the priests of the old religion are also no longer passing on their distinctive rituals (Leyew 2003).

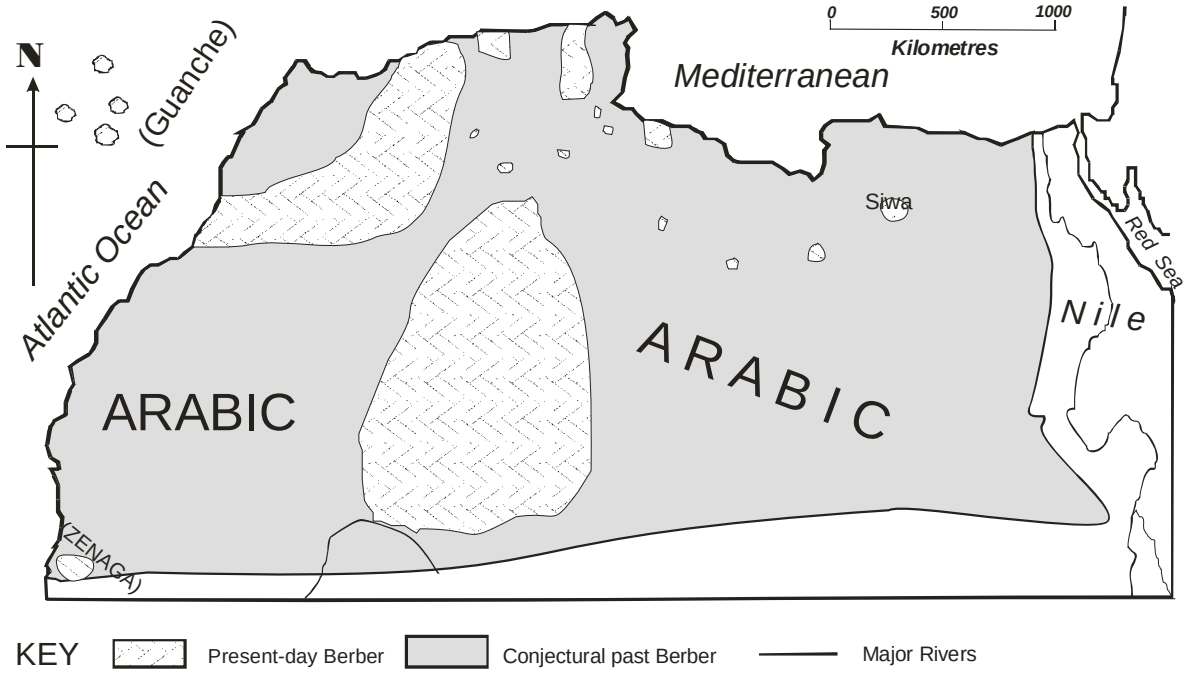
As Proto-Erythraic broke up, the Cushitic-Chadic speakers remained *in situ*, while North Afroasiatic moved northward out of Ethiopia to become the language ancestral to Berber, Egyptian and Semitic. This would have presumably also followed either the Nile or the Red Sea Coast route. Since Berber, Egyptian and Semitic appear to be co-ordinate branches, it is hard to establish exactly the sequence of events at this point. It is possible that the Old Semitic languages of South Arabia, such as Sabaean, represent an early spread eastwards and that Semitic spread northwards through Arabia to the Near East. Similarly with Berber, Semitic may have developed simply as a eastern offshoot of Egyptian or as an independent movement from the Nile. However, to account for roots common to Berber, Egyptian and Semitic, it is necessary to posit a unified nuclear population somewhere in the region between the Red Sea and the Nile. Given the broader date of 10,000 BP for the initial split between Cushitic and Omotic, and working backwards from the earliest attested textual material, a date for this grouping might be 7500 BP. The earliest written record of a Semitic language, Akkadian, is 2800 BC (in Sumerian texts, 2500 BC in full Akkadian text documents). A roughly

[25] Maarten Mous (p.c.) made a concerted search for speakers in the 1990s with no result.

similar date is given for predynastic Egypt, although hieroglyph-like signs appear as far back as 5000 BC. At this point, the main subsistence strategy of such a group would have been pastoralism, probably as much the management of wild cattle and donkeys as active pastoralism. The ancestors of the Egyptians would then have assimilated the low-density fishing populations along the Nile and become a specialised fishing-people. A simplistic, but not inconceivable, model is that the Berbers are pastoralists who colonised the west bank of the Nile and Semitic speakers remained on the east bank. Livestock domestication became more sophisticated, purposive, enabling greater mobility over time and eventually permitted the colonisation of much of the Middle East and Arabia.

The Berber languages represent an extremely far-flung group, from a remote isolated group in Mauritania, the Zenaga, to Siwa Oasis in Egypt. It is generally accepted that the languages of the Canaries, collectively known as Guanche, were Berber, but these became extinct before they could be recorded by professional linguists (Wölfel 1965). Recent work on the genetics of former Guanche populations suggests that the Guanche represent an early migration of Berber populations, while those remaining on the mainland have undergone substantial reshaping (Maca-Meyer *et al.* 2004). There is also loanword evidence for Berber contact with languages spoken at the Nile Confluence (Behrens 1985, 1989; Bechhaus-Gerst 1984/5, 1989). Map 6.2 shows the distribution of Berber languages today and their conjectural past distribution (Blench 2001a).

Map 6.2 Berber: present-day and conjectural past distribution



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The present-day enclaving of Berber is very much a function of the spread of Arabic since the seventh century. Although Berber would have interacted both with the Semitic languages spoken in the Maghreb, such as Punic, and later with Latin[26], these never became so widespread as to drive Berber from much of its range. The disappearance of Berber-speakers from the Nile Confluence region is less easy to interpret; but whether Berber presence there was ever other than an wandering group is unclear. Whether other languages were spoken in the Saharan/Maghreb region prior to Berber is not easy to answer. The Garamantes, whose empire in the Libyan Fezzan was overthrown by the Romans, wrote in a Libyan script, although we have no evidence they spoke Berber[27]. What they did speak is open to conjecture; the most likely hypothesis is a

[26] There are a number of loans between Latin and Berber, including Berber *giṭṭus* into Latin *cattus*, 'cat' and Latin *carta* into Berber *tkardat*, 'paper'.

[27] I owe this information to Giorgio Banti and Salvia di Lernia, since texts on the Garamantes generally

Nilo-Saharan language, related either to Songhay or to Teda, the present-day language of the Tibesti. It has been suggested that the Basque-Tartessian languages spread down from Iberia across the Straits of Gibraltar. Although there are few links between Basque and mainland Berber today, Wölfel (1965) noted a number of Basque cognates in Guanche, pointing to a period of contact between a Basquic-speaking people and the Berber groups who settled the Canaries.

There are references in Egyptian records to pastoralists in the deserts west of the Nile Valley. Ramses III defeated a Libyan tribe called the I-S-B-T-U, usually identified with the Asbytes of Herodotos. The 'Tehenu' appear in Vth Dynasty sources (3200 BC) as livestock keepers of the Western Desert and later numerous other tribes are mentioned (Vernet and Onrubia-Pintado 1994:56). Herodotos (ca. 440 BC) names some seven tribes, living along the North African littoral, giving them ever more fantastic attributes as they are further from Egypt. Vernet and Onrubia-Pintado (1994:61) present a map of ancient names for North African peoples and speculate on their modern counterparts. The cultural diversity Herodotos describes implies a greater linguistic diversity than exists among Berbers today.

The term 'Capsian' in Maghrebin research applies to the Palaeolithic populations who reached this region from 10,000 BP onwards while 'Capsian Neolithic' refers to livestock producers whose traces appear in sites in North Africa and the Sahara from about 6500 BP onwards (Camps 1974, 1980; Camps-Fabrer 1989). Confusingly, the term 'Neolithic' is also used for any sites where pottery is found, and since some of these are very early in the Sahara (>9000 bp) such 'Neolithic' cultures have neither agriculture nor domestic animals. The linguistic evidence suggests that the Berbers were a close-knit livestock-producing ethnolinguistic group with a similar lexicon across their entire range (Blench 2001a). However, it would be unusual for a people that dispersed as long as 7000 years ago to retain such homogenous vocabulary. Bantu and Polynesian, respectively ca. 4000 and 3500 years old, show much greater internal diversity than Berber. Such linguistic homogeneity could therefore only be the result of a constant pattern of migration, back migration and relexification from already closely related languages. A feature of Berber does suggest that this might indeed have been the case. An aspect of Australian languages that has perplexed scholars is the difficulty of finding isoglosses or sound-shifts with sufficient common geography to define groups of languages or lects. This led Dixon (1997) to argue that Australian languages have reached an 'equilibrium' state. Dixon's generalisation of this argument to other language phyla has been much criticised, but it would seem to apply to Berber. Almost every linguistic feature of Berber seems to have its own distribution and Basset (1936, 1939) who prepared maps of isoglosses comments that they almost never overlap. The alternative is to assume Berber reflects more recent archaeological culture and align the Capsian Neolithic with a wholly different population. No plausible suggestion of this type has been made and the equation, Berber = Capsian Neolithic, remains alluring.

The interpretation of Semitic is also problematic. All the main epigraphic languages, Eblaitic, Akkadian, Assyrian are very similar to one another. The greatest diversity within Semitic is among the Gurage languages, spoken in SW Ethiopia. Although the assumption is that the Ethio-Semitic languages form a single group, the relative uniformity of Amharic, Tigrinya and others, in contrast to the variety of Gurage is quite surprising. It may be that the Gurage languages have a different origin, either that they are a core Semitic group that stayed behind after the break-up of North Afroasiatic or they represent an earlier and different migration from Arabia. Features that the Gurage languages have in common with the Amharic group would thus be the result of long interaction. Recent archaeological evidence suggests there was substantial traffic across the Red Sea for millennia and there is no need to posit single migrations to explain the distribution of Semitic (Brandt p.c.). The survival of epigraphic languages can be misleading; Semitic in the Near East was probably once more diverse, with many languages never written and subsequently eliminated by the spread of Arabic. Some of that diversity is attested in the records of Sabaean, the epigraphic languages of Yemen (Beeston *et al.* 1982) and the South Semitic languages spoken all along the south coast of the Arabian peninsula and of Socotra (Johnstone 1977, 1981, 1987).

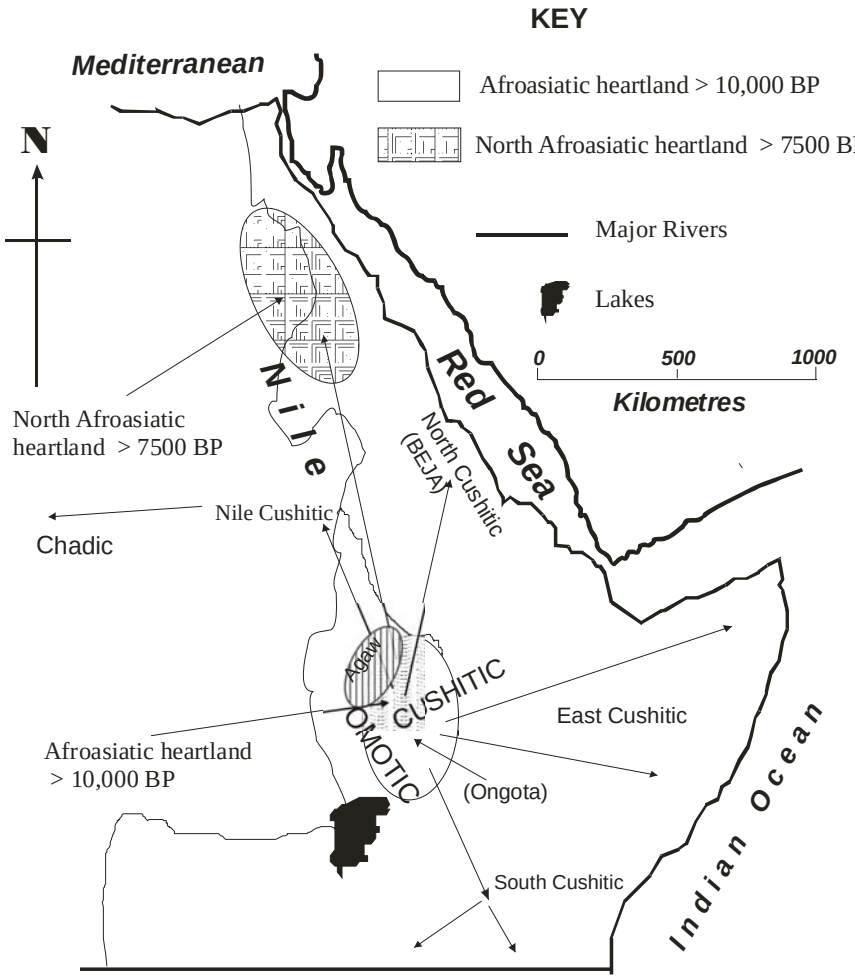
assert they left no written records.

It is usually claimed that the Ethiosemitic languages arose from migrations across the Red Sea and this seems likely, although formal proof is hard to come by. Bender (1970) suggested that the South Arabian languages share a number of innovations with Ethiosemitic. There are also significant bodies of oral tradition; the story of King Solomon and the Queen of Sheba [from Yemen] is virtually an Ethiopian national myth and artefacts in Axum have South Arabian inscriptions. South Semitic migrations across the Red Sea may not have been uniform, hence the diversity of Ethiosemitic. The impact of the expansions of the Ethiosemitic speakers seems to have been of considerable cultural importance; they probably introduceda more developed agriculture based on cereal seeds and perhaps the typical Ethiopian plough, the *maresha*, although it is possible that that resident Cushites had some type of plough based on Egyptian models (Simoons 1965).

Finally, the question of the uniformity of Egyptian remains. Essentially, Egyptian is one language and although some minor evidence for dialects exists, it is hardly the diversity that might be expected. Egyptian changes over time and eventually becomes Coptic, the now purely ritual language of the Coptic church. The assumption is that there must have been a variety of Egyptic and Nilo-Saharan languages spoken by fishing populations along the Nile prior to the rise of the Dynastic Kingdoms, but that these were rapidly eliminated as political power was consolidated. A parallel process would be the elimination of linguistic diversity in the Italian peninsula by Latin with the rise of the Roman Empire. Italic languages were originally quite diverse and were interspersed with unrelated languages such as Etruscan. Latin assimilated or eliminated much of this diversity although Italian dialects probably preserve some features of this original pattern.

In the light of this, Map 6.3 and Map 6.4 present a model in two phases to explain the distribution of Afroasiatic languages prior to the expansion of Arabic from the seventh century onwards. Map 6.3 shows the heartland of Afroasiatic in SW Ethiopia, and primary split between Omotic and Cushitic, with Cushitic dispersing in several directions. Exactly where Elamitic originates remains is doubtful and its place in Afroasiatic uncertain so it is ignored for the purposes of this model. There was a movement of Cushitic speakers towards the Nile Confluence, where no Cushitic languages are spoken today. If it is correct that Chadic and Cushitic are closely related, then the Nile Cushites would have spread westward towards Lake Chad. Meanwhile, another product of the break-up of Cushitic, North Afroasiatic, formed north of Ethiopia and began moving northwards into the Nile Basin proper. North Afroasiatic speakers were desert-oriented pastoral peoples, managing wild cattle and donkeys, who were attracted to the grazing in riverine areas.

Map 6.3 The first phase of the expansion of Afroasiatic



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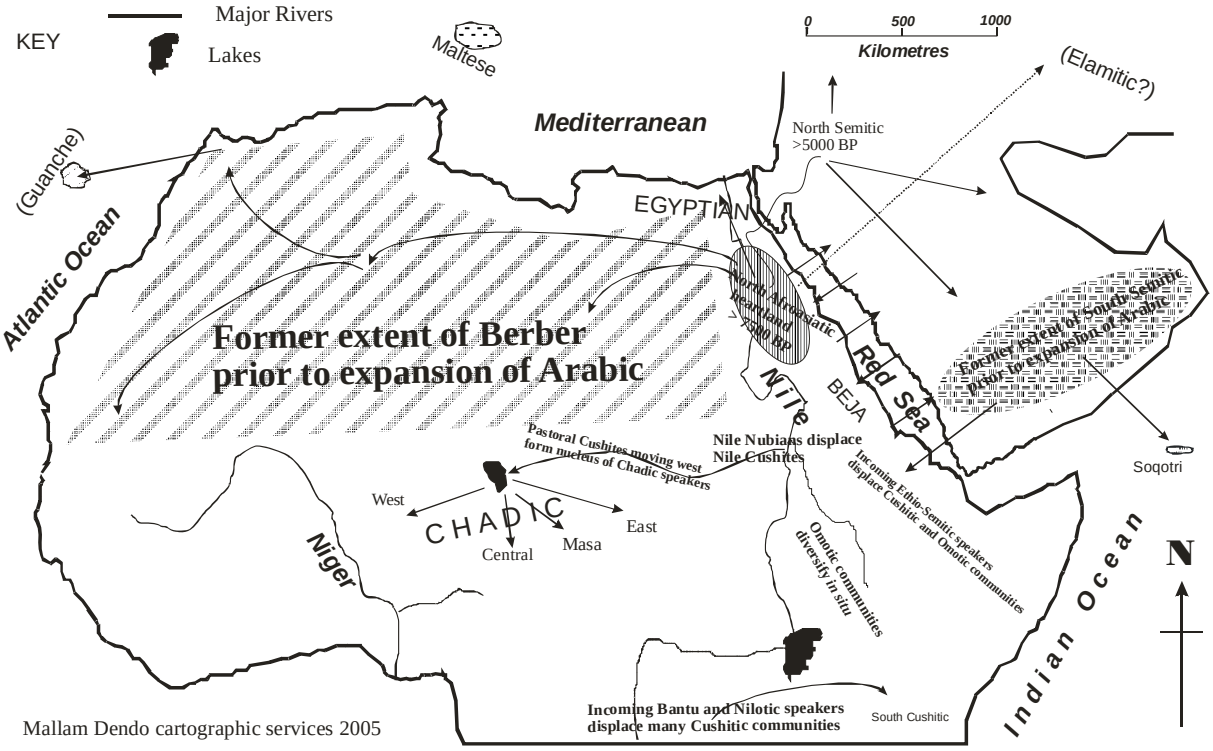
Map 6.4 illustrates the second phase of Afroasiatic expansion. North Afroasiatic splits up by >7000 BP. The Berber peoples disperse westwards into the desert, the Egyptians consolidate their occupation of the Nile Valley, and the speakers of Proto-Semitic cross into the Near East, where the terrain is occupied by Sumerian and its relatives, South Caucasian and Indo-European languages. Possibly the ancestors of the Elamites move northeast towards Iran. Exactly who the inhabitants of the Arabian peninsula were at this period is unclear, but the Semitic speakers turn back south or cross the Red Sea directly and eventually occupy the whole area, effectively assimilating any previous ethnolinguistic communities. They then turn westward to Ethiopia, displacing the resident Cushitic and Omotic speakers in many areas. Chadic speakers arrive at Lake Chad and then scatter in every direction around the Lake. Nubians from Kordofan move eastward towards the Nile and displace or assimilate the resident Cushitic populations. Further south, the continuous zone of Cushitic speakers is fragmented by the eastwards migration of Bantu farmers emerging from the equatorial forest and the subsequent southwards movement of Nilotic agropastoralists.

Map 6.4 The second phase of Afroasiatic expansion



Of all these proposals, the most controversial is what may be called the 'Inter-Saharan Hypothesis'. Blench (1999d), in a study of Cushitic and Chadic livestock terminology, has shown specific links between the two that are not part of common Afroasiatic. The proposal is that this resulted from a westward migration of pastoralist Cushitic speakers. That such a continent-wide migration could occur is suggested by the example of the Fulɓe pastoralists who have expanded eastwards from Senegambia to the borders of Sudan during the last millennium. The animals accompanying this migration of Cushitic speakers would have been three species of ruminant; cattle, goats and sheep. More controversially, donkeys, dogs and guinea-fowl may have been associated with this movement, although perhaps not kept as pastoral species. This corridor is today inhabited by Nilo-Saharan speakers and was also presumably in the past. If such a migration took place, then there should be scattered loaned livestock terms in Nilo-Saharan languages all the way between the Nile and Lake Chad. Table 6.3 shows the example of the word *#ɬa* for 'cow, cattle' which is reconstructible for Erythraic and is loaned into Nilo-Saharan. West and Central Chadic attest a form something like *ɬa-* with likely cognates in East Chadic (Jungraithmayr & Ibriszimow 1995, I:43). Southern Cushitic also has a voiceless lateral, *#ɬ-*, in the same C_1 slot (Ehret 1987:80).

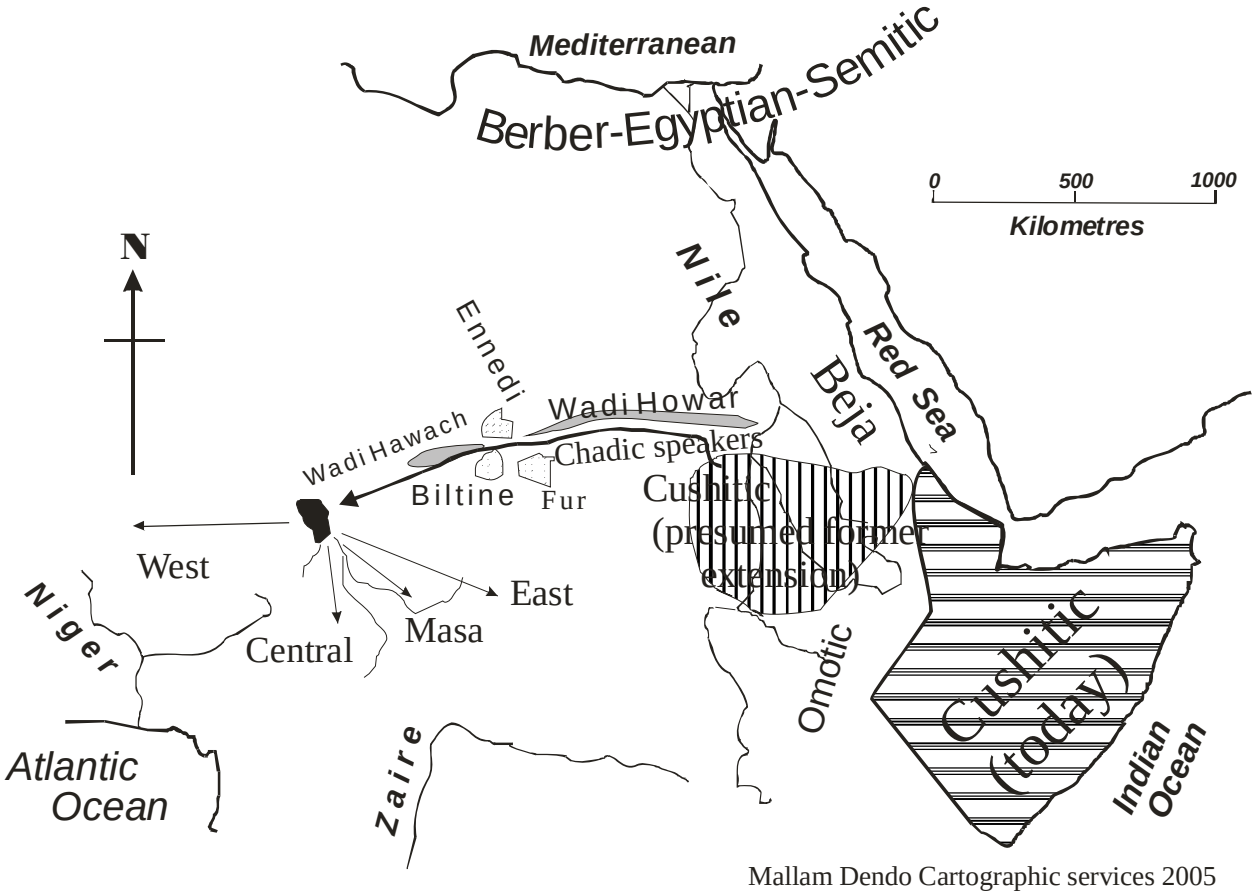
Table 6.3 The root *#ɬa* cow, cattle in Afroasiatic and Nilo-Saharan

Phylum	Family	Branch	Language	Attestation	Gloss
Afroasiatic	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, luu	wild bull, bull
			Arabic	la'an	bull
			Jibbāli (=Shahri)	lé'/lhóti	cow
Nilo-Saharan	Kuliak		Ik	ɬɔ	cow

The same form also shows up in Ik, a Nilo-Saharan language, also with a lateral fricative, which is atypical for Nilo-Saharan and is almost certainly an old loanword. Error! Reference source not found. shows the Chadic and Cushitic root for 'donkey', also borrowed into Nilo-Saharan.

There is an archaeological correlation that might allow us to date this westward movement of Cushitic pastoralists (Blench 1999d). The *Leiterband* pottery tradition identified in the Eastern Sahara is found along the Wadi Howar, a now dry river system that stretches over 1000 km between Eastern Chad and the Nile Valley (Keding 1997, 1998, 2002). *Leiterband* traditions have yet to be convincingly dated directly, but if the chronological sequence linking it with the Khartoum Neolithic is correct, then it would begin to develop approximately 5-4000 BP, which would be plausible given the diversity of Chadic today[28]. Map 6.5 shows the Inter-Saharan hypothesis as well as the probable location of the extension of Cushitic south of the Nile Confluence.

Map 6.5 The inter-Saharan hypothesis for the early expansion of Chadic speakers



Mallam Dendo Cartographic services 2005

The history of Afroasiatic has always been contentious and I do not expect this account to be any less so. But if we clear away the accumulated mental detritus that has resulte from a focus on written languages, this Africa-centred model, despite its many uncertainties, explains what are otherwise problematic features of the Near East-based models. In particular;

a) Afroasiatic is principally an African language phylum with relatively minor extensions in the Near East, a fact which has been obscured by the importance attached to particular languages for non-linguistic reasons.
b) The main groupings of Afroasiatic were in place before the inception of agriculture (in the sense of cultivation) although it appears that pastoralism may have been an important stimulus to its spread.

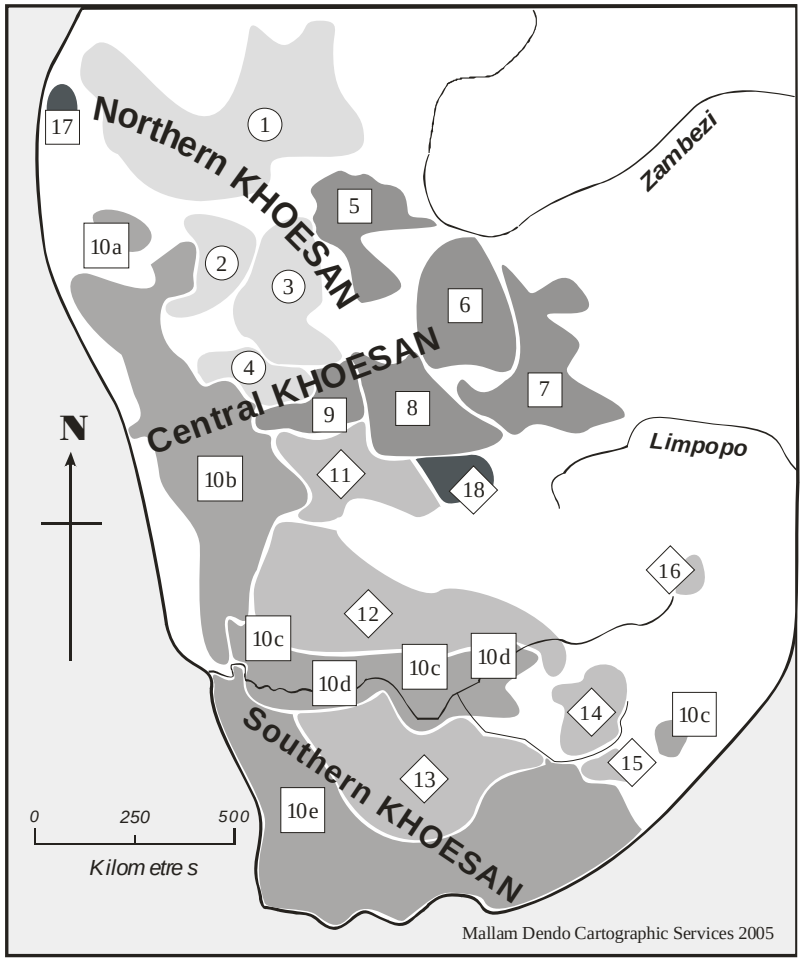
[28] Dimmendaal (2004) has, however, argued that the Wada Hawar traditions are associated with the expansion of Eastern Sudanic.

c) The significance of inter-African, i.e. east to west expansion, and diffusion has been underplayed by an implicit tendency to characterise migrations as being from the more well-documented North Africa/Near East.

7. KHOESAN

The Khoesan [= Khoisan] languages are easily the most problematic phylum in Africa, primarily because it is uncertain whether they genuinely constitute a genetic grouping. The languages themselves are spoken by small scattered populations in south-western Africa and they are under threat from their dominant neighbours. We know of the existence of some 100 Khoesan languages from records, yet only 30 are spoken today (Güldemann & Voßen 2000:99). Map [29] is a composite, showing the distribution of all Khoesan languages spoken either in the present or recent past and their approximate extent. Many of these languages now have very few speakers, scattered among the migrant Bantu and white populations of Southern Africa, but a map that represented this situation would be difficult to interpret.

Map 7.1 Historical distribution of Khoesan languages



[29] I am grateful to Klaus Keuthmann who drew the original of this map with captions in German. I have changed the key and also restructured the classification of the languages.

Key

Northern-Khoesan

1 !'O-!XŨ ("Northern-!Khung")
- Southern-Angola

2 !XŨ ("Western-!Khung")
- Nord-Namibia, West of Omuramba Omatako

3 ŽU-|HÕA ("Eastern-!Khung")
- Northern frontier between Namibia and Botswana

4 ||X'AU-||'E ("West-!Khung")
- Epukiro- and Ghanzi-Region, Namibia and Botswana

Central-Khoesan

5 KXOE
- Luyana-Region in S. E. Angola, Caprivi in N.E. Namibia and Okavango-Delta, Northern Botswana

6 SHUA
- Chobe Region, N.E. Botswana

7 TSHWA
- Makgadikgadi-Region, Eastern Botswana, and Wankie-Region, Western Zimbabwe

8 ||ANA
- Central-Kalahari, Botswana

9 NARO
- Ghanzi-Region, West-Botswana

10 KHOE-KHOE

a *Hai-||'om* — Etosha, Northern Namibia

b *Nama* — All of Namibia, part also in West Botswana

c *Gri(qua), Xiri* — Orange River, Namibia, Griqualand West and Natal in South Africa

d *!Ora (!Kora[na])* — Orange, Transvaal, northern Cape Provinces, South Africa

e *(Kap-)Khoe-Khoe* — Cape Province, S. Africa

Southern Khoisan

11 !XÕ
- Southern Kalahari, Botswana

12 |'AUNI
- Southern Kalahari, frontier between Namibia, Botswana and S. Africa; Midway between Orange and Vaal Rivers in South Africa

13 |XAM
- Cape Province, South Africa

14 SEROA
- Maluti mts, Lesotho and S. Africa

15 !Ã-!NE
- Transkei, S. Africa

16 ||XEGWI
- Chrissiemeer, Transvaal, South Africa

Isolates

17 KWADI (Kwepe, "Coroca")
- Moçâmedes, Southwest Angola

18 ǂHUÃ ("ǂHoang")
- Southern Kalahari, Botswana

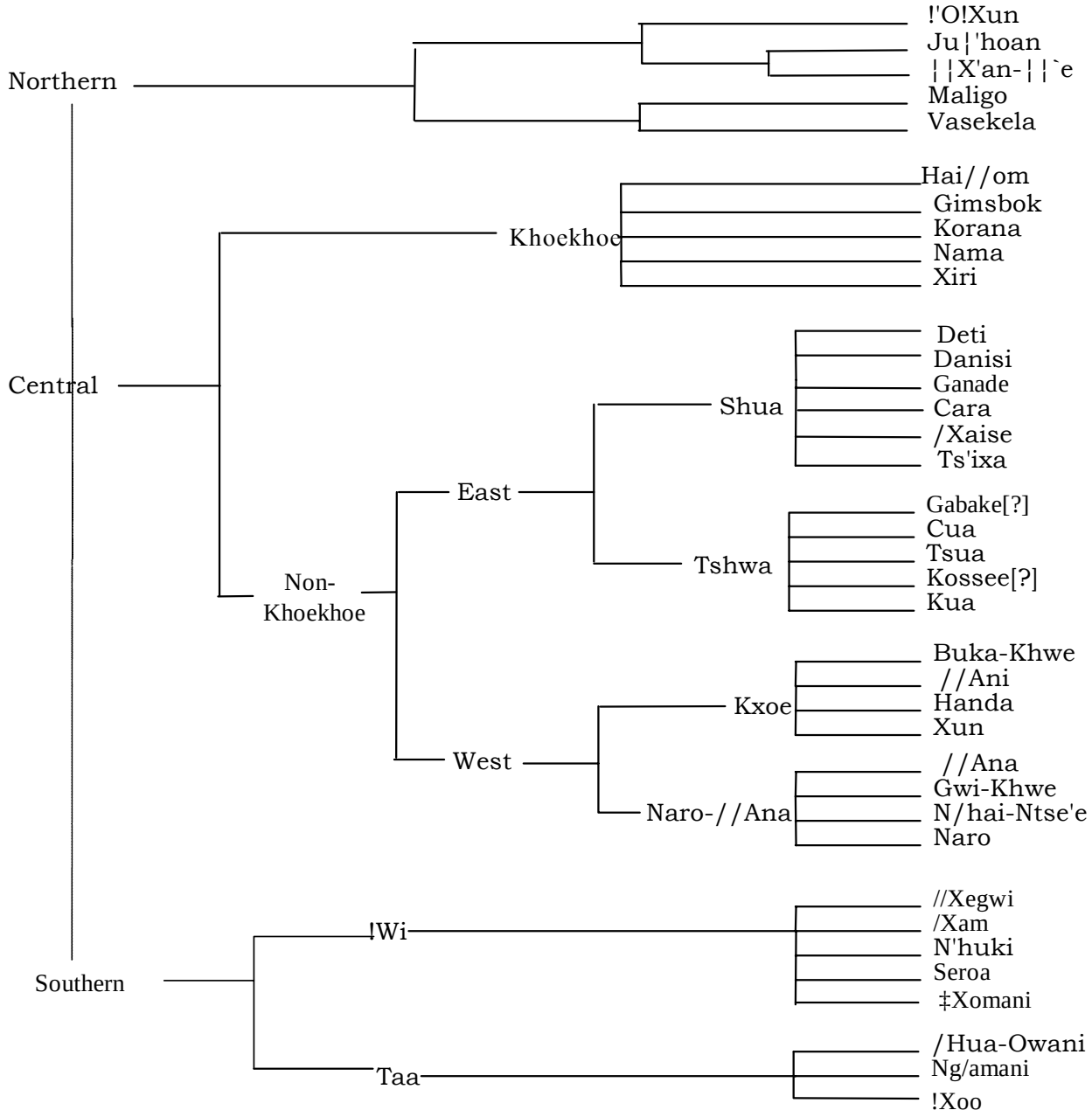
The Khoesan or 'click' languages in Eastern and Southern Africa are similar to the languages of Australia, in that they are defined by shared phonological and morphological features rather than by an evident common lexicon. Khoesan as presently understood was probably first outlined by Bleek (1947) in her 'Bushman Dictionary' but Greenberg is given credit for the 'Click' language grouping, later renamed macro-Khoisan (Greenberg 1955, 1963a). This was the grouping in a single phylum of all the African languages with 'click' sounds and not otherwise classified, i.e. excluding Southern African Bantu and Dahalo. This joined Hadza and Sandawe in Tanzania with the Khoesan languages of Southern Africa. The link with Sandawe and Hadza is supported by Ehret (1986) but questioned by other Khoesanists (e.g. Elderkin 1983 for Sandawe; Elderkin 1982, Sands 1998 for Hadza). Sands' (1998, in press) study of Khoesan relationships has shown that especially in the case of Hadza most of the lexical arguments advanced to support of its affiliation rest on very doubtful correspondences or erroneous lexical citations. The language of the Kwadi in Southern Angola is known only from some field notes left by Westphal, and it is doubtful whether any Kwadi speakers exist today. The Kwadi are pictured in Estermann (1976) and they are visibly not of Khoesan physical type. However, Kwadi *was* a click language with no obvious links to other click languages, somewhat like Hadza. Kwadi data is being edited for publication (Güldemann p.c.), which may make its position clearer. Data exists for Eastern ǂHõã, but this language also remains to be convincingly classified (Collins 1998).

Arguments for the links between all the Khoesan languages have been advanced by various authors, but no one schema is generally accepted. Westphal (1962) was a strong advocate of the view that even the Khoesan languages of Southern Africa did not all fall into a single phylum and that the Eastern African click languages were certainly distinct. Most recent classifications follow the extended study of Köhler (1981) who proposed a series of isoglosses linking the major Khoesan families. Traill (1986) put forward further isoglosses linking Khoe and San, while warning that until our understanding of the process of lexical diffusion improves, guaranteeing that these are proof of genetic relationship would be difficult. Central Khoesan is the most well substantiated branch, with a significant number of reconstructions (Voßen 1996, 1998).

A distinctive aspect of Khoesan are its sex/gender systems, also found in Hadza and Sandawe. The resemblance of these Afroasiatic has caused some scholars to speculate that there was an ancient historical connection between the two phyla. There is also some phonological overlap, especially between Southern Cushitic and Tanzanian click languages. No more concrete argument has yet been made and the similarities could be merely typological. As with so many speculations, this awaits more detailed research.

Needless to say, the internal classification of Khoesan speech-forms remains controversial. Figure 7.1 shows a composite tree derived from Grimes (2000) corrected in consultation with Rainer Voßen (and compared with Güldemann & Voßen 2000). However, this represents something of a compromise, since it does not eliminate the lects mentioned in Grimes and Grimes that could not be reconciled with other known speech-forms[30].

Figure 7.1 Classification of the Khoesan languages



RV/RMB August 2004

The Central group of Khoesan languages form a relatively coherent group whose unity is not disputed, but the exact relationship of Northern and Southern languages (some of which are poorly documented) with Central remains controversial. The pattern of Khoesan is therefore a very high level of diversity, to a degree

[30] In addition, the representation of clicks is not as accurate as it might be, due to limitations in the drawing programme.

such that, despite common phonological features, it has no unity comparable to the other African phyla. The clicks, however, do seem to indicate the existence of deep-level areal features; since clicks are found nowhere else in the world, this is not a typological or accidental similarity. So it is reasonable to assume that the whole region from the Cape to the borders of Somalia was once occupied by speakers of click languages, although these probably fell into many phyla. The southward expansion of Cushitic first eliminated or scattered these languages, although the later spread of Bantu farmers was probably still more devastating. What remains of Khoesan can only hint at the complexity that must once have obtained over this vast region. This scenario finds some confirmation in the genetics literature. When Chen *et al.* (2000) compared !Kung and Khwe populations with pygmies and other African populations, they found that the Khwe (who have a Bantu appearance) tended to pattern with general African populations, whereas the !Kung were very distinct.

A major question is then; are the Khoesan languages the modern descendants of those spoken by early modern humans, usually considered to have evolved in this region? In recent years, finds from Southern and Eastern Africa have begun to underpin notions about the elaboration of the culture of modern humans. We have, for example, harpoon points from 75 kya from Semliki (DRC), bone needles and projectile points from the MSA (ca. 70 kya) at Blombos (Henshilwood & Sealy 1997; Henshilwood *et al.* 2001), and more strikingly, intentionally incised bone and rock (d'Errico *et al.* 2001) striking evidence of 'behavioural modernity' (McBrearty & Brooks 2000). There are no major archaeological discontinuities in the region to make us think that resident populations were somehow displaced by an incoming group. As a consequence, Khoesan languages could be modern representatives of the speech of these early populations.

Inside the diversity of Khoesan is another puzzle; the relative uniformity of the Central Khoesan. Voßen (1996) in a monumental and under-rated work has proposed a major reconstruction of the lexicon of Central Khoesan. This is possible because it is unlikely to be more than 2-3000 years old. Ehret (1982) pointed out some time back that words indicative of food production are present in the Khoekhoe languages, although whether they are Central Sudanic origin, as he claimed, is debatable. Voßen (1996) has reconstructions for 'cattle' and 'sheep' in branches of Central Khoesan, shown in Table 7.1;

Table 7.1 Livestock terms in Central Khoesan

Group	Language	Cow	Sheep
Khoekoe	Nama	koma	ku
Khoe	//Ani	góɛ̀	gû
Naro	Naro	góè	gǔ
//Ana	/Ui	gúè	gǔ
Shua	Cara	bé	gù
Tshwa	Kua	dzú bé	—

Source: adapted from Voßen (1996)

The table shows that all the terms for 'sheep' are cognate with one another, while there are three distinct roots for 'cattle'. Central Khoesan speakers thus had sheep but not cattle when they began to expand. They acquired (or experienced) cattle after the major division into subgroups. Smith (2000:226) tabulates the archaeozoological materials from Southern Africa and sheep probably reached this region ca. 2200 BP, perhaps earlier if the dates for Equus cave are to be trusted (Table 12.11). Dates for cattle are consistently later, beginning around the third century AD with Lotshitshi in Botswana (Smith 2000:225). It seems likely that access to livestock produced a revolution in Khoesan society and caused the Central Khoesan languages to expand at the expense of other, more diverse click languages, rather as Pama-Nyungan expanded in Australia. Languages on the periphery, like Kwadi and ‡Hõã, have conserved this original diversity.

8. OTHER LANGUAGE GROUPS

Austronesian

Austronesian is not usually regarded as an African language phylum, but it is included, since it is spoken throughout Madagascar and on the Comoros. Austronesian is a very large language phylum, spoken from Taiwan to New Zealand, comparable in size to Niger-Congo. The outlines of the Austronesian family were first recognised in the early eighteenth century by the Dutch scholar Adriaan van Reeland, who compared Malay, Malagasy and Polynesian (Relandus 1708). The phylum was probably originally spoken on the Chinese mainland and the ancestral populations migrated across the straits to Taiwan where some languages remain, now encapsulated among the migrant Han Chinese. Austronesian began to spread southwards to the Philippines and thence to island SE Asia and the Pacific from 5000 BP onwards, displacing the Pleistocene populations of the region, who are now virtually confined to New Guinea and nearby islands.

Malagasy is Austronesian, but its precise genesis has been much debated. It is generally considered to belong genetically to the Barito languages, today spoken in Kalimantan (Simon 1988). However, it has clearly undergone considerable influence from Malay, whence it draws many nautical and other technical terms (Adelaar 1994). In addition, there are numerous loans from the Bantu languages of the East African coast, some from Swahili, but others from different languages, particularly those of Mozambique which probably post-date the Swahili borrowings.

The East African coast was almost certainly visited by Austronesian mariners from an early period, although exactly when is in doubt (Blench 1994). Archaeology in Madagascar has so far uncovered no site earlier than the 5th century AD, which seems remarkably late. Dewar (1994) insists strongly on the absence of Stone Age sites on Madagascar and palynological evidence does seem to support a more recent human incursion on the landscape. Indirect arguments have been advanced based on a butchered hippo-bone and faunal extinctions, but these may only reflect sporadic visits. Pliny, in his geography[31], refers to the 'men who come across the great ocean on rafts [*rati*]' in contrast to the coastal traders. These could be Austronesians, if *rati* is an attempt to describe an outrigger canoe, a craft that would be quite unfamiliar to traders around the Horn of Africa. However, an even more intriguing question is whether the transoceanic navigators met any populations already in residence. Malagasy traditions insist that a small, dark-skinned people, the Mikea [=Vazimba], were already present on the island. The Mikea were hunter-gatherers, and indeed groups with this name still exist (Birkeli 1936; Molet 1960; Dina & Hoerner 1976; Fanony 1986; Trucker 2003). Johnston & Birkeli (1920) describe a number of groups and give samples of the languages of the Vazimba and Baūsi [=Beosy] languages. These few lexical items do not apparently resemble either Bantu or Austronesian, further deepening the mystery. The tradition of the Mikea might be spurious, as accounts of resident 'small' populations are also common on the African mainland, but only carefully excavated stratified cave-sites are likely to resolve this question.

We now know that the maritime cultures of the Indian Ocean had begun to reach the islands off the East African coast much earlier than had been previously thought. Chami (1999) has reported evidence for Graeco-Roman trade which confirms the evidence of the Periplus, a first century Graeco-Roman seaman's guide to the coast (Casson 1989). Chami[32] (2001, 2002) and Chami and Kweakason (2003) have shown that there are sites on the smaller East African islands going back to the 8th century BC and in one chicken bones have been found, putting back considerably the arrival of the chicken in Africa. Such traders could hardly reach these smaller islands and completely miss Madagascar, but it may imply they did not settle. Whatever the date of the arrival of the source population of Madagascar, it is clear that they interacted extensively both with the maritime coastal populations and the settled farming groups along the coast (Blench 1994). Broadly speaking, the highlands of Madagascar are populated by lighter-skinned, more 'Indonesian' populations and the coastal lowlands by darker 'African' populations. Not all of these were necessarily Bantu; the Bara, a tall group who are principally pastoralists, rather suggest Nilotes or Cushites. However, all the languages spoken on Madagascar today are Malagasy lects, except for an enclave of Swahili in the northwest. Whether this

[31] Online text at http://www.ukans.edu/history/index/europe/ancient_rome/L/Roman/Texts/Pliny_the_Elder/5*.html

[32] Also at http://nabataea.net/juani.html

means the African component was forcibly transposed to Madagascar or came over as part of a colonising exercise is hard to determine. Kent (1970) has argued that specific mainland peoples moved across the Mozambique channel leading to the genesis of particular subgroups, but the precise sources of much of the African component remains unexplained.

Unclassified languages, marginal peoples and their significance

African language isolates

Apart from the well-known and largely established phyla, a few African languages defy easy classification. Actually, it is very surprising that they should be so few. There are many isolates in the New World, as in Papua, Australia and Siberia. On the assumption that the origin of modern humans lies in Africa, there should be many more. The pattern of African language phyla must reflect large-scale population movements, change and assimilation in a relatively recent period. Papua, by contrast, has been largely isolated from the major impetuses of population change and many isolated languages have been able to continue unaffected for tens of millennia. Even the status and classification of language isolates in Africa remains controversial. Table 8.1 lists the languages that have remained unclassified;

Table 8.1 African language isolates

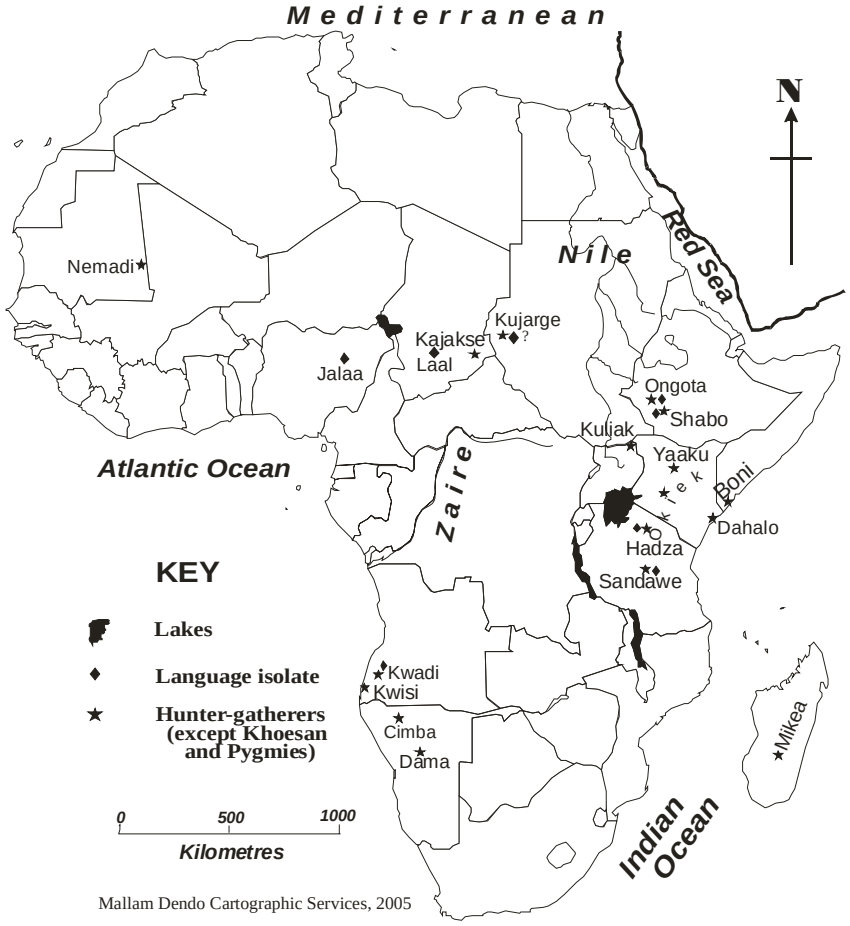
Language Name	Location	Source	Comments
Jalaa (=Cuŋ Tuum)	Nigeria	Kleinwillinghöfer (2001)	
Baŋgi Me	Mali	Blench fieldwork 2005	Perhaps Niger-Congo
Laal	Chad	Boyeldieu (1977), Faris (1994)	
Kujarge	Sudan	Doornbos & Bender (1983)	Perhaps Chadic
Ongota	Ethiopia	Fleming (2002), Fleming *et al.* (1992)	Perhaps Afroasiatic
Oropom	Uganda	Wilson (1970)	Existence unconfirmed
Hadza	Tanzania	Elderkin (1982), Sands (1998)	
Sandawe	Tanzania	Elderkin (1983), Sands (1998)	Perhaps Khoesan
Kwadi	Angola	Westphal (1963 & Güldemann p.c.)	Perhaps Khoesan

Source: Blench (1999c)

The inclusion of Hadza and Sandawe on this list is problematic; in many quarters these are still considered to be related to Khoesan because of their distinctive click phonologies, but Sands (1998) was unable to turn up any convincing evidence for this. Jalaa, like Laal in Chad, has a significant proportion of loanwords from a scatter of neighbouring languages, but a core of apparently unidentifiable lexemes. Little is known about Kujarge, except that Doornbos and Bender (1983) report a 29% cognacy with neighbouring Chadic languages. The existence of Oropom has been questioned (Heine, p.c.) and certainly no new information on these people has come to light.

These languages are almost all threatened, at the very least. There were only a handful of speakers of Kwadi, a click language of extreme south of Angola, when Westphal investigated the language in the 1950s; given the disruption of the Angolan civil war, there may well be none today. The number of Ongota speakers had fallen to six in 1997 (Mikesh, p.c.) while there are only a few of speakers of Jalaa (Kleinwillinghöfer 2001). Laal and Kujarge were recorded prior to the wars that have become a chronic feature of the Sudan/Chad borderland since the 1970s, although we know that Laal has survived (Faris 1994). Some of Africa's most crucial languages, in terms of reconstructing its linguistic prehistory, may well become extinct before they are adequately recorded.

Map 8.1 Language isolates and contemporary hunter-gatherers



The problem of the language of the African pygmies

The question of the origin of the pygmies of the African rain-forest and their relative antiquity has remained controversial (Cavalli-Sforza 1986). There is no doubt the Central African rainforest has been occupied for a very long time (Clist 1995; Mercader and Marti 1999), but there is no direct evidence as to the racial or genetic affiliations of the populations whose stone tools have been recovered. An attractive solution is to propose that these populations were the rainforest pygmies. African pygmies or Batwa occur in scattered pockets through a large region of Central Africa. They are conventionally stereotyped as peoples of the deep forest, due to some high-profile publications (e.g. Turnbull 1961) and images in glossy travel magazines.

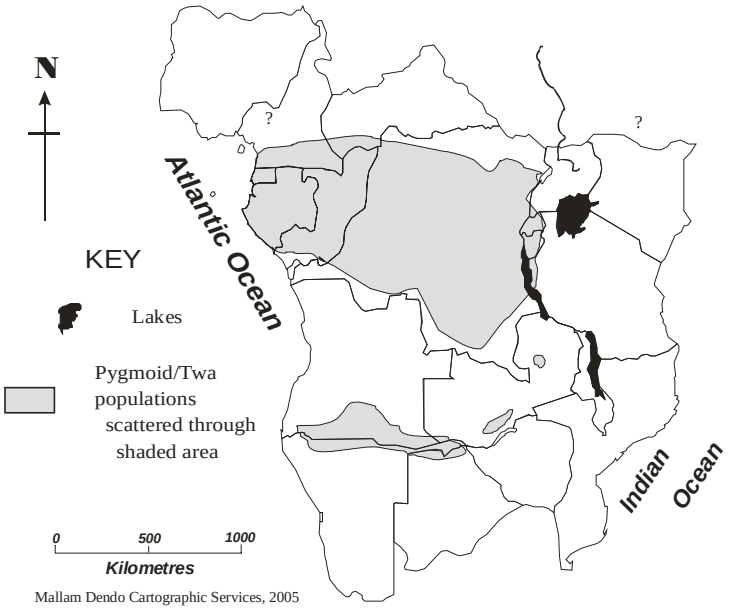
One of the most intractable problems in reconstructing African linguistic prehistory is whether the pygmies ever had their own language. Letouzey (1976) made a preliminary attempt to recover a substrate language through the use of plant names but without any very convincing results. Bahuchet (1992, 1993) presents a challenging view of the history of the pygmy populations, in particular the Aka and the Baka in CAR and northern DRC. The Aka and Baka speak languages of different genetic affiliation (Bantu and Adamawa) but they prove to have common vocabulary, concerning especially with food-gathering. If Bahuchet is right, then this vocabulary is a trace of the lost language of the pygmies. Bahuchet further argues that the reduction in the rain-forest at the end of the Pleistocene isolated pygmoid groups in relict forest. These groups diffused outwards when the forest began to expand again, eventually encountering the incoming Bantu cultivators. The results of this encounter and in particular the evolution of client relationships accounts for the ethnolinguistic pattern seen today. Although the pygmies appear to be the ancient inhabitants of the forest, partly displaced by the incoming Bantu, researchers have been disturbed by the absence of distinctive languages spoken by the pygmies and the ambiguous archaeological evidence. A feature of the pygmy/Twa complex that is seldom fully analysed is the widespread presence of ‘Twa’ populations well south of the

rainforest proper (Blench 1999c). Indeed many maps of pygmies seem to ignore these southern groups (e.g. Bahuchet 1993), presumably on the grounds that they disrupt the image of the *civilisation forestière*. However, there are 'Twa' populations in semi-arid Angola, Namibia, Botswana and Zambia (Dornan 1925; De Almeida 1965, 1994; Estermann 1976 [1958], 1983). These populations characteristically speak Bantu languages and often have outgroup status. Those in Zambia and Botswana typically live in swamps or remote areas. Documentation on the Twa groups of the Namibia/Angola region is very limited and tends to confuse Khoesan populations with Twa. Estermann (1976) provides useful material on the Twa of Angola. He says:

> The southern Twa today live in close economic symbiosis with the tribes among which they are scattered — Ngambwe, Havakona, Zimba and Himba. None of the individuals I have observed differs physically from the neighboring Bantu.
>
> Estermann trans. Gibson (1976:32)

Map 8.2 shows the distribution of Pygmoid/Twa populations in Africa;

Map 8.2 Pygmoid/Twa populations in Africa



The evidence is that Twa populations exist even in areas where there is no historical evidence for rainforest. Most of the non-forest Twa are taller than the Pygmies and in some cases physically indistinguishable from the Bantu. There are two possible explanations for this;

a) either these are simply specialised hunter-gatherer groups who never were pygmies
b) *or* they were rainforest pygmies, they migrated with the Bantu south of the forest and grew taller due to better nutrition in a savannah environment

Blench (1999c) argues that the absence of a true pygmy language is no accident: that the pygmies are to be identified genetically with their cultivator neighbours. The pygmies are simply a specialised subset of hunters which underwent strong selection pressure for dwarfing. It is rather the other fragmentary hunter-gatherer peoples and isolated languages which today form a ring around the rain-forest and represent the remaining traces of a lost complex of non-pygmoid hunter-gatherer populations, speaking highly diverse languages, who inhabited Africa in the Pleistocene. This diversity was largely eliminated in the regions where the major language phyla expanded. Bahuchet has been unable to extend his argument from common vocabulary to other well-known pygmy groups, such as those in the Ituri in the NE Congo, suggesting that the Aka-Baka commonalties are contact phenomena.

Unusual theories

Nostratic, Eurasiatic and others

Researchers focussed on Africa tend to regard its four main phyla as independent and not necessarily related to any outside the continent. But Eurasianists have looked hungrily at these phyla and wondered whether they are not part of larger macrophyla. Afroasiatic is most commonly proposed as related to other phyla within Eurasia, presumably because it already has a foot in the Near East. Ruhlen (1991) provides a useful summary of older versions of these hypotheses, which date to the late nineteenth century. To enumerate all these proposals would be lengthy, but they cluster around the concept of a macrophylum variously known as Nostratic or Eurasiatic, with varying membership but which would include most of the larger phyla in Eurasia. This macrophylum has been the subject of considerable work by different scholars (e.g. Bomhard & Kerns 1994; Hegedűs 1997; Appleyard 1999; Greenberg 2000; Dolgopolsky 2000). Although there is definitely no consensus, two basic views are canvassed:

a) that Afroasiatic (like Kartvelian and Dravidian) is co-ordinate with 'Eurasiatic' (Greenberg, Starostin)
b) that Afroasiatic is a member of or co-ordinate with Nostratic (Pedersen, Illitc-Svityč, Bomhard, Dolgopolsky, Blažek).

Dolgopolsky in particular has performed 'linguistic palaeontology' on Nostratic and includes Afroasiatic in his field of study. An aspect of this that is very perplexing to Afroasiaticists is how these outsiders can so confidently cite proto-forms for Afroasiatic while those in the field cannot even agree on its internal structure (§3.3.2). It seems difficult to offer any judgment on these high-level proposals when there is so much uncertainty at the lower levels of classification.

Migrationist theories

A persistent theme in African history is the pre-Columbian migration of populations to and from Africa, especially westwards to the Atlantic and beyond. This is a particular favourite with scholars of the Afrocentrist persuasion, but surprising discoveries have set others wondering. It is only possible to pick out a few general themes to give a flavour of this literature.

One of the most prominent is the notion that there is some connection between the Egyptian pyramids and those of Central America and that consequently, the Egyptians set sail, presumably in reed boats, to construct the pyramids of the Sun and the Moon at Teotihuacan. This was championed by the late Thor Heyerdahl (1971), whose Ra expeditions made a good yarn but were of very limited scientific value. Even more extreme are the works of Barry Fell, a Harvard Professor[33], who among other things has the Jews colonizing Kentucky in 69 AD and Libyan science and mathematics flourishing in west North America in 500 AD (Fell 1980). For contrast, there are quite sober reports of tobacco leaves found in the stomachs of mummies which are difficult to explain[34] (e.g. Germer 1985).

In the case of sub-Saharan Africa, the other tempting connection is between the Senegambia and the easternmost tip of South America, not a great distance and one which could potentially be crossed by quite simple water-craft. Chevalier (1931) noted a number of species common to the east coast of South America and West Africa that were unlikely to have floated across on ocean currents. Two of these at least, the kapok tree (*Ceiba pentandra*) and the bottle-gourd (*Lagenaria siceraria*), originate in the New World and yet are

[33] Thankfully not of epigraphy.
[34] There have been similar, less well-founded, reports of cocaine in mummies, which may be more a reflection of the leisure-time habits of Egyptologists than pre-Columbian trafficking in narcotics.

highly embedded in African culture. Indeed, there are also species that apparently went in the opposite direction; *Elaeis oleifera* is surprisingly close to the West African oil-palm, *Elaeis guineensis* (Henderson *et al.* 1995:165). But a simple hypothesis of casual contact has been essayed into wild riffs by some writers. Most attractive to the theorisers are the Olmec heads, giant stone heads found in Guerrero, Mexico, whose faces do indeed have strangely African looking features. Van Sertima (1976) imagined fleets from the empire of Mali sailing to the Americas in the fourteenth century.

Entertaining as these hypotheses are, they have yet to be substantiated by any well-founded archaeological, linguistic or genetic data. But it is important to understand their attraction in the broader realm of African prehistory. Once African history is reperceived as rich, complex and interwoven, it becomes alluring to look for its impacts beyond the continent. Europeanists, kicking and screaming, are beginning to understand the importance of North African culture for the north coast of the Mediterranean despite the sometimes hysterical reaction to the theories of Martin Bernal. Why should Africa's influence not be felt outside the continent? Sometimes it is hard not to have a sneaking sympathy with these hypotheses, despite their wrong-headedness.

9. SYNTHESIS

Understanding and dating African language phyla

The arguments in the above sections try to suggest dates for the origin of particular language phyla and make some proposals for their archaeological and genetic correlates. Building the case for individual phyla is a slow, painstaking process and requires the marshalling of large amounts of linguistic and archaeological data. Table 9.1 is a synthesis of the ideas set out in the individual sections above;

Table 9.1 Dates, homelands and causes of phylic expansion in Africa

Phylum	Date BP	Original Homeland	**Cause of dispersal**
Khoesan	>100,000	Eastern and Southern Africa	
Nilo-Saharan	20,000	Nile Confluence	Climatic deterioration
Afroasiatic	12-10,000	SW Ethiopia	Livestock management
Niger-Congo	10,000	South-Central Sahara	Bow and arrow and improving climate
Austronesian	6500	Taiwan	Maritime technology?

Some conclusions can be drawn from this. Primarily, there is no synchronic relationship between the number of languages in a phylum and its antiquity, although this might be true in diachronic perspective. The reduction in Khoesan speakers, possibly the closest link to the ancestral language of humanity, reflects most visibly the painful history of the last three hundred years and little of the last 100,000. Nonetheless, the retreat of Khoesan was clearly under way long before the Dutch ships put in at the Cape. The Bantu expansions, and perhaps the Cushitic expansions before that, had begun to drive click speakers into their present desert zones of the south.

Second, hypotheses as to dates and homelands remain very open. The archaeology of the region between the Nile confluence and the Ethiopian marches is virtually unknown, especially for the periods when Nilo-Saharan and Afroasiatic began their expansion. Similarly, the reconstruction of these two phyla remains doubtful, partly because of contradictions between existing publications. Linguistic speculations can set out a stall for archaeologists to exploit, but only a great deal more systematic excavation will confirm or refute these hypotheses.

Why are Africa's language phyla so undiverse?

All in all, the pattern of African language phyla is both evident and puzzling. The great majority of the African land mass is occupied by speakers of languages that are assigned to clearly defined phyla while the

isolates form a small and uncertain list. This is very much in contrast with Papua and the New World, where linguistic differentiation is at levels such that existing groupings remain disputed and many isolates have been identified. To illustrate the point, there are more language isolates in Colombia than in the entirety of Africa (AILV 1994). This seems entirely counter to our present understanding of the relationship between time-depth and linguistic diversity; if modern humans did indeed come out of Africa, and they already had some form of language, then the languages of Africa ought to be considerably *more* diverse than those in Papua or South America.

There is an additional contrast that is equally surprising, the comparative phonological and morphological diversity of African languages. Both Papuan and Australian languages are distinguished by lexical diversity combined with surprisingly similar phonologies and morphologies (Dixon 1980; Foley 1986). In other words, despite the gradual diversification of the lexicon, the framework in which they are set has remained remarkably stable over a very long period. African languages, on the other hand, are strikingly diverse, with very large and small consonant inventories often abutting one another and great variation in tonal, morphological and syntactic systems.

Whatever the present situation, there must have been a stage in African prehistory when the continent was characterised by extreme linguistic and biological diversity. As modern humans diffused from southern and eastern Africa, they would have spread over the continent at extremely low population densities, either assimilating or out-competing existing *in situ* hominid populations. Whether modern humans would have been interfertile with resident African hominids is unclear, but it seems likely, as they would probably have been considerably closer genetically to *H. sapiens* than the hominids who left Africa in the first great outpouring several million years ago. The consequence of modern humans expanding within Africa would have been to create immense biological, social and linguistic complexity. The resultant populations would not necessarily have resembled Khoesanoids and we should look for their modern physical analogues among other residual groups such as the Hadza, the Ongota, the Kwadi and the Damara (Knussmann 1969; Knussmann & Knussmann 1970; Blench 1999c). Genetic studies indicates quite clearly that the Hadza, at least, are no closer to the Khoesan speakers than to any other African population with which they have been compared (Knight *et al.* 2003).

However, within Africa this diversity has virtually disappeared, both linguistically and phenotypically. The most likely explanation for the present-day language situation is the expansion of the present-day language phyla in a relatively recent era and the assimilation of resident groups. Watson *et al.* (1997) present some genetic evidence that seems to support this. They observe 'the oldest of these African expansions dates to 60,000–80,000 years ago. Eurasian sequences are derived from essentially one sequence within this ancient cluster, even though a diverse mitochondrial pool was present in Africa at the time.' The loss of genetic diversity is more apparent than real; various studies have shown that Africa is the most diverse continent and retains the most ancient human lineages (Chen *et al.* 2000; Ke *et al.* 2001).

We can calibrate this diversity in a simplistic manner by comparing Africa with other regions of the world. It is generally considered that Australia was populated by 55,000 bp and Papua must have been occupied at a similar era although no confirmed dates are so old. Both Papua and Australia present a situation where one phylum is dominant (Trans-New Guinea in the case of Papuan and Pama-Nyungan in the case of Australia) and there are many isolates or small phyla on their peripheries (Wurm 1982; Koch 1997). Given the lower level of language diversity in Africa, its phyla must have become established in the last 30-20,000 years and effectively assimilated the residual diverse languages. This assimilation process may well explain the phonological and morphological diversity and thus many languages may well exhibit rich substrate phenomena, although without modern exemplars and any pointers to the nature of these substrates they will be difficult to identify.

What could be the cause of this apparent loss of diversity? Either a climatic or techno-environmental shift within Africa allowed some resident groups to become dominant, or there was a new influx of population from outside the continent which overwhelmed the *in situ* groups. This latter view would have previously seemed difficult to believe but recent observations in genetics suggest a solution. The source of such an

influx relates to an old observation that Papuan populations are surprisingly similar, phenotypically, to African populations. An earlier generation of scholars had wondered if the two were not somehow related, but without archaeological or genetic results, this remained in the wild speculation box. The older explanation for phenotypical similarities, that melanin pigmentation is simply a result of an adaptation to exposure to ultra-violet, is still maintained in some quarters (Blum 1961, but also Jablonski & Chaplin 2000 for a more recent version).

However, once the 'out-of-Africa' hypothesis became well established in the scientific literature, it became reasonable to imagine that Papuans *were* related to Africans at the level of original migrations of *H. sapiens* out of Africa, which has strong support from genetics (Koda *et al.* 2003). In other words, when modern humans left Africa, one of their phenotypes was dark-skinned, curly-haired etc. and this physical type remained in Africa and in Papua but was driven out or assimilated in the intervening spaces. Relict groups such as the Andamanese, the Orang Asli of peninsular Malaysia, the Agta in the Philippines, perhaps the Vedda of Sri Lanka and the vanished Vazimba of Madagascar would then have been remnants of this movement.

However, this did not satisfactorily explain why the best candidates for the descendants of the original *Homo sapiens*, the Khoesanoids of southern Africa, had a distinctly different phenotype. Strangely, there seems to be little trace of their physical type outside Africa. One possible explanation for this situation is that most present-day Africans resemble Papuans because their ancestors migrated from the eastern side of the Indian Ocean back westwards, re-entering Africa, with skills, technology and perhaps social/ritual systems, spread out across Africa, and gradually displaced or assimilated many of the resident populations. This hypothesis was first put forward in its modern form by Kingdon (1993), although in the absence of genetic evidence it was little more than speculation. But if the argument is accepted, these early returnees would be the source of Nilo-Saharan, as this is the oldest of the phyla apart from Khoesan.

What would motivate this extraordinary reverse movement? If we accept the route of the initial expansion it is most logical that these were coastal movements, strandlopers gathering shellfish, crustacean and small fish in rock-pools but without open sea capability. It is now fairly widely accepted that there were two routes out of Africa, through the Sinai peninsula and across the Bab el Mandeb, from the Horn of Africa to Yemen (Quintana-Murci *et al.* 1999; Stringer 2000). When this second route opened is debated, but presumably prior to 70,000 BP, to give enough time for coastal migrants to reach Australia, where first settlement is now dated to 55-50,000 BP.

This is speculative but no longer highly controversial. By 60,000 BP much of the rim of the Indian Ocean would have been settled by mobile gathering groups, ranging along the shores, depending heavily on coastal resources. Pleistocene sites throughout insular SE Asia go back at least to 50,000 BP. The major innovation that may have occurred in the islands is the development of boats. We have no idea what sort of water-craft were around in 30,000 BP, but we know that they existed, because Papuans reached islands that are only accessible by boat (Kirch 2000:68). Manus, in the Admiralty Islands, is 60-90 km. across open sea, not places that could be reached by individuals clinging to a drifting log (Spriggs 1997:29). We have to assume these islands were intentionally settled and this in turn presupposes rafts at the very least and moreover stocked with foodstuffs for a journey of unknown length.

The evolution of water-craft and a maritime culture may well have had further significance, as the engine of this major back-migration, east to west. There is no need to interpret such a movement as purposive or indeed as representing a significant demic flow. Water-craft technology would have spread westwards around the Indian Ocean, giving populations access to new locations and food sources. Such technologies would probably imply new forms of social organisation, giving the newly mobile fishermen a competitive advantage over the relatively static coastal gatherers. Eventually, these new technologies would have arrived back in Africa, perhaps accompanied by a small movement of actual peoples, one group of whom gave up their marine adaptation in the face of an abundance of land mammals and vast open spaces to colonise. This group may perhaps have had throwing spears, in contrast to the stabbing spears of the resident hunters, and advanced fishing technology. They become Africans over millennia, eventually giving rise to the major

language phyla, excepting Khoesan, thereby accounting for their relative lexical uniformity compared with Papuan or Australian.

I am well aware of the political sensitivity of proposing such a scenario. After decades of trying to scotch theories that attribute African culture to outside influences and trying to vanquish mysterious Egyptian and Phoenicians travelling to the heart of the continent, is this just a reinvention of these discredited views? I hope not. This hypothesis tries to account for what are otherwise very curious features of the ethnolinguistic map of Africa, but does not attribute any specific aspects of African culture to outsiders.

Is there any support in the archaeological record or from genetics? In the case of the latter, the surprising answer is yes. Harding *et al.* (1997) have shown that 'Asian' lineages play an important role in human ancestry. Cruciani *et al.* (2002) undertook a major analysis of Y chromosome patterns in sub-Saharan Africa and find intriguing evidence for a 'back-migration' from Asia, based on Haplogroup IX chromosomes. They also refer to other studies that have reached similar conclusions;

> Interestingly, phylogenetic analysis of primate T-cell lymphotropic viruses type 1 indicate a putative Asian origin (Vandamme *et al.* 1998) followed by a simian- or human-mediated introduction to Africa 20,000 years ago (Van Dooren *et al.* 2001). An ancient human back migration from Asia to Africa had already been proposed by Altheide and Hammer (1997) and Hammer *et al.* (1998, 2001), on the basis of nested cladistic analysis of Y-chromosome data.
>
> Cruciani *et al.* (2002:1210)

The emphasis on Y-chromosomes in these data may well be significant; these ancient boat people could have had a pattern of exploration of new fishing and gathering grounds that involved groups of males setting off on survey journeys unaccompanied by their women. Landing back in Africa and encountering resident human populations, they could have intermarried extensively with these groups.

Speculative as this is, it would explain a number of linguistic observations. In particular;

a) The relative lexical uniformity of non-Khoesanoid languages
b) The phonological and morphological diversity of African languages compared with Papuan
c) The system of nominal classes that permeates Nilo-Saharan and Niger-Congo

The phonological and morphological diversity of African languages would reflect the interactive process, whereby a relatively uniform group expanded through encountering and assimilating diverse languages and cultures, thereby itself developing formal diversity while keeping its lexical core. The issue of nominal classes is also striking. Nilo-Saharan and Niger-Congo both have highly developed systems of noun-classes, i.e. where nouns are divided into categories, often on semantic bases, that are marked by morphological features and often show concord with other sentence elements (Williamson & Blench 2000:12). Similar systems (usually with fewer classes) are found in Papuan and Australian (Foley 1986; Dixon 1980). In some cases, these systems are very similar to Niger-Congo with semantically-based noun-classes and concord. This could just be a typological similarity, as noun classes are also found in North Caucasian and Yeniseian (Werner 1994), but the Oceanic systems resemble those in Africa much more closely than those in Eurasia.

There appears also to be a very rough fit between the dates given by geneticists and the proposed dates based on retrodiction from the internal diversity of Nilo-Saharan. I have suggested that by building back from the observed diversity of Niger-Congo we can assume a date for Nilo-Saharan of 20-30,000 BP (§3.2.5). This is similar to the figure of 20,000 years put forward by Van Dooren *et al.* (2001) for the reintroduction of Haplogroup IX chromosomes back to Africa. Curiously enough, this period has considerable significance in many parts of the Old World (Gamble & Soffer 1990) and may be connected with the hyper-arid climate of the terminal Pleistocene.

It needs to be underlined yet again that this hypothesis remains speculative –indeed any hypotheses on the origin of African language phyla remain speculative. Moreover, if further work should prove it false, either

because it turns out the genetic findings have another explanation, or because the archaeology simply does not fit, the question of the pattern of African language phyla remains. At this time depth, it is most unlikely that any direct linguistic connections can be traced, given the difficulties of even assigning proto-forms to Nilo-Saharan. But the Pleistocene archaeology of the Indian Ocean rim is still very poorly known and any hypothesis is hard to evaluate without much improved data.

PART III. RECONSTRUCTING ECONOMIC PREHISTORY

10. INTRODUCTION

The first part of this book covers the major methodological issues in relating archaeology, linguistics and genetics in African history and proposes some models for understanding the dispersal of the major language phyla. It also discusses the potential for historical reconstruction and the study of loanwords and other contact phenomena to recover economic prehistory. This second part is intended to provide evidence for a sample of individual items that relate to subsistence. The potential field is vast, too extended to be covered by any individual scholar, so it is necessary to be selective. I have therefore focused on some important areas, namely plants and animals, both wild and domesticated, that have played an important role in subsistence strategies. Even here, only major species can be discussed, partly because the archaeobiological record is extremely patchy, but also because the necessary detailed ethnoscientific vocabulary is yet to become available for many languages. The tables given in this section provide a sample of the data that could potentially be compiled and usually illustrate one common linguistic root for a plant or animal. A complete listing would take many pages and require lengthy analysis; the object is to give the reader a flavour of what more detailed work on individual species may yet produce. The genetics of crops and livestock remain poorly studied and the vibrant publishing characteristic of research into human DNA has yet to take off in other areas. Many other topics could be considered, such as forms of social organisation, pottery and iron-working, but the task of compiling data has barely begun.

This section also illustrates the gap between archaeology and prehistory as viewed from linguistics. This works in two ways; something may have high archaeological visibility but low linguistic salience, or be prominent as a reconstruction or a loanword but invisible archaeologically. Table 10.1 presents some examples of the relationship between archaeological visibility and linguistic salience;

Table 10.1 Contrasting archaeological visibility and linguistic salience

Archaeological visibility	Linguistic salience	Example	Comment
high	low	fish-bones	Fish spp. too numerous and diverse to generate widespread reconstructions
low	high	tuber crops	Tubers are not easily identified in African sites with present techniques though phytoliths may change this
low	high	recently introduced crops	Neotropical introductions have transformed African agriculture, but too recently to be reflected in archaeological materials
high	high	livestock	Bones are well-preserved and vernacular terms highly salient. Also the only area where modern DNA studies exist.
low	specific to individual artefacts	humid zone artefacts	acid soils make preservation in humid forest much less likely
low	low	large predators	Predators not eaten, hence their bones rarely found at settlement sites. Linguistically subject to tabooing, hence reconstruct poorly despite high anthropological salience.

Linguistics also sometimes can only produce banal, circular inferences, such that fish-names will be salient in fishing communities or that savanna populations will have names for common useful trees. Nonetheless, salience clearly varies from one era of prehistory to another and this leaves its traces in vernacular names; bursts of lexical similarities alternate with high zones of diversity and these can in principle be linked with the archaeological record.

11. PLANTS

Wild plants

Trees

Linguistic salience and archaeological visibility

The biodiversity of African trees remains to be fully documented. There are perhaps 10,000 species indigenous to the continent and although very few have no use, for many their importance is scattered and they have made no impact on the linguistic repertoire of tree names. Nonetheless, the reconstruction of tree names has proven very important in Indo-European studies. According to Gamkrelidze and Ivanov (1994) 'mountain oak,' 'birch,' 'beech,' 'hornbeam,' 'ash,' 'willow' or 'white willow,' 'yew,' 'pine' 'heather' and 'moss' all reconstruct to Proto-Indo-European. The landscape implied by these species cannot be reconciled with either the plains of central Europe or the steppes north of the Black Sea, which have been advanced as homelands for the Indo-Europeans, but rather fits eastern Anatolia and Transcaucasia. Reconstructions of tree names have also proven important in the identification of the Algonquian homeland in North America (Goddard 1994).

The situation in Africa is much less clear-cut; no tree species have been reconstructed for the proto-language of any African phylum. This may reflect defective datasets but this is unlikely to be the case for more common species, which are precisely those we would expect to reconstruct. The reason for this absence of reconstructions may reflect biological factors; the relative diversity of tropical as opposed to temperate flora. With such a wealth of species to choose from, only those of considerable and widespread economic importance are likely to show up in the linguistic record and even there, the significance of a particular species can fade in and out. For example, the shea tree, *Vitellaria paradoxa*, is a key species for oil production in much of West Africa proper. However, it occurs as far east as Uganda, but is of little or no economic significance between there and the centre of Chad (Hall *et al.* 1996). The merula, *Schlerocarya birrea*, is an important species for beer-making in Eastern and Southern Africa, but of little account in West Africa, despite being present in the region. Only where a tree becomes of significant economic importance over a wide area do vernacular names show widespread distributions. As a consequence, the names of these trees are cognate across those areas of Africa where they are salient in the culture, rather than where they are present.

The movement and manipulation of trees in African history can be divided into general categories that broadly correspond to historical epochs but also to the production system of particular groups. Until very recently, arboriculture, the intentional planting of trees, an ancient characteristic of many agricultural systems in the Old World, was unknown in sub-Saharan Africa with the exception of Ethiopia. The spread of trees was essentially either through the opportunistic transport of seeds and the selective protection of individual species. Fire is a key element in determining the pattern of African vegetation and species that survive annual burning, such as the locust tree, *Parkia biglobosa*, become more prevalent in savannahs with high-density occupation.

Table 11.1 presents a highly schematic view of the correlations between production system and the spread of tree species. The sections that follow give examples of individual trees and the likely rationale underlying their salience.

Table 11.1 A general scheme for determinants of tree salience in African history

Production system	Characteristic	Example species	
		English	Latin
Forager	Transporting of economic fruits	Bush-candle	*Canarium schweinfurthii*
Pastoralist	Transporting of economic fruits	Baobab	*Adansonia digitata*
Settled agriculture	Bush-burning with protection of economic trees	Shea tree	*Vitellaria paradoxa*
	Selective economic extraction	False locust tree	*Prosopis africana*
	Ritual prohibitions on cutting	West African ebony	*Diopsyros mespiliformis*
	Use and movement of economic fruits	Locust	*Parkia biglobosa*
Long-distance trade	Sale of tree products	Cola	*Cola acuminata*
Colonial era	Intentional diffusion of fruit trees	Citrus	*Citrus spp.*
	Selective economic extraction	Iroko	*Milicia excelsa*
Post-colonial	Agroforestry, plantation economies	Teak	*Tectona grandis*

Within the broad sweep of history, tree salience undergoes considerable local micro-variation, related to the interplay of economics and cultural patterns. Thus the shea tree, once predominant as the oil-crop of the West African savanna, has retreated significantly in many regions as the cultivation of groundnut has spread. Once people are no longer willing to process the shea-nut, the reasons for protecting the tree itself disappear and, cut down, it becomes valued as a wood for carving mortars.

Prior to the development of agriculture, foragers intensively exploited a wide variety of fruit trees including species that are only considered of limited value today. It is generally assumed that LSA foragers were highly mobile and would therefore have actively spread the endocarps of economic fruits. However, this is hard to prove without clearer distributional data and some hypotheses as to the 'natural' environment of particular species. Nonetheless, finds of endocarps, as distinct from the identification of the presence of a tree from anthracological data, do suggest human intervention.

In the case of trees, the archaeobotany of West Africa is in flux. Reviews from the early 1990s, such as Stahl (1993), report species that tend to leave instantly identifiable macro-remains, typically;

Elaeis guineensis	oil-palm
Canarium schweinfurthii	bush-candle
Celtis integrifolia	nettle tree

More focused archaeobotany and better sieving techniques have begun to produce traces of a much wider range of species, far more consonant with the picture derived from current ethnobotany (Kalheber ined.). Even so, it is sometimes hard to link the patterns evident from compiling vernacular names with the image that emerges from archaeobotany. Some of the best-known economic trees today, such as the shea (*Vitellaria paradoxa*) and locust (*Parkia biglobosa*), which should have highly visible macro-remains, are uncommon in the archaeobotanical record. Neumann *et al.* (1998:60) report a testa from the medieval village of Saouga and note that shea-butter production was recorded by Ibn Baṭṭuṭa in the 14th century. Despite their present-day economic importance, it may be that techniques for processing the fruits only spread during the last millennium. The shea, for example, demands considerable investment in ovens and thus in firewood collection and is probably only worthwhile when a market opens up and processing can be conducted during the dry season, which signals the development of long-distance trade routes.

A contrary example of archaeobotanical salience and linguistic invisibility is the nettle or hackberry tree, *Celtis integrifolia*, which turns up in excavations such as Dhar Tichitt in Mauritania (Munson 1976:191), Kintampo in Central Ghana (Stahl 1993:263), Gajiganna in Nigeria (Ballouche & Neumann 1995) and Saouga in Burkina Faso (Neumann *et al.* 1998) almost always in an uncharred form. Vernacular terms for *Celtis*, such as those collected in Burkill (2000:219 ff.) do not show any particular pattern, suggesting that archaeological and linguistic salience do not necessarily go together. The main use of *Celtis* today is for the

leaves, which are used as potherbs, although the fruits are edible. The nettle tree may well have been more widespread in the past and its fruits more highly prized, but perhaps it became of lesser interest when the processing of shea and locust developed.

Long-distance trade does not exist in isolation; it acts as a transmission route for the ideologies of the traders. This is particularly true in those parts of Africa where trade was largely in the hands of Islamic merchants. Many economic trees and crops have been spread along these routes. Dominant trade languages such as Hausa, Kanuri, Songhay, Chadian Arabic and Swahili diffused new plants to remote areas, as is testified by the lexical evidence (e.g. Blench 1998; Blench *et al.* 1997). This worked in several ways; either a plant could be directly transmitted through the sale of the fruit, or an idea about its use spread through the market. For example, the baobab is indigenous to Africa, as the reconstructibility of a name for the tree itself in some Niger-Congo languages testifies. However, the idea of collecting, drying and crushing the leaves as a soup ingredient is definitely attributable to the Hausa and thus their name, *kúúkà*, is widespread as a name for the leaves (Burkill 1985:270 ff.; Blench in press, h). In some cases, the Hausa name has actually displaced the original name for the tree itself. This use of the leaves for soup has increased the salience of baobabs in many communities and led village communities to encourage protection of the tree.

The historical reconstruction of individual tree species

Linguists are poor botanists (and vice versa) and rarely collect more than the names of a few very common species. As a consequence, the reconstruction of tree names is not well developed in any of the language phyla of Africa. Reference sources such as Burkill (1985 *et seq.*) sometimes constitute important compilations of vernacular names, as do timber guides (e.g. Sattler 1997), but the transcriptions are highly variable in quality and often cannot be used. This section provides some samples of tree reconstructions, drawn mostly from West Africa, where it is possible to compare the data with an expanded archaeobotanical database (Kalheber ined.). However, it should be emphasised that this barely touches on the available material; the compilation and analysis of vernacular names for trees, with over ten thousand species in sub-Saharan Africa, remains a daunting task.

oil-palm, *Elaeis guineensis*

The oil-palm, *Elaeis guineensis*, is today the most significant oil-crop indigenous to Africa, even if Malaysia has taken over in world production statistics in recent years[35]. Archaeobotanical finds of palm-nut husks occur from Liberia to Kenya and also in the Sudan (see review in Stahl 1993). Although grown on the East African coast it is of limited economic importance in this region (Maundu 1999). Oil-palms were not cultivated until recently, but protected and allowed to spread by preferential extraction of nearby trees. Indeed, in many places the West African humid forest now consists of degraded oil-palm forest with only a few other species scattered through it. Palynological data on *Elaeis* pollen exists for Lake Bosumtwi in Ghana (Talbot *et al.* 1984:185) suggesting an expansion of oil-palm 3500-3000 BP and in the Niger Delta ca. 2800 BP (Ṣowunmi 1985). Whether this can be described as the 'beginnings of agriculture' is highly dubious, but these findings may point to a more intensive local use of the oil-palm. Even this has been questioned; Maley (2001) considers the results from palynology as simply evidence for oil-palm as a pioneer species in natural forest succession stages. Despite this scepticism, the evidence from linguistics does point to increased use. Connell (1998) analyses terms for oil-palm and the nomenclature of processing in the Cross River languages in SE Nigeria. Williamson (1993:143) has argued that the oil-palm is reconstructible to a considerable time-depth in Niger-Congo languages, but some cognates she cites seem to be based on shaky identifications. It is possible to extract at least one widespread root from the major compilation of vernacular names in Burkill (1997:354 ff.). Table 11.2 aligns these names in columns, showing the #dì stem separated from the various affixes.

[35] Even, regrettably, exporting back to Nigeria palm-oil derived from parent material originally brought to Malaysia from Nigeria.

Table 11.2 A common root for 'oil-palm' in Benue-Congo languages

Branch	Group	Language	Vernacular name				
Tano		Nzema	**a**	**rrɛ**	**lɛ**		
Central Togo		Avatime		**kò**	**lì**		
Gbe		Vhe			**dé**		
Yoruboid		Yoruba		**ẹ**	**rị**	**n**	**ọ̀pẹ̀**
Edoid		Aoma		**ú**	**di**		
		Degema		**ì**	**ɗĩ**		
		Ẹdo		**u**	**di**	**n**	
Nupoid		Gbari		**è**	**zí**	**n**	
Idomoid		Idoma		**a**	**lǐ**		
		Yala		**a**	**li**		
Plateau		Koro		**ɛ**	**rɛ**		
		Ninzo		**i**	**ri**		
Cross River	Central Delta	Abua		**à**	**lhè**		
	Upper Cross	Akpet		**u**	**ri**		
		Kukele		**ù**	**ddì**		
		Legbo		**è**	**lì**		
		Iyongiyong		**dò**	**ré**		
Tivoid		Iceve	**i-**	**rí**	**lè**		
Bantu		Bafok		**e**	**le**	**n**	
		Nkosi		**me**	**le**	**n**	
Ijoid		proto-KOIN			**ɗĩ**	**mé**	

This root is common to the Kwa, Benue-Congo languages and to Ịjọ, suggesting that the oil-palm began to gain importance in the early phase of the expansion of these subgroups, and that it was borrowed *by* Ịjọ rather than dating back to the much more ancient period when Ijoid and Benue-Congo split apart, as Williamson (1993:143) proposes.

bush-candle, *Canarium schweinfurthii*

The bush-candle, *Canarium schweinfurthii*, is sometimes known as the 'African olive' for its black, oily fruits. The hard pericarps give it a high archaeological visibility and they have been recovered from a number of forest sites in West-Central Africa (e.g.; Stahl 1985, 1993; Eggert 1993:324; Olisly 1996). The most ancient record of *Canarium* appears to be at Bosumpra cave in Central Ghana, where a date of 5303±100 bp has been recorded (Smith 1975). Although no vernacular terms are spread over West Africa (Burkill 1985:301-303), in the centre of Nigeria the hard stones are used for divination and as a consequence, both the names for the tree itself and 'divination' are the same in many languages. Table 11.3 shows a common root for the bush-candle, adopted from Plateau languages into Chadic.

Table 11.3 A widespread root for *Canarium schweinfurthii* in Central Nigerian languages

Branch	Group	Language	Vernacular name
Plateau	Alumic	Hasha	**a-far**
	Beromic	Berom	**pwat** *pl.* **pàt**
		Iten	**ɛ̀phaa**
	Eggonic	Ake	**ipa**
		Eggon	**epa**
	Central	Izere	**rifár**
	Ninzic	Ayu	**ìhwar**
		Ce	**ì-hárá**
		Ningye	**war**
	Southeastern	Fyem	**fàt**
		Rukul	**fat**
	Tarokoid	Pe	**ì-pat**
		Sur	**mpat**
		Tarok	**m̀pét**
Chadic		Ngas	**pet**
		Mwaghavul	**pat**

Curiously enough, the divination systems in the Plateau area of Central Nigeria strongly resemble those of the Yoruba *ifa* [which today uses cowries], which itself has cognates in Ẹdo and Igboid languages. There is almost certainly a chain of ideas connecting the seeds of the bush-candle with divination that depends on throwing the seeds in the dust and interpreting the patterns they form.

Cola, *Cola acuminata, Cola nitida*

Cola, *Cola acuminate* and *C. nitida* are small West African trees which bear a bitter nut that contains up to 2% dry-weight in caffeine and was once a significant ingredient of Coca-Cola. It is much favoured as a stimulant throughout West Africa and is widely traded, enters into rituals as well as being a common gift in small social interchanges. Williamson (1993:145) discusses some of the West African names for cola and Table 11.4 illustrates a cognate set for a root that occurs in Benue-Congo languages;

Table 11.4 Cola nut in Benue-Congo languages

Group	Language	Attestation
Yoruboid	Yoruba	**obi**
Edoid	Bini	**evbe**
Akpes	Ikaramu	**mbu**
Nupoid	Nupe	**ebi**
Idomoid	Yala Ikom	**léŋmgbé**
Jukunoid	Wapan	**bə̀k**
Cross River	Abuan	**egbe**
Mambiloid	Len	**bī**
Ring	Aghem	**é-biá**
Bantu	Proto-Manenguba	***-bèé**

Source: adapted from Williamson (1993)

The distribution of this root is rather similar to the oil-palm (Table 11.2), covering the Benue-Congo languages of Nigeria and spreading into the Bantu area of Cameroun. The root was in turn borrowed into Hausa as *íbìì*, for a specific variety of cola, but Hausa also took the more general term *góórò* from Songhay as cola became a major item of commerce. This term was then borrowed into the languages of many of the peoples with whom the Hausa traded.

Introduced tree species

Introduced trees, as with introduced crops, either fail completely, or else spread rapidly, filling a niche in African subsistence systems. They are often so rapidly absorbed in production systems that their exotic status is quickly forgotten. The history of introduced trees is often closely reflected in their vernacular names, as they spread inland from the coast. The coconut is of considerable antiquity on the coast of East Africa, but in West Africa it only dates to the Portuguese era. Williamson (1993:144) has analysed the names for coconut in Nigeria and finds a cluster of coastal languages that have borrowed directly from Portuguese *coqueira*. Speakers of other languages further inland compare the coconut to the oil-palm and name it 'European oil-palm'. Further inland still, the names are not clearly analysable. This suggests that the tree spread up from the coast from farmer to farmer prior to the nineteenth century; beyond a certain point the direct connection with Europeans was no longer made.

In the case of a more recently introduced species such as the orange, the long-distance movements typical of the colonial era circumvented the process of gradual spread. The orange, like the coconut, was introduced on the West African coast by the Portuguese. Williamson (1970) notes that most of the names in coastal languages are borrowed from Portuguese *naranja*. However, the Hausa name, *lèèmúú*, is apparently from Arabic, although the actual orange rootstock may well have spread from the south, rather than across the desert. The Hausa were enthusiastic promoters of the orange and indeed other citrus fruits and now many languages south of their area use the Hausa name rather than the coastal languages.

The effectiveness of the transmission of new economic trees can be seen by the spread of New World species into the interior of Africa. The most striking of these, the pawpaw, *Carica papaya*, is native to Central America and was carried by the Spanish to other regions of the New World, as well into Asia and Africa (Blench 1998). The pawpaw is a large, juicy fruit that grows rapidly on waste land and infertile soils, and spreads rapidly in peri-urban environments. The first record on the West African coast is Bosman (1704:301), and other mentions follow shortly afterwards (Mauny 1953:715). It is likely that the pawpaw was also introduced into the Sahel from North Africa in the nineteenth century as Barth (1862:184) records the Kanuri name *bambūs Massarbe*, i.e. the melon of Egypt, and a now disused Hausa term *gonda Masr*, 'custard-apple of Egypt'. The analogy with the indigenous wild custard-apple, *Annona senegalensis*, is made in many languages, and the name for the custard-apple applied to the pawpaw. Pawpaw is *gwándá* in Hausa and the custard-apple, *gwándán daji*, the 'pawpaw of the bush'. A similar process in Fulfulde makes the pawpaw *dukku* and the custard apple *dukkuhi ladde*. Other evidence for the spread of the pawpaw from north to south is the Nupe name, *kónkení*, meaning 'shea-nut [*Vitellaria paradoxa*] of the Hausa'. The lexical evidence neatly illustrates the rapid spread of the pawpaw both from the West African coast and across the Sahara desert shortly after its transport from the New World.

Timber and other economic trees

The colonial era and the period immediately preceding it were responsible for attributing a new value to African trees, their use for timber. Although trees have long been cut down for specialised construction, notably canoes, the development of a large-scale extractive industry for export and building is associated with the expansion of European trade. As European intrusion was transformed into political dominance it was possible to both extract and plant by fiat rather than by negotiation with existing rulers. The colonial era was responsible for three significant changes in outlook in respect of trees; large-scale timber extraction from natural forests, large-scale plantations for timber, firewood and fruit, and the widespread diffusion of cultivated fruit trees to smallholders. The rich tropical hardwoods of the high forest of West-Central Africa presented an unrivalled resource to the early traders on the coast. Large-scale extraction began in the early colonial period and has continued up to the present. Serious deforestation has occurred since about 1970, with much of the forest cover replaced by degraded secondary forest.

Timber trees considered valuable today often had little or no importance in the pre-colonial era. As a consequence, they would have had either no name at all or a highly local name. When they suddenly became of economic significance, they acquired a commercial name, often the name in a particular language. This has often remained the trade name and can be seen emblazoned on name-plates in timber-yards across the world and used by merchants with no sense of its origin. The linguistic interest is that these trade names generally tended to drive out local names, creating uniform patterns over large areas.

An example of this is odum or iroko, *Milicia excelsa,* which is of major importance as a timber tree on the West African coast. Table 11.5 shows the names of the odum in the languages of Ghana and Nigeria;

Table 11.5 Names for odum/iroko (*Milicia excelsa*) in Ghana and Nigeria

Family	Branch	Language	sg.	pl.
Kwa	Tano	Twi	**odum**	
		Ga	**odúm**	
	N. Guang	Gikyode	**òdúm**	**ìdúm**
	Na-Togo	Gidere	**ólókò**	**ílókò**
		Lelemi	**odúm**	
		Sɛlɛ	**ódúmú**	**sidúmú**
	Ka-Togo	Tuwuli	**òdúm**	**tudúm**
Gur		Ntrubo	**ódùm**	
Benue-Congo	Yoruboid	Yoruba	**ìrókò**	
		Igala	**ùlókò**	
	Idomoid	Idoma	**ulóko**	
	Nupoid	Nupe	**rokò**	
	Edoid	Ẹdo	**ulóko**	
	Jukunoid	Wapan	**rokò**	
Ijoid	Ịzọn	Egbema	**iróko**	
Chadic	West	Hausa	**lóókó**	

Milicia excelsa is an indigenous species, so the uniformity of these names is quite unnatural, especially where extremely similar terms are found in quite different language families. It suggests that there were two focal points where the value of the tree for timber was perceived, in southern Ghana and south-western Nigeria. As the trade grew, the name spread rapidly and displaced whatever local names existed.

Another product that came to be valued in the colonial era was rubber. Forestry officers were constantly on the lookout for species to compete with commercial rubber, *Hevea brasiliensis*, and numerous vines and trees were tried out during this period. One group was the *Funtumia* spp. or bush-rubber trees, which came to have considerable commercial importance in Ghana (Burkill 1985:151). Table 11.6 shows the names of the bush rubber tree in the Volta Region:

Table 11.6 Ghanaian names for the bush rubber tree (*Funtumia elastica*)

Group	Language	sg.	pl.
Tano	Twi	**ɔ-fruntum**	
	Nzema	**ofuntum**	
Gbe	Ewe	**funtum**	
Northern Guang	Gikyode	**òfúntún**	**ìfúntún**
Ka-Togo	Tuwuli	**òfruntum**	**tùfruntum**
Gur	Ntrubo	**òfúrúntún**	

Again, such a uniform common name would not be expected and it is likely that these terms only spread outwards from the coast from the 1880s onwards when the rubber was first exploited.

Domesticated plants

Introduction

Background to African crops

The earliest writing on centres of agriculture and domestication of crops tended to ignore Africa, although Vavilov (1931) identified Ethiopia as a centre of domestication for wheat and peas. The notion that West Africa was an important centre for crop domestication comes from Murdock (1959), and most of his proposals have largely been confirmed by later work. Mauny (1953) collated many of the early references to crops in West-Central Africa and it is thus possible to track the more recently introduced crops, such as maize or the pawpaw, through archival and printed sources. Many of Africa's indigenous crops remain poorly known and few enter into world trade. Ethnobotanical research into crop plants in Africa has tended to focus on those considered most commercially significant. Thus, although there exists a substantial body of research on the taxonomy and local use of sorghum, plantains and guinea-yams, cereals such as fonio and iburu, and tubers like the aerial yam and the Sudan potato remain almost unknown. This leads to an unbalanced picture of the cultigen repertoires in traditional agriculture and a tendency to underestimate the significance of 'minor' crops in prehistory.

The African crop repertoire has five main sources; Table 11.7 shows the centres of origin and the group mainly responsible for their transmission to sub-Saharan Africa;

Table 11.7 Main sources of African crops

Centre of origin	Main transmitters
Indigenous	—
SE Asia, Oceania	Austronesians
Indian Ocean	Arabs
Arab world and North Africa	Arabs
New World	Europeans, especially Portuguese

Not all of these are exclusive; many New World crops were spread both by the caravan trade from North Africa and via Portuguese traders on the coast. The history of some crops remains highly controversial; for example, when and where the triploid plantain (Musa AAB) entered Africa is still unknown.

The identification of centres of origin for most species is based on plant geography and analysis of modern-day cultivars, not archaeobotany. If we depended on well-dated finds our picture of African agriculture would be severely impoverished. Neumann (2003) has reviewed the archaeobotanical evidence for Africa, in support of her contention for a late origin for agriculture in Africa. Evidence is best for cereals; vegetative crops such as yams and potherbs are poorly represented or not at all. It is possible to use phytoliths to detect starchy roots, but this technique has only recently been adopted and is yet to be widely used. In the discussions below the dichotomy between cereals and vegetative crops is very marked; with cereals it is possible to compare and contrast linguistics and archaeobotany; with other crops, linguistics is presently the only tool available for reconstruction of their history. As a consequence, agriculture tends to be seen from a semi-arid perspective; better data on forest-zone crops might well change our impression of the origins and development of African agriculture.

Table 11.8 lists the main species now generally thought to have been domesticated within Africa;

Table 11.8 Major indigenous African cultigens

Common Name	Scientific name	Likely region of domestication
Guinea yam	*Dioscorea rotundata*	West Africa
Aerial yam	*Dioscorea bulbifera*	Africa/India
Three-leaved yam	*Dioscorea dumetorum*	Nigeria/Cameroun
Sudan potato	*Solenostemon rotundifolius*	West Africa
Livingstone potato	*Plectranthus esculentus*	West Africa
Enset	*Ensete gillettii*	Ethiopia
Sorghum, guinea-corn	*Sorghum bicolor*	Ethiopia to Lake Chad
Bulrush millet	*Pennisetum typhoides*	subdesertic West Africa
Finger-millet	*Eleusine coracana*	Ethiopia
Tef	*Eragrostis tef*	Ethiopia
African rice	*Oryza glaberrima*	West Africa
Fonio	*Digitaria exilis*	West Africa
Iburu	*Digitaria iburua*	Nigeria
Bambara groundnut	*Vigna subterranea*	Nigeria
Kersting's groundnut	*Macrotyloma geocarpa*	Nigeria
Cowpea	*Vigna unguiculata*	West Africa
Ethiopian pea[36]	*Pisum abyssinicum*	Ethiopia
Okra	*Abelmoschus esculentus*	West Africa
Roselle	*Hibiscus sabdariffa*	West Africa
Green amaranth	*Amaranthus lividus*	West Africa
Egusi melon	*Citrullus lanatus*	West Africa
-	*Cucumeropsis manni*	West Africa
Fluted pumpkin	*Telfairia occidentalis*	Nigeria
Koko	*Gnetum Bucholzianum*	Cameroun
Castor bean	*Ricinus communis*	West Africa
Niger seed	*Guizotia abyssinica*	Ethiopia
Sesame	*Sesamum spp*.	West Africa[37]
Melegueta pepper	*Aframomum spp.*	West Africa
Cola	*Cola* spp.	West Africa

It is no accident that West Africa is the source of most of Africa's major domesticated species; the elaboration of agriculture took place in West Africa and was spread to the rest of the continent with the expansion of Niger-Congo speakers. Although there was an analogous but separate development of agriculture in Ethiopia, the rather special ecological conditions of the Ethiopian Plateau meant that its impact elsewhere in the continent was considerably less.

The idea that food-plants from island SE Asia had a major impact on African history was originally propounded by Murdock (1959), but the difficulties of confirmation through archaeobotany have ensured that this hypothesis remains controversial. The major African food-crops of Austronesian origin are shown in Table 11.9.

Table 11.9 Major food-crops of Austronesian origin in Africa

Common Name	Scientific name
Cocoyam	*Colocasia esculenta*
Water-yam	*Dioscorea esculenta*
Plantain (AAB)	*Musa paradisiaca*

[36] Recently identified; see Butler (2003)

[37] This is controversial. Bedigian (2003) has recently presented evidence for an Indian domestication.

Exactly how and when these species reached Africa is still unknown, but it was apparently at an early period. Somewhat later, plants from South Asia and SE Asia also reached East Africa in pre-Portuguese times through the Indian Ocean trade (Greenway 1944-45). Table 11.10 summarises the principal species transmitted along this route;

Table 11.10 Major crops reaching East Africa via the Indian Ocean trade

English name	Scientific Name
banana	*Musa sapientium* (Musa AA)
Asiatic rice	*Oryza sativa*
sweet potato	*Ipomoea batatas*
sugar-cane	*Saccharum officinarum*
coconut	*Cocos nucifera*
cinnamon	*Cinnamomum zeylanicum*
bush greens	*Amaranthus hybridus* ssp. *incurvatus*
mango	*Mangifera indica*
orange	*Citrus sinensis*
cannabis	*Cannabis indica*

Most of these failed to spread inland across the continent and indeed remained largely coastal in distribution. Only cannabis spread inland to any great extent, becoming the recreational drug of choice among apparently highly conservative peoples such as the Mbuti pygmies and the Gwembe Valley Tonga. As a consequence, the Portuguese became secondary distributors of Indian Ocean crops, bringing rice, sweet potato, sugar-cane, coconut and others to West Africa. Asian rice seems to have also spread across the Sahara from the Maghreb, in contrast to the other crops.

The North African caravan trade, which began with wild animals and manufactured products and later deteriorated into violent and oppressive slaving, also brought a number of cultivated species to sub-Saharan Africa (Table 11.11).

Table 11.11 Principal cultigens brought to sub-Saharan Africa via the caravan trade

Cereals	Vegetables	Potherbs	Fruits	Spices
Wheat	Onion[38]	Molokhiya	Date	Turmeric
Barley	Garlic	Roselle (red spp.)	Melon	
	Cherry tomato			
	Cucumber			

Compared with New World species, the impact of these was relatively small; none of the North African crops ever replaced a sub-Saharan African staple. Pickersgill & Heiser (1977) present a global synthesis of the dispersal of New World cultigens and Pasch (1980) compiled a valuable list of vernacular terms covering the entire continent and presented some preliminary hypotheses concerning foci of diffusion. A few other studies have covered specific crops or regions in more detail, for example, Blench (1998a). The actual process and even the date when the New World crops were introduced was usually not recorded and must be inferred from passing references in travel records and descriptive publications. There is little doubt that the Portuguese and later the Spanish carried crops across the Atlantic and to the West African coast. Some of these were then carried to the East Coast, although caravels from SE Asia reaching Sofala in Mozambique also carried New World crops from the opposite direction. By contrast, crops brought in from the New World have had a major impact on African agriculture (Table 11.12);

[38] Onions and garlic were also brought to the West African coast by the Portuguese.

Table 11.12 Principal New World Cultigens in Africa

Cereals	Tubers	Legumes	Fruits	Vegetables	Others
Maize	Cassava	Groundnut	Pawpaw	Chili pepper	Cucurbits
	Sweet potato	Lima bean	Guava	Tomato	Tobacco
	Irish potato		Avocado	Capsicum	Cocoa
	New cocoyam		Pineapple		

Source: Blench (1998)

Maize and cassava, in particular have replaced indigenous staples in many regions of Africa, and fruits such as pawpaw and guava are significant secondary crops.

Using linguistic evidence

Historical linguistics is a key tool for understanding African subsistence systems, especially where archaeobotanical evidence is inadequate. §2.4.7 discusses how chains of loanwords and recent lexical innovations can help plot the spread of recently introduced species. In the case of older crops where their cultivation or management goes back as far as individual branches of the major language phyla, a more complex interpretative technique is required. An important contribution to the understanding of African crop history is a series of articles by Portères (1958, 1959), who may have been the first scholar to attempt historical reconstructions of the history of African cereals via vernacular names. The material at his disposal was inadequate, but methodologically, his work is of primary importance.

One of the most vexing problems in the reconstruction of plant names in African languages is the transfer of names between wild and cultivated varieties of plants. To illustrate this point, consider the Niger-Congo terms for ‘yam’ and ‘sorghum’. Yams, i.e. the Dioscoraceae, are present throughout all of sub-Saharan Africa. The wild ancestors of the present-day cultivated yams such as *Dioscorea guineensis* would have been exploited from an early period, as indeed are many species of yam today, especially in periods of famine. At an unknown period, the cultivated yam was developed from the wild *Dioscorea praehensilis* through a gradual process of protecting, transplanting and then selection. Although a reconstruction of something like #-**ji** is possible at least as far as Proto-Benue-Congo (Williamson 1993) this is no guarantee that speakers of PBC were cultivating yams, as opposed to simply exploiting wild species. Therefore, no amount of work on reconstructing the basic lexeme for ‘yam’ can clarify its relative antiquity in cultivation. Similarly, with sorghum, there is a widespread root in Niger-Congo languages, something like #**kyi**. But archaeobotanical evidence for sorghum is persistently late for such a reconstruction to refer to cultivated forms. Failure to recognise this has led to somewhat exaggerated claims about the reconstructibility of both cultigens and by extension, agriculture.

There is a possible way around this dilemma; the reconstruction of lexical items associated with cultivation (Williamson 1993; Connell 1998). There could, for example, be a specific word for a tool to uproot yams, seed yam or yam-heap. If these could be shown to reconstruct to the same depth as yam itself, this would be a good indication of the antiquity of cultivation. Although semantic shift remains a possibility, for example a general word for ‘mound’ becoming ‘yam-heap’, it is unlikely that the same shift would take place in all groups simultaneously. In the case of the Guinea yam, it does not seem as if lexical items associated with its cultivation are reconstructible to anything like the same depth as the plant itself (e.g. Connell 1998). Even this strategy is only sometimes useful; for example, it might seem that looking for reconstructions of words such as ‘field’ would provide evidence for the relative antiquity of agriculture. But in most Nilo-Saharan and Niger-Congo languages, this is simply the same word as ‘bush, uncultivated land’ and not a distinct lexeme. This is informative about the fuzzy conceptual boundaries of land classification but not very helpful in uncovering the antiquity of agriculture.

As a consequence, linguistics may allow us to fill some gaps in the prehistory of African subsistence, but often we are hamstrung by a lack of accurately recorded technical vocabulary. We know the word for ‘yam’

in many more languages than for 'yam-heap' and, for many minor African crops, lexical data is so limited as to be unusable. What follows, then, is a sketch of the potential of linguistics rather than a recounting of issues resolved.

Cereals

Introduction

Until recently, all the staple cereals of Africa were indigenous domesticates; sorghum, millet, finger-millet, tef, fonio and others originated in Africa and indeed, the most important were carried to Asia, as the cereals that first made it possible to exploit monsoon rains, for which the temperate cereals such as wheat and barley were unsuited (Blench 2003c). Cereals have also tended to dominate the archaeological imagination, partly because seeds preserve well, especially when charred, and because the morphology of domestication is well understood. The archaeology of cereal agriculture has a long history in the Near East and has tended to dominate our view of agricultural origins as a whole. Harris (1977) pointed out there were many 'alternative pathways to agriculture', but the presence of datable charred grains has probably exercised undue influence on our picture of African agricultural origins.

Much of Africa is today dominated by introduced cereals, particularly maize and Asian rice, and the older pattern of African cereal agriculture is being rapidly transformed. Maize has had a major impact on the agricultural ecology of Africa since its introduction from the New World, because of its high yields and adaptation to high rainfall areas typically dominated by tubers, while Asian rice is displacing African rice throughout West Africa.

Individual species

Table 11.13 lists the important cereals for African subsistence, marks whether they are indigenous or exotic and whether archaeobotanical and linguistic data exist.

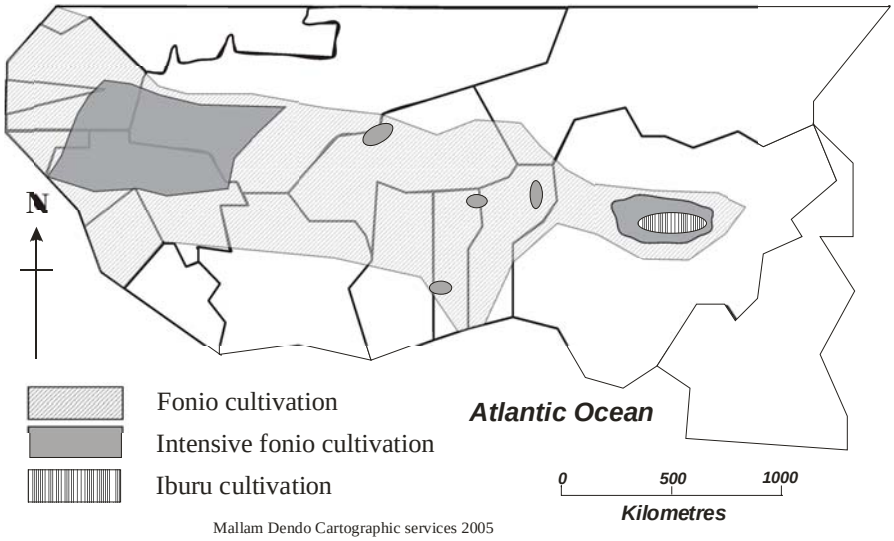
Table 11.13 African cereals, origin and evidence

English name	Scientific Name	Archaeobotanical data	Linguistic data
Indigenous			
fonio, fundi, hungry rice	*Digitaria exilis*	+	+
iburu	*Digitaria iburua*	—	—
tef, t'ef	*Eragrostis tef*	+	+
finger-millet, ragi	*Eleusine coracana*	+	+
sorghum, guinea-corn	*Sorghum bicolor*	+	—
bulrush/pearl millet	*Pennisetum glaucum*	+	—
African rice	*Oryza glaberrima*	+	+
Introduced			
rice, Asiatic rice	*Oryza sativa*	—	—
wheat	*Triticum* spp.	—	—
maize, corn	*Zea mays*	—	+
barley	*Hordeum vulgare*	—	—

fonio, fundi, hungry rice *Digitaria exilis*

Fonio is a short, grass-like cereal derived from a wild species, *Digitaria longiflora*. It is only slightly differentiated from its wild relative and fonio fields are often invisible to unpractised observers[39]. Fonio is cultivated between Guinea and the Nigeria-Cameroun border (Chevalier 1922; Portères 1955a; Hilu *et al.* 1997). Its current rather disjunct distribution in West Africa suggests that it was anciently spread over a much wider area, but that it has been reduced to relic cultivation by high-yielding grain crops (Map 11.1). Al-Bakri, writing in 1068, may be discussing fonio when he mentions that Sijilmasa 'wheat has a small grain'. The Arab geographer Al-'Umari, writing in 1337-8 (Levtzion & Hopkins 1981: 263) says '[*funi*].. is a downy pod, from which, when crushed, there issue seeds like those of mustard, or smaller and white in colour'. *Digitaria* does not have a downy pod, but the description of its seeds does suggest fonio. Ibn Baṭṭuṭa, who travelled in Sahelian West Africa a decade later, in 1354, also mentions its cultivation in Mali. Fonio has been retrieved from the site of Cubalel in Senegal dated to the Late Iron Age, i.e. the last few centuries BC (Dorian Fuller p.c.).

Map 11.1 Fonio and iburu cultivation in West Africa



Source: Portères 1955a

Table 11.14 shows that there is a widespread root for fonio in the Mande and Atlantic languages in the heartland area where the cereal is likely to have been domesticated. Central Nigeria has completely unrelated roots, which indicates that this region was cut off from the main zone of cultivation at an early period (Portères 1955a, 1976; Burkill 1994:226). Table 11.14 should be compared with Table 11.19, which shows terms for African rice in a similar set of languages and a comparable pattern. Both these species were probably part of a related complex that evolved in the area of present-day Guinea more than 2000 years ago.

[39] See the website http://fonio.cirad.fr/ for further bibliography and more detailed information

Table 11.14 A common name for fonio in Mande and Atlantic languages

Language Mande	Attestation	Language Atlantic	Attestation
Mende	**póté**	Wolof	**fini**
Loko	**pénî**	Fulfulde	**fonyo**
Looma	**pɔdɛ**	Jola-Fonyi	**finya**
Kpelle	**miniŋ**	Bedik	**fɔ́ndéŋ**
Jallonke	**fúndéń**	Basari	**funyáŋ**
Soso	**fundeny**	Manjaku	**findi**
Mandinka	**fíndi**	Kisi	**kpendo**
Xasonka	**fúndi**	Bulom	**peni**
Bamana	**fíni**		
Maninka	**fónĩ**		
Soninke	**fuɲaN/fuɲaŋŋe**		
Bobo	**fɛ̃** *pl.* **fã**		
Dan	**pɤ́ŋ́**		
Guro	**fní**		
Mona	**fḯĩ**		
Wan	**fēŋ́**		

Source: adapted from Vydrine (ined.), Segerer (ined.)

iburu *Digitaria iburua*

Iburu is a cereal related to fonio, but of much more restricted distribution (Map 11.1). The plant is taller than fonio, but the grain still smaller, making the labour of collecting it very intensive. Its main area of distribution is in Central Nigeria, with a curious isolated patch of cultivation far to the north in Zinder in Niger (Portères 1955a, 1976). This suggests that prior to the spread of major cereals such as sorghum, iburu cultivation was more widespread, although probably never as significant as fonio. Linguistically, iburu is sometimes treated as a type of fonio, sometimes as an entirely separate species.

ṭef, t'ef *Eragrostis tef*

Tef is a cereal entirely confined to the Ethiopian highlands, and domesticated there. Rather like fonio, it has very small grains and can yield well in infertile soils. The first clear record of ṭef appears to be Zuccagni (1775). Descriptions of its cultivation in Ethiopia are to be found in Burtt-Davy (1913) and Cifferri & Baldrati (1940). The most complete review appears in Costanza *et al.* (1979), which concludes that the nearest wild relative of ṭef is probably *E. pilosa*, often harvested wild in parts of semi-arid Africa for its seeds. Ethiopia. Barnett (1999:59) tabulates finds of *ṭef* in Ethiopia, the earliest of which is Lalibela cave at ca. 2000 BP. Boardman (1999) records *ṭef* from the mid-first millennium BC site near Aksum. Portères (1958) approached the history of *ṭef* through the analysis of Ethiopian vernacular names. Almost all the names recorded in both Ethiosemitic and Cushitic languages are cognate with the Amharic *ṭef* (Ge'ez ጣሕፍ) and since it was clearly not brought from outside, it was probably first domesticated by Cushitic speakers (Ehret 1979). There have been quite a few rather wild suggestions as to the etymology of this word, such as borrowing from Arabic *tahf*, a grass eaten during famines in Yemen, Amharic *teffa*, meaning lost, as people easily lose the seeds, and Greek τιφη, 'poor wheat' (Barnett 1999:65). Ehret (1979: 167) lists some possible cognates for Ethiosemitic *ṭef*, some of which are words for 'food' and others for different cereals.

bulrush millet, pearl millet *Pennisetum glaucum*

Pearl millet is found from Senegambia to Southern Africa in semi-arid regions, as well as in India and China. The wild relatives of pearl millet grow on the southern edge of the Sahara (Chevalier 1932a:888-890; Brunken *et al.* 1977; Hamon 1993) and it is usually considered that this was its locale of domestication (Tostain 1989, 1994, 1998). Portères (1976:433-441) provides a detailed overview of the subtypes of pearl millet in Africa and argues that the morphological evidence strongly supports early transmission to India. The absence of finds in the Nile Valley and the Near East suggest that pearl millet reached India by sea. Although the cultivation of *Pennisetum* millet is well-established in many parts of India, the archaeological record is weak, with grains dated by context rather than directly. However, recent reviews of the evidence have confirmed that at least some records can be considered well-founded (Fuller 2000, 2003). Table 11.15 summarises the present evidence for archaeological millet in Africa and India;

Table 11.15 The earliest archaeological records of domesticated pearl millet

Region	Country	Site	Date(s)	Reference
Africa	Mauretania	Dhar Tichitt	1936-1683 BC cal	Amblard (1996)
			1881-1527 BC cal	Amblard (1996)
	Burkina Faso	Ti-n-Akof	2840 ± 49 BP (cal. 1035-916 BC, UtC-4906)	Neumann (1999:77)
	Nigeria	Kursakata	Directly dated to 2430±70 BP (UtC 5452) and 2290±70 BP	Neumann *et al.* (1996), Klee *et al.* (2000)
		Birimi	3460±200 BP (TO-8172, 1980-1520 cal BC)	d'Andrea, C., Klee, M. & J. Casey (2001)
Asia	India	Rangpur	ca. 1800-1200 BC	Herman (1997)
		Hallur	? 2200-1800 BC	Fuller (2003)

Source: adapted from Blench (2003b)

Portères (1959) speculates about the Arabic name *dukhn*, and the widespread Indian term *bajra*, but has little to say about names in sub-Saharan Africa. Burkill (1994:314) compiles a large number of indigenous names, notable for their extreme diversity. This is puzzling, given the relative uniformity of names for fonio and rice, and rather suggests that millet has been compared with a variety of wild plants.

sorghum, guinea-corn *Sorghum bicolor* (Linn.) Moench

Cultivated sorghum presents one of the more perplexing problems in African agrarian history. It is crucial to African subsistence systems in the subhumid and semi-arid regions of the continent and is embedded in ritual systems, and so would appear to be ancient. But all attested archaeobotanical materials remain stubbornly recent and moreover, sorghum occurs in archaeological sites in India millennia before confirmed dates in Africa. Archaeobotanical evidence is sometimes hard to read because of the difficulties in distinguishing wild and cultivated races (Neumann 2003:77). Table 11.16 presents selected African and South Asian records for archaeological sorghum;

Table 11.16 The earliest archaeological records of domesticated sorghum

Region	Country	Site	Date(s)	Reference
Africa	Sudan	Jebel el Tomat	245±69 AD	Clark & Stemler (1975)
	Sudan	Meroe	20 ±127 BC	Rowly-Conwy (1991)
	Nigeria	Elkido	340-430 AD	Magnavita (2002)
	Nigeria	Daima	800 AD	Connah (1981)
India	India	Hulas	2200-1500 BC	Saraswat (1993)
	India	Tuljapur Garhi	1200-900 BC	Kajale (1988)

Source: Adapted from Blench (2003b)

The primary studies of the evolution of sorghum are Snowden (1936), Doggett (1988), Harlan & De Wet (1972), Harlan & Stemler (1976b), Stemler *et al.* (1977) and Doggett & Prasada Rao (1995). All these studies concur in locating the origin of sorghum in Africa and identify the region of domestication as a band stretching from SW Ethiopia to Lake Chad. Hypotheses about the domestication and diffusion of sorghum in Africa are based almost exclusively on the distribution of modern races. Blench (2003b) presents a scenario for the histories of different sorghum races based on this evidence.

Explaining the disjunction between the Indian and African evidence remains a problem. Haaland (1996) invokes a 'cultivation without domestication' scenario. Cultivation, the resowing of wild seed in convenient locations, is contrasted with 'domestication', where selection induces morphological change in the seed. Haaland argues that wild sorghum was cultivated in the Chad-Ethiopia belt from 6000 BP onwards, but that domestication took place outside Africa, perhaps in Arabia, but most likely in India. Dorian Fuller (p.c.) has recently recorded sorghum in a Sudanese site north of the Nile confluence and suggests that the absence of early sorghum may simply be a lack of excavations in the right locations.

The linguistic evidence for sorghum cultivation is difficult to evaluate, because wild sorghums are regularly exploited for food and often have the same name as domesticated types. Barich (2004) treats the *Sorghum* spp. recovered in considerable quantities at Farafra in the Western Desert of Egypt as 'semi-domesticated', and it is clear that it was intensively exploited. Nonetheless, archaeobotanists such as Neumann would undoubtedly view these as 'wild'. In contrast to millet, there *is* evidence for a widespread root for domestic sorghum in West-Central Africa, #kVN-, that occurs in a number of distinct language families and phyla (Table 11.17);

Table 11.17 A sorghum root in West African languages

			Attestation		
Phylum	**Branch**	**Language**			
Niger-Congo	Mande	Vai		**ke**	**nde**
		Mende		**kɛ**	**ti**
	Atlantic	Fulfulde	**ga**	**w**	**ri**
		Konyagi		**ko**	**mbo**
	Adamawa	Longuda		**kwa**	**nla**
		Waka		**kɔ**	**ŋ**
	Kwa	Krobo	**ko**	**ko**	
	Benue-Congo	Akpa	**i**	**kwù**	
		Iceve	**ì-**	**kù**	**lé**
		Igala	**ó**	**ko**	**lì**
		Igbo	**o**	**kì**	**lì**
Nilo-Saharan	Songhay	Songhay		**hà**	**mà**
	Saharan	Kanuri	**ngà**	**wú**	**lì**
Afroasiatic	Central	Kamwe		**xà**	
		Bole		**ku**	**té**
		Dera		**kú**	**rè**
	West	Mwaghavul		**kà**	**s**

Source: adapted from Burkill (1994:348 ff.)

Some families, such as Ijoid and Kru, are not represented, because they are confined to the humid zone where sorghum does not grow. This root is widespread, much-compounded and ancient, but also much-borrowed between phyla and families, suggesting that sorghum cultivation spread well after the establishment of the main linguistic groups in West Africa. Bahuchet & Philippson (1996:103 ff.) discuss the terms for sorghum in Bantu languages; in much of East Africa, the common term for bulrush millet ***-bele** seems to have been transferred to sorghum. To make matters still more complex, many sorghum terms are now applied to maize, which has replaced it as a staple in many areas. Ehret (1979: 167) proposes a very great antiquity for sorghum cultivation in Ethiopia on the basis of doubtful Afroasiatic cognates.

finger-millet, ragi, *Eleusine coracana*

Finger-millet gains its name from the head of the plant, which bears some resemblance to a splayed hand. It is primarily grown today to make beer in most regions of Eastern and Southern Africa, although it probably played a grater role as a staple before the introduction of maize. The exact area of domestication of finger-millet has remained controversial. Because it shows the greatest varietal diversity in India, earlier sources suggested a homeland there. Portères (1951, 1958) inclined to an African origin on the basis of a study of terms in African languages and more recent genetic work has generally supported this view (Hilu & De Wet 1976, 1977; Hilu, De Wet & Harlan 1979; Hilu 1995). Indeed, most authors have wanted to assign very old dates to finger-millet domestication, despite sparse and recent archaeobotanical materials. Boardman (1999) records a first millennium AD find of finger-millet near Axum in Ethiopia. In south-eastern Africa, there is a record of cultivated finger-millet at Inyanga, in modern-day Zimbabwe, where carbonised seeds are associated with late Iron Age pottery (Summers 1958).

From the point of view of linguistics, finger-millet seems to be old in Ethiopia and Eastern and Southern Africa, but recent in West Africa. Ehret (1979: 172) notes that Amharic *dagussa*, ዳጉሳ, is borrowed from the Agaw languages, suggesting domestication prior to the intrusion of Ethiosemitic. Table 11.18 shows a stem that occurs in Eastern Africa[40]. The original shape of the root seems to have been something like *#-gimbi*, with the class prefix 3 (u)mu- for the plant and Class 14 (u)wu- for the grain. It was also borrowed into Nilotic languages with a loss of the prefix and devoicing of the first consonant;

Table 11.18 A finger-millet stem in East African languages

Phylum	Branch	Language	Attestation	Gloss
Niger-Congo	Bantu	Swahili	**(m)wimbi**	
		Embu	**ugimbi**	
		Kikuyu	**ugimbi**	
		Chonyi	**wimbi**	
		Sangu	**uwugimbi**	beer
		Sena	**mulimbi**	
		Shona	**mbimbimbi**	bumper crop of finger-millet
Nilo-Saharan	Nilotic	Maa	**oloikimbi**	

Source: adapted from Maundu (1999) and FAO (1988)

Another East African root, ***-degɪ**, which occurs south and east of the Great Lakes, might be connected to the Indian name *ragi* (Bahuchet & Philippson 1996: Fig. 4). Finger-millet presumably spread across the centre of the continent in quite recent times, since its western limit is in Central Nigeria. In most languages in Nigeria, the name is a borrowing from Hausa *támbà*, which itself looks like a borrowing, although the source language is not identifiable.

rice

African rice *Oryza glaberrima*
Asiatic rice *Oryza sativa*

There are two species of rice in Africa, indigenous African rice and its Asian counterpart. *O. glaberrima*, African rice, is generally considered to have evolved in the Guinea/Sierra Leone region from *O. barthii* (Portères 1955b). It was only recognised as an indigenous species separate from Asian rice in 1914 (Chevalier 1932b:87). African rice, confined to West Africa, is now under considerable threat from introduced varieties of Asian rice, but cultural and linguistic evidence points to its considerable importance in prehistory. In spite of its importance, indigenous African rice is one of the least-known major cereals. It is

[40] This is more widespread than indicated in Bahuchet & Philippson (1996: Fig. 4)

grown between Senegambia and the northwest of Nigeria with the major foci of cultivation in the Sierra Leone-Liberia region and the Inland Delta in Mali. The only significant archaeological evidence is at Jenné-Jeno in Mali, where Iron Age rice seeds have been recovered (Mcintosh 1995). African rice can be grown both as a field crop and a paddy crop and there are remarkable deepwater varieties specific to the unusual flood conditions that occur in the inland Niger Delta. Leo Africanus saw rice being sown by broadcasting it on the surface of the water in the region of Sokoto in present-day north-western Nigeria in the 1520s.

Asian rice, *Oryza sativa,* does not form interspecific hybrids with African rice. The exact zone of domestication of Asian rice remains disputed, although it is certainly East Asia (Blench, in press h). Classical sources suggest that it was being cultivated in Mesopotamia and Persia by the 2nd century BC. There is no clear evidence for its presence in Ancient Egypt and Täckholm & Täckholm (1941:411) believed that it was introduced between the 7th and 16th centuries. He pointed out that the Coptic term derives from Arabic, supporting a late transmission from further East. Watson (1983:17) collected together references illustrating the diffusion of Asian rice in Africa. In the twelfth century, al-Zuhri mentions that rice was a staple for the Abyssinians living along the Nile. In the 13th and 14th centuries, rice is reported on the East African coast, although the names for rice in Swahili link it with India rather than the Arabs. The Portuguese were responsible for bringing Asiatic rice to the coast of West-Central Africa, since it is usually known by loanwords incorporating *arroz* (Williamson 1970).

Terms for rice in Africa languages are in flux due to the introduction of Asian rice and the terminology associated with it. Clearly, there is an older layer of terms for rice prior to Portuguese contact, but as it has spread, these terms have been transferred to Asiatic rice. One widespread West African root is embedded in Niger-Congo languages and has been borrowed into Nilo-Saharan, which reflects this older layer of rice cultivation (Table 11.19);

Table 11.19 A widespread root for 'rice' in West Africa languages

Language	Attestation	Language	Attestation	Language	Attestation
Mande		**Atlantic**		**Kru**	
Soso	**màalée**	Jola-Kajamutay	**maano**	Dewoin	**mɔ̀ɔ**
P. Manding	***màaló** (?)	Fulfulde	**maaro(ri)**	Basa	**mɔɔ**
Mandinka	**màani**	Palor	**maalo**		
Xasonka	**màalu**	Manjaku	**û-maani**	**Kwa**	
Bamana	**màló**	Mankanya	**maanan**	Twi	**ɛmõ**
Marka-Dafin	**maro**	Pepel	**umanu**	Fante	**omõ**
Kong Jula	**mari**	Badiaranke	**pamāno**	Ga	**omõ**
Soninke	**maaru/o** *pl.* **maaronu**	Nalu	**mmar**	Ewe	**molũ**
Bobo	**mīrī** *pl.* **mīrè**	Kisi	**mààlóŋ**		
Dan	**mlɯ̃**	Mansoanka	**maal**	**Gur**	
Tura	**míní**	Bijogo	**ɛman**	Moba	**mori**
Mona	**mlɔ̀**			Sisaala	**miiriŋ**
Wan	**mɜ̃ŋ̀**	**Nilo-Saharan**		Nawdm	**miri**
Ben	**mānú**	Songhay	**mò *pl.* mòà**		
		Kanuri[41]	**esmalli**		

Sources: Vydrine (ined.), Segerer (ined.), Burkill (1994:292), author's fieldwork

This table should be compared with Table 11.14, showing names for fonio, where a widespread root has a rather similar distribution. It points to an important expansion of the idea of cultivation some 2-3000 years ago, marked by extensive borrowing of crop names subsequent to the establishment of the main language groups.

[41] This old form for 'rice' in Kanuri was only recorded by Heinrich Barth (1862) and may only be a look-alike. If it is cognate with the other West African terms it suggests an older band of rice cultivation linking the semi-arid regions prior to Hausa expansion.

barley *Hordeum vulgare*

Barley may not be thought of as a typical African crop, but it is an important staple in Ethiopia and is grown in Saharan oases and along the southern fringe of the Sahara from Mali to the Nile. Barley is a major cereal in the Maghreb and grows well under irrigation in arid zones as well in more temperate climates. It grows wild throughout most of the Near East, and the sickle-like microliths with glossed blades recorded from the Palaeolithic were probably used to harvest barley, as well as emmer (Darby *et al.* 1977, II: 460). The wild ancestor of barley is usually identified as *Hordeum spontaneum*, which has a circum-Mediterranean distribution. There are normally considered to be three important varieties of cultivated barley;

H. vulgare	barley
H. vulgare L. convar. *distichon*	two-row barley
H. vulgare L. convar *hexastichon*	six-row barley

The antiquity of two-row barley in Egypt is debated and there are no certain early identifications (Germer 1985:208). Six-row barley from Nabta Playa has been dated to 8000 BC (Germer 1985:209) but this dating is now in doubt. Material continues on up to Coptic times. Barley is grown alongside wheat in the Saharan desert oases, by the Moors, Tuareg and Teda peoples. Outside Ethiopia it seems to have been a luxury crop, only ever grown in small quantities, and was probably a medieval introduction, as the name is usually borrowed from Arabic *sha'ir*. Leo Africanus (1550), writing of the early 16th century, observes that both Djenne and Katsina were centres of barley cultivation – a surprising observation in view of its absence there today. According to Mauny (1953), Marmol mentions that barley was cultivated at both Timbuktu and Gao in 1573. It may have been grown as a prestige food for North African expatriates residing in these centres, as it has virtually disappeared from all sub-Saharan regions except Ethiopia.

Exactly how and when barley reached the Ethiopian Plateau is disputed; it may have been brought from Egypt as early as the 5th millennium BP, spread across the Red Sea from Arabia or been locally domesticated (Barnett 1999:66). Barnett (1999:59) tabulates finds of barley in Ethiopia, the earliest of which is Lalibela cave at ca. 2500 BP. Ehret (1979:174) argued that since the terms in Ethiosemitic were borrowed from the resident Agaw languages, barley cultivation was of considerable antiquity. But terms for barley may have originally applied to *ṭef* in the Omotic languages and only later shifted to barley, and were subsequently borrowed into Cushitic and thence to Ethiosemitic. Certainly more recent genetic investigations have given greater credibility to *in situ* domestication, perhaps through complex pathways that involved external breeding improvements and re-introduction of new varieties (Barnett 1999:68).

wheat, soft wheat *Triticum vulgare*
durum wheat, hard wheat *Triticum durum*

Wheat is not indigenous to sub-Saharan Africa, although it has been grown in North Africa for a very long time. Soft wheat is the main *Triticum* sp. in the oases of the Sahara and along its southern margins, from Mauritania to Sudan, as well as in parts of Ethiopia (Chevalier 1932a:75). Wild wheats grow throughout the Near East, and are still relatively common today. Wheat grains occur in tombs in Egypt throughout the dynastic period (Darby *et al.* 1977, II: 486). Although the wheats are one of the most common cereals in the Saharan oases (Gast 2000), they are rarely cultivated further south. El-Bekri, writing in 1067, mentions wheat at Awdaghost and Ibn Baṭṭuṭa recorded it at Takedda in the 14th century.

Hard wheat originates in the region between northern Ethiopia and the eastern Mediterranean basin (Watson 1983:20). Hard wheat is the principal wheat grown in the Maghreb by both Arabs and Berbers. It was probably developed relatively recently from emmer wheat, *Triticum dicoccum*, as there is little evidence for its presence in the Mediterranean in classical times. The first Egyptian materials date from the Ptolemaic period (Germer 1985:212).

The linguistic evidence suggests that everywhere in sub-Saharan Africa except Ethiopia, wheat is a medieval introduction and names in African languages are borrowed from Arabic, *al qamh*, usually with the article incorporated (e.g. Hausa *álkámà*). Table 11.20 shows a widespread root in Ethiopian languages which is not adapted from Arabic, with the exception of Oromo;

Table 11.20 A wheat root in Ethiopian languages

Phylum	Branch	Language	Attestation	Gloss/comment
Afroasiatic	Semitic	Amharic	**sinde**	
	Cushitic	Oromo	**qamadii**	<Arabic
		Somali	**sarreen**	
		Saho	**sirrey**	
		Beja	**seram/shinray**	
		Sidamo	**sinde**	
		Agaw	**səndayi**	
	Omotic	Wolayta	**sindiya**	< Amharic

Source: adapted from Lamberti & Sottile (1997); Hudson (1989)

Barnett (1999) cites arguments that the hard wheats of Ethiopia are locally domesticated subspecies and these indigenous vernacular names support this idea.

maize, corn, *Zea mays*

Maize is the most important cereal staple in Eastern and Southern Africa today, and is increasingly dominating crop repertoires in West Africa. Its response to fertiliser is more marked than indigenous African cereals, and this has led to its introduction, initially as a garden crop and later as a field crop, as commercial fertilisers have become more widespread. Maize is a highly polymorphous plant that crosses and hybridises freely; it is difficult to establish correspondences between cultivars recognised by farmers and true botanical varieties. Maize was apparently gathered as a wild food in Mesoamerica before 5000 BC and its selection for cultivation seems to begin about 3500 BC (Purseglove 1975:304-9). Columbus records the cultivation of *panizo* or *mahiz*, maize, in his journal for 16th October, 1492, and he presumably brought specimens back to Europe, as a published description of maize appears in early 1494 (Purseglove 1975:308).

Maize was introduced into Africa via several routes, also reflected in the two types of maize encountered by Europeans in the Americas (Jeffreys 1954). The main historical review of the introduction and spread of maize is Miracle (1965, 1966). The hard-grained or 'flint' maizes, originating from Mesoamerica, were carried by the Spanish to Europe and thence spread rapidly around the Mediterranean. They were introduced into Egypt some time after the Turkish conquest in 1517 (Täckholm & Täckholm 1941) and then brought both southwards down the White Nile and south-west to Lake Chad. The flint maizes then spread westwards through most of semi-arid West Africa. However, a secondary crossing of the Sahara took place at its western end; the red-kernelled maizes of Morocco spread southwards to the Senegal river. From the other direction, the soft-kernelled maizes of the South American forest zone were carried by the Portuguese to the coast of west-central Africa, as traces of Portuguese names indicate. Dapper (1676:463) observed

> 'First of all grows there Turkish wheat, which the Indians call mays and which was first brought from the West Indies to São Tome and which was distributed from thence along the Gold Coast for consumption by the blacks'

Despite the importance of maize in the agricultural economy of Africa, there are no direct records of its primary introduction and it seems to have spread inland well before European presence, so the routes of its diffusion can only be known indirectly. There are several linguistic studies of the introduction of maize into Africa, Portères (1955c, 1959), Pasch (1980, 1983), Blench *et al.* (1997), Cloarec-Heiss & Nougayrol (1998) and Bahuchet & Phillipson (1998). Earlier studies assumed that maize was a Portuguese import, although

Portères also noted the separate introduction of maize across the Sahara, but linguistic work shows that the trans-Saharan route was the most important source of maize in Nigeria (Blench *et al.* 1997). Pasch (1983:211, Map 2) also shows maize being brought to the Lake Chad region from Tripoli and from further east. Terms in many languages of northern Nigeria and the Lake Chad region refer maize to *Masar*, i.e. Egypt. The diffusion of maize in Nigeria has been described in section §2.4.7.

Tubers

General importance of tubers

Although much of Africa depends on tuber production for basic subsistence, our knowledge of the history and ethnobotany of many African tubers is slight. Although phytoliths are beginning to make possible the identification of tubers in Oceania, these techniques have yet to be applied to African sites. As a consequence, we must depend on genetics, crop geography and linguistics to reconstruct the history of African tubers.

The cultivated tubers most economically significant in Africa today are generally those of external origin, with the exception of the Guinea yam. The sweet potato, *Ipomoea batatas*, the water-yam, *Dioscorea alata*, cassava, *Manihot esculenta*, and the old and new cocoyams, *Colocasia esculenta* and *Xanthosoma mafaffa* are all introductions. Three of these, cassava, sweet potato and the new cocoyam are part of the 'American complex' introduced by the Portuguese on the coast in the seventeenth century (although the sweet potato probably reached East Africa prior to the Portuguese). Taro, the old cocoyam and the water-yam are of Indo-Pacific origin and reached Africa by an uncertain route at an unknown period.

Of indigenous tubers, only the guinea-yam has remained of major commercial significance (Alexander & Coursey 1969). But other yams of the *Dioscorea* group and the cultivated Labiatae, the Hausa potato, *Solenostemon rotundifolius*, and the Livingstone potato, *Plectranthus esculentus*, were once of much greater importance. Our appreciation of their role has been distorted by the intrusion and acceptance of cassava as a staple throughout much of humid Africa. Cassava was introduced by the Portuguese along the coast in the 16th century (Jones 1959:62). Chevalier (1952) quotes an example of the complete replacement of indigenous yams in the Shari region between his first tour there in 1902 and his visit in 1951. In many areas of West Africa, cassava has begun to replace the guinea-yam, as it yields well on the exhausted soils that now surround many of the cities.

Individual tuber species

Species domesticated in Africa

Dioscoreaceae

The yams, or Dioscoraceae, have probably provided more species of edible tuber than any other single family. Most of those cultivated today in Africa are indigenous domesticates; the only major yam brought from elsewhere is the water-yam, *Dioscorea alata*. The word 'yam' comes from the Portuguese version of the Mandinka word *nyambi* and versions of this are recorded in early Portuguese sources (Burkill 1938). Al-'Umari, writing 1337-8, noted the cultivation of a tuber, said to resemble taro but to taste better (Levtzion & Hopkins 1981:263). Ibn Baṭṭuṭa's account, dating from 1354, is less positive; he was served a type of yam in Mali, which made him and his companions very sick. This account of poisoning suggests one of the marginally cultivated savannah yams, perhaps *D. dumetorum* or *D. praehensilis*, which must be carefully washed to eliminate toxins before being eaten.

Guinea yam, West African yam *Dioscorea rotundata*

The taxonomic relationship between the Guinea yam and the red yam, *D. cayenensis*, has never been fully elucidated; many texts treat them as subspecies of a single species. It is generally accepted that the wild ancestor of both is *Dioscorea praehensilis*, and that domestication took place in the humid zone of West Africa. However, *Dioscorea rotundata* and *D. cayenensis* are true domesticates and no longer closely resemble their assumed wild progenitor, unlike the aerial yam.

Linguistic evidence for the antiquity of yam cultivation is uncertain, not for a lack of terms to analyse, but because the same root is applied indifferently to wild and cultivated species. Thus, there are distinctive roots applied to yams throughout the Benue-Congo area but these only tell us that wild yams were important in the diet of the Proto-Benue-Congo. A possible source of evidence is the interconnection of terms for 'seed yam', since the existence of a common root for this would indicate early domestication. Connell (1998:328) compiled 'yam' terms in Cross River languages and proposes a Proto-Delta Cross reconstruction of *-**ɟíɛ́n**. Armstrong's (1964:54) listing of West African Niger-Congo terms suggest some antiquity for a root of the shape #-**ku** (Table 11.21);

Table 11.21 A root for 'yam' in Niger-Congo languages

Phylum	Branch	Language	Attestation	Gloss/comment
Niger-Congo	Mande	Bambara	**kú**	
		Soso	**kúù**	
		Dan	**kú**	
	Kru	Tepo	**cí**	
		Wobe	**sí**	
		Aizi	**shí**	
	Kwa	Gonja	**kújɔ́**	
		Attie	**shè**	
		Alladian	**nzí**	
	Benue-Congo	Yoruba Ife	**icu**	
		Igala	**úcu**	
		Nupe	**eci**	
		Igbo	**jí**	
		Wapan	**sí**	
		Kuteb	**ìcír**	
		Bantu	**kʊ̀á**	Zones A B E H

Sources: Armstrong (1964), Marchese (1983), Herault (1983), author's notes, BLR3

Yam species are often not distinguished in the sources, and it may be, for example, that the proto-Bantu root applies to the water-yam and not *Dioscorea guineensis.* The root appears to be absent in Gur and Atlantic languages but otherwise spreads from Mande to Bantu, indicating its salience over much of the continent.

Water-yam *Dioscorea alata*

The water-yam, *Dioscorea alata*, is one of the key staples in Oceania and is now a significant staple in some humid regions of West-Central Africa. Some authors attribute its spread in Africa to the Portuguese, but work by Chevalier (1936:522 ff.) led him to conclude that the water-yam was long-established in West Africa, although he offers no hypothesis about the route of its introduction. The botany and evolution of the water-yam have been reviewed by Martin (1976). The assumption of a Portuguese introduction, however, seems to be contradicted by the linguistic data and by the variety of cultivars found in the Bight of Bonny area. *D. alata* is almost always sterile, or else produces only male inflorescences (Chevalier 1936:522). As Martin (1976:10) observes 'It is difficult to escape the conclusion that existing varieties are very old and perhaps have diverged from their progenitor varieties by somatic mutation.' This long-term process militates against the improvement of the water-yam by modern crop-breeding techniques, and the diversity of clones on the West African coast implies considerable antiquity. Widely grown throughout the Equatorial rain-forest, the water-yam is unknown on the East African coast, with the exception of Zanzibar, although it was evidently once important on Madagascar.

Aerial yam *Dioscorea bulbifera*

The aerial yam is unusual in that it is cultivated not for its tubers but for the bulbils that develop at the leaf axils of the vine. Indeed, in Nigerian English it is known as the 'up-yam'. In Africa, aerial yams are spread from Senegambia to Kefa in Southwest Ethiopia (Martin 1974; Westphal 1975:161; Burkill 1985:657 ff.). There are wild forms in both Africa and India, and Burkill (1911) and Chevalier (1936:524-9) argued that it was domesticated independently on both continents. The variety of cultivars, and the major morphological distinction between the quadrangular African forms and the ovoidal Indian types strongly suggest this. Chevalier (1936, 1952) claims that the Indian subspecies, *D. bulbifera* var. *birmanica*, were brought to the East African coast by the Arabs and to the West African coast by the Portuguese. These he distinguishes from *D. latifolia*, the African aerial yam, found all across the continent in the forest belt, but with the greatest number of clones in *Haut-Oubangui*, i.e. north of the Ubangi-Shari region in Central Africa. Apart from a large number of edible cultivars, there is an unusual toxic cultivar, named by Chevalier var. *contralatrones*, planted around the edges of fields to deter thieves.

No terms for aerial yam are widespread in Africa, nor is there lexical evidence for an introduced type as claimed by Chevalier. This does not exclude the possibility, as the two plants may have been so similar that names for the old type were applied to the introduced varieties. In the Benue-Congo-speaking area in south-central Nigeria there *is* one root that is typical of the family and the adjacent Ịjọ languages (Table 11.22). This indicates that the region was an important centre for the diffusion of the aerial yam.

Table 11.22 Niger-Congo roots for aerial yam

Group	Language	Attestation	**Gloss/comment**
Ijoid	Proto-Ịjọ	**ɔ́tɔ́mɔ́**	
Edoid	Bini	**udin**	
Nupoid	Nupe	**adŭ**	
Igboid	Proto-Igboid	**#re-dŭ**	
Plateau	Iten	**tom**	
	Horom	**dùn**	
Tarokoid	Pe	**atom**	
Cross River	Efik	**édòmò**	
	Abuan	**ediom**	
Mambiloid	Gembu	**tūār**	
Bantu	Aka	**tombo**	Bantu C. 10

Source: adapted from Blench (1996) and Williamson (1993:146)

bitter yam, cluster yam, three-leaved yam, *Dioscorea dumetorum*

The three-leaved or cluster yam with its distinctive trifoliate leaves is found throughout Africa between 15° N and 15° S (Coursey 1967:50). It is normally considered to be part of the indigenous flora although Hladik (p.c.) has recently suggested that similarities with the Indian three-leaf yam, *Dioscorea hispida*, cannot be accidental. Whether this implies *D. dumetorum* was carried to or from India in prehistoric times remains to be seen. In its wild form, *D. dumetorum* is highly poisonous, due to a high dihydrodioscorine content, used in some areas to make arrow poison. In times of famine, the wild form can be used for food, if soaked for some days in water and well cooked (Corkill 1948). The most important area of cultivation is from SE Nigeria to Gabon (Raponda-Walker & Sillans 1961:151-2), although Chevalier also reports the three-leaved yam throughout the Ubangi-Shari region. This is rather neatly confirmed by the lexical evidence; only one term is at all widespread (Table 11.23);

Table 11.23 Benue-Congo roots for three-leaved yam, *Dioscorea dumetorum*

Igboid	Owere	**ɔ̀nà**
Cross River	Ibibio	**ánêm**
Tivoid	Tiv	**ínímbe**
Bantu	Duala	**mbá**
	Boyela	**moma**

Source: Blench (1996)

This illustrates the principle that for tubers, rather like trees, the environment is full of a wide variety of potentially edible plants. When it is discovered how to make a particular toxic tuber edible, the plant rapidly gains greater salience and thus one name begins to spread, eliminating unrelated local names.

Hausa potato, Sudan potato *Solenostemon rotundifolius*
Livingstone potato, umbondive, dazo *Plectranthus esculentus*

There are two cultivated tubers which are not yams, known colloquially as the 'Hausa potato' and the 'Livingstone potato' found in semi-arid Africa from Senegambia to Natal. Botanically, these are erect or decumbent herbs up to 60 cm. tall, with yellow flowers and lumpy edible tubers. This widespread distribution suggests that they were domesticated early by Niger-Congo speakers and were carried from West Africa north of the rain forest and spread down through the Bantu speaking areas of Eastern and Southern Africa. The rapid spread of cassava in the twentieth century has confined both of these tubers to residual cultivation and they are now little known. Weak lexical data makes it impossible to propose reconstructions at present.

The Hausa potato is the most widespread of the cultivated Labiatae, found throughout Africa, on Madagascar and in Java and Sri Lanka (Blench 2003c). A specimen collected in the Transvaal in 1884 was successfully grown in Paris and then redistributed by Thollon in the Western Equatorial Africa in the 1880's. This seems to have led to some confusion about the 'real' distribution of the various races. The Livingstone potato was first described first by Amman (1904) and in more detail in Chevalier & Perrot (1905). Chevalier (1930) gives its common area of cultivation as between the 4th and 8th parallel North, from Adamawa to Western Sudan. Although confined to a limited area of Africa, it is economically more important than *Solenostemon*. Its cultivation is more demanding than *Solenostemon* but yields are correspondingly larger.

Species introduced into Africa

Sweet potato *Ipomoea batatas*

The sweet potato is a New World domesticate that spread to Eastern Polynesia in pre-Portuguese times. In Africa, it has never acquired the status of a staple that it has in certain parts of the Pacific and is usually grown as a garden crop. Nonetheless, it plays a significant role in subsistence systems. Pickersgill & Heiser (1977:817-9) conclude that the sweet potato was domesticated before 3000 BP in the lowland Neotropics. The Portuguese name *batata*, which is incorporated in the scientific name, was later applied to the Irish potato, *Solanum tuberosum*, and became English 'potato'. It was known in Europe in the 16th century and was transported to Africa at the same time. It is first recorded on the West African coast by De Marees (1602) and presumably spread into the interior during the following century (Mauny 1953; Burkill 1985:535-7).

Lexemes for sweet potato have been collected much more sporadically than maize or cassava and so there are only scattered vernacular names for many areas. Murdoch (1959) proposed that the sweet potato spread to East Africa via the Indian Ocean trade *prior* to the Portuguese arrival and this appears to have some support from linguistics. Bahuchet & Philippson (1996:106) note that the pattern of the word does not seem to follow that of known Portuguese introductions and the form ***-dolo,** found along the edge of the rainforest in Eastern and Southern Africa, supports this idea. On the other side of the continent, the general pattern suggests that the Portuguese introduced it along the coast of West-Central Africa. It may also reached sub-Saharan Africa from North Africa, as it was also widely diffused by the Hausa (Blench 1998a). Barth (1862:179) noted that 'sweat potatoe' was not grown in Borno proper, except on the border with Hausaland. However, Nachtigal (1980 [1871]) does mention it, which argues that it must have been brought to Borno between 1850 and 1880. There are two key lexemes, *kudaku* (Hausa/Fulfulde) and *dàànkálìì* (Hausa), that track the spread of the sweet potato. Both terms are borrowed into Kanuri (*kúnduwú* and *dangáli*) and occur in North-Central Nigeria and into Cameroun/Chad/C.A.R. (Cloarec-Heiss & Nougayrol 1998).

Table 11.24 shows a sample of names for sweet potato in Nigeria and neighbouring countries. There are three basic terms that are borrowed and diffused between languages, all of which may well originate with Hausa. Terms that mean 'white man's yam' co-exist with these in many languages, and sweet potato cultivars may have reached some societies from several directions.

Table 11.24 The role of Hausa in diffusing terms for sweet potato *Ipomoea batatas*

Phylum, Family	Branch	Language	Attestation	Comment
Niger-Congo				
Benue-Congo				
Yoruboid		Yoruba	**kúkú-ǹ-dùkú**	
Edoid	Delta	Epie	**kukuduku**	<Hausa
	South-west	Urhobo	**ɔlɛ́ òyìnbó**	'European's yam'
Nupoid		Nupe	**dùkú**	<Hausa
Idomoid		Idoma of Otukpo	**ò-géègè**	?
Igboid		Ọnịca	**kukundùkú**	<Hausa
Kainji	Lela	tKag	**r-kùtùnkù (ət-)**	<Fulfulde
	Kamuku	Shama	**yaruba**	= 'Yoruba'
	Pongu	Fangwa (Ura)	**nɛ-dɛŋkələ**	<Hausa
Plateau		Berom	**dànkál**	<Hausa
		Kulu (=Ikulu)	**àláwúr**	<Hausa
		Tarok	**a-kətəku⁺**	<Hausa
Cross River		Efik	**biâ ḿbàkárá**	'yam of European'
Dakoid		Nnakenyare	**kudaku**	<Hausa
Ịjọ		Nembe	**kukunduku**	<Hausa
Ịzọn		Kolokuma	**kúkúndùkú**	<Hausa
West Atlantic		Fulfulde (Sokoto)	**dankali**	<Hausa
		Fulfulde (Adamawa)	**kudaku**	<Hausa
Adamawa	Vere-Duru	Wom (=Perema)	**kùdákú-a**	<Hausa
		Pere (=Kutin)	**daŋkale**	<Hausa
	Longuda	Longuda of Nya Dele	**daŋkali**	<Hausa
Nilo-Saharan				
	Songhai	Songhay (Kaado)	**kúúdékà**	<Hausa
	Saharan	Kanuri	**dàngálì**	<Hausa
Afroasiatic				
Chadic	Hausa	Hausa	**dànkálìì lááwúr**	
		Hausa (Sokoto)	**kúúdàkúú**	
	Bole	Bole	**dànkálì**	<Hausa
		Dera (=Kanakuru)	**kuɗaku**	<Hausa
	Tera	Hwana	**katakù**	<Fulfulde
	Bura-Higi	Bura	**daŋgali**	<Hausa
		Mandara	**daŋkali**	<Hausa
		Njanyi	**kódákò**	<Fulfulde

Cassava, manioc *Manihot esculenta*

Despite the economic importance of cassava, its ancestry is still uncertain. Cassava was apparently domesticated some 4000 years ago in South-Central America, but its possible progenitors, *Manihot* spp., occur in both South and Central America and insufficient evidence is available to choose between them (Olsen & Schaal 1999). Cassava cultivation has made considerable inroads in many areas of Africa where tuber cultivation was traditionally dominant, in the humid and southern subhumid zones. It grows in infertile soils, where population densities are high, and shortening swidden cycles have made the high fertility demands of yams (*Dioscorea* spp.) impractical. Both sweet and toxic varieties are cultivated, but toxic bitter cultivars predominate, because of their higher yield. Cassava was reputedly introduced into West-Central Africa by the Portuguese as a cheap staple to feed slaves on the Atlantic crossing (Jones 1959).

The first certain reference to cassava is in 1558 and Philippson & Bahuchet (1996) show that cassava had been introduced into the Gabon to Angola region by the early 1600s. Dapper (1676) recorded it at Forcados

in the Niger Delta, while Barbot (1732) mentions the cultivation of cassava in 'Ouwere' (i.e. modern-day Warri in southern Nigeria, not the inland town Owerri) in the 1680s. The making of *gari*, or fermented, grated cassava, a form of processing that eliminates the hydrocyanic acid in bitter types, was noted at Mayombe, north of Loango in 1611-12 (Bahuchet & Philippson 1998:100). Cassava probably spread inland during the eighteenth century, as Barth (1857-58, 2:505) records the Fulɓe growing cassava in Yola in the 1850s and Nachtigal (1980:192) noted the use of its leaves for sauces in Borno in 1870.

Cassava has been better served in terms of linguistic studies than almost any other crop. Table 11.25 shows a sample of studies conducted in different parts of the continent;

Table 11.25 Linguistic studies of the spread of cassava in Africa

Authors	Region
Bahuchet & Philippson (1998)	Bantu area
Mveng Ayi (1981)	Cameroun
Blench (1998a)	Nigeria
Cloarec-Heiss & Nougayrol (1998)	Central Africa (i.e. CAR etc.)
Langlands (1966)	Uganda
Pasch (1980)	Sub-Saharan Africa
Williamson (1970)	Niger Delta

Along the Atlantic coast of Africa, evidence of an introduction by the Portuguese is clear, since many coastal languages borrow from Portuguese *mandioca*. Common forms in the Niger Delta are *imidaka* and related forms such as *mbaraka* in Kalabari (Williamson 1970:162). However, another name in Kolokuma Ịzọn is *obábùrú*, 'Oba's yam', pointing to an introduction from Benin. One Hausa name, *dóóyàr kúdù*, 'yam of the South' points to a coastal provenance of cassava in the north. The origin of the Hausa *roogòò* is not at all clear, but *roogòò* + qualifier is applied to a number of tubers gathered in the bush, notably *Ampelocissus* sp. and some types of *Dioscorea* such as *Dioscorea dumetorum*. So *roogòò* was probably originally applied to *Ampelocissus* sp. and when cassava became dominant, *róógòò* was applied to it and 'of the bush' added to the wild plant. Most Adamawa and Chadic speakers west of the region use a form of the Hausa *róógòò*, but loanwords from Fulfulde *mbay* are common along the Cameroun border area (Cloarec-Heiss & Nougayrol 1998).

Pasch (1980) analyses the spread of cassava inland from the East African coast. Although there are direct borrowings from Portuguese *mandioca* from Mozambique to Kenya, the Swahili *muhogo* is more widespread. The Swahili term has been borrowed by many languages far in the interior, probably following the routes of the trade caravans that penetrated this region from the 18th century onwards (Bahuchet & Philippson 1998:103).

Broadly speaking, then cassava was introduced along the coast of Africa as early as the 17th century, but it seems it did not spread inland as a significant staple before the early 19th century. There is no real evidence for a transmission across the Sahara, in contrast to some other New World crops. Cassava has been given a new boost in the 20th century by the exhaustion of soil fertility in many yam-growing areas and is now a peri-urban crop across the continent.

Aroids

cocoyam, taro *Colocasia esculenta*
'new' cocoyam, *Xanthosoma mafaffa*

Cocoyams are one of the least known of the world's staples; essential to agriculture in Oceania, they also make an important contribution to diet in the more humid regions of Africa. Like the plantain, the history of their arrival in Africa is controversial and no archaeobotanical evidence is available. Although the classification of aroid phytoliths has begun in the Pacific, it has yet to be applied to any African site. The

taro or 'old' cocoyam is a South East Asian domesticate that arrived in Africa at an unknown but presumably early period as part of a root-crop complex with plantains and water-yam, *Dioscorea esculenta*. These varieties are rather low-yielding and high in tannins, leading to the effect of 'scratching the throat'. The 'new' cocoyam, *Xanthosoma mafaffa*, was only introduced into West Africa from the West Indies in the 19th century (in 1843, according to Burkill 1985:210). Vernacular terms for *Xanthosoma* in coastal West Africa almost always translate as 'European cocoyam', and a pattern of spread from the coast to the interior is apparent.

Plucknett *et al.* (1970) review the botany and agriculture of *Colocasia* spp. and Plucknett (1976) its evolution. Wild *Colocasia* are found both in India and the Malay peninsula and taro may have been domesticated in either area. The investigation of the cocoyam is made more difficult by its confused taxonomic status. Plucknett (1976) and subsequently Watson (1983) have suggested that the cocoyam spread down the Nile valley and thence to West Africa. The basis of this appears to be the presence in West Africa of roots such as *koko* which are held to derive from the Arabic *qulqas*. But Darby *et al.* (1977, II:655) concluded that there was no evidence for the cocoyam in antiquity, and that the *qulqas* mentioned in ancient sources was not even necessarily an aroid. Germer (1985:239) states that cocoyams were not known in Ancient Egypt, while Chevalier (1932:116) notes that there are traces of cocoyam cultivation in quite arid parts of the Sahel and mentions a subspontaneous form recorded at Zinder in northern Niger. Seignobos (1988), in an interesting historical study of cocoyam in Chad and Cameroun, shows that it has been spreading relatively recently in these more arid regions. Williamson (1993) analyses the linguistic data on cocoyams in the languages of Southern Nigeria. She concludes that all the evidence points to the ancient establishment of cocoyams and in particular that the Arabic *qulqas* is unlikely to be the source of the widespread root *koko* in West-Central Africa. Blench (1997b) discusses the evidence for the diffusion of cocoyams in North-Eastern Nigeria and concludes that there is no linguistic or ethnographic support for the idea that they were introduced by the Arabs. An account quoted by Mauny (1953) shows that taro was cultivated in Senegambia by 1500, too early for Portuguese navigators to have been instrumental in its diffusion. Raponda-Walker & Sillans (1961) emphasise the great importance of *Colocasia esculenta* in Gabon, with as many as fifteen varieties recognised in some areas. If the Nile Valley is discounted, then the only other possibility is the Austronesians who crossed the Indian Ocean to populate Madagascar. In Madagascar, languages such as Betsimisaraka, actually use a version of the SE Asian word *taro* (Boiteau *et al.* 1997) but there are no traces of SE Asian forms in West Africa. Philippson & Bahuchet (1996:106) observe that a common root for cocoyam in northwest Bantu, ***-gàbò**, appears to correspond to terms for cassava in languages of southern Tanzania and Malawi, which would be striking confirmation for the antiquity of the introduction of cocoyam into Africa.

Vegetables, potherbs and pulses

Introduction

Africa is rich in vegetables and potherbs, many of them extremely local and only semi-cultivated. Schippers (2002) presents an overview of African vegetables; the majority of them have almost no records of indigenous names so no putative histories are possible at present. The numbers of pulses and spices are much more limited and it is probably no accident that many new pulses have spread in Africa in the twentieth century. This section focuses on a few species where evidence is available, but it should be emphasised that this is a very partial attempt to tell a complex story.

Case studies of individual species

enset, *Ensete ventricosum*

Enset is exceptional among African staple crops; it is neither grain, tuber nor fruit, but is the interior of a plant that strongly resembles the banana and only grows in the highland areas of Ethiopia. Although wild

relatives of *enset* grow across many regions of Africa, it was only domesticated in Ethiopia. Even within Ethiopia, *enset* is confined to the southwest, in areas where Semitic, Cushitic and Omotic languages are spoken. Enset was first reported by the great Scottish traveller James Bruce (1804) who also illustrated it for the first time. Stiehler (1949) argued that its culture must once have been spread more widely across the Ethiopian Plateau, as although it is now confined principally to the southwest, small pockets of cultivation occur elsewhere, suggesting relics left over after the expansion of seed agriculture. Blench (in press, c) reviews the ethnographic and agronomic literature on *enset* as well as a compilation of the vernacular names.

In some ways, *enset* represents the most biologically diverse of all Africa's indigenous plants. Shigeta (1990) investigated local varieties among the Aari people of SW Ethiopia, who recognise no less then seventy-one cultivated varieties, each with their own name. Leslau's (1969, 1979) survey of Gurage in no way claims to be exhaustive, but still there are names for more than thirty varieties for some Gurage languages. Table 11.26 is an abbreviated list of names for *enset* in Ethiopian languages

Table 11.26 Names for *enset* in Ethiopian languages

Family	Branch	Language	Generic name	Comments
Omotic	North Ometo			
	North	Wolaytta	**wuutta**	
		Kullo-Konta	**uca**	
		Dorze/Dita	**uts**	
		Maale	**uugutsi**	
	South	Zayse-Zergula	**ʔ**úu**s̀**í	
		Koorete	š**ű**nša	
		Basketto	**uurs**	
	Gimira	Benc Non*	erpu^{24}	
	Janjero	Yemsa	eewa^{22}	
	Kefoid	Kefa	**uuṭoo**	
		Mocha	**qàào**	
		Shinasha	ecc'eec'a	
	Dizoid	Dizi	**wudu**	
		Sheko	**údú**	
	Aroid	Aari	**aqim**	
Cushitic	Agaw	Awngi	**gangi**	
	East	Burji	d'íinsi	
		Konso	d'upana	
		Harso, Dobase	**awakkó**	
		Gawwada	wark'e	
		Sidamo	**weese, wešoo**	
		Gedeo	**weese**	
		Kambata	**weesa, weesshu**	
		Ba'iso	work'e	
		Oromo (Bale)	war'k'e	
Semitic	Ethio-Semitic	Tigre	**gunaguna**	
		Amharic	**ə**nsät	
		Harari	**gurage muuz**	'Gurage banana'
	Gurage	Čaha	**äsät**	
		Selṭi	**wēsse**	
		Zway	**wärqe**	

* In languages with complex tonal systems, superscript numerals mark tones.
Source: Blench (in press, c)

The vernacular names are surprisingly diverse, suggesting a long and complex history, with considerable flow between generic names for the plant and those of individual cultivars. Blench (in press, c) drew the following conclusions from the examination of vernacular names;

a) *Enset* is not a basic crop for speakers of Nilo-Saharan, Agaw and Northern Ethio-Semitic languages.
b) Despite a certain diversity, one basic form, #**udu**, accounts for much of North Omotic.
c) Terms in Cushitic are extremely diverse, and it is likely that different groups borrowed *enset* cultivation at different times from *in situ* Omotic speakers.
d) Despite the significant cultural association between the Semitic-speaking Gurage peoples and *enset*, the similarity of terms in almost every Gurage language suggests that these are recent

Cultural and linguistic evidence concerning the origin and distribution of *enset* point in the same direction. *Enset* was part of an ancient system of cultivation of vegetative crops formerly distributed much more widely through the Ethiopian highlands. The main cultivators of *enset* were Omotic-speakers, though it was probably adopted early by some Cushitic-speakers. However, when the Ethio-Semites entered, bringing seed agriculture and the plough, *enset* and other root crops such as yams (*Dioscorea* spp.) and the Labiates (*Coleus* spp.) were pushed into residual cultivation, except where the terrain was so highly dissected that ploughing was effectively impossible. In this situation, notably in the southwest, the Gurage Semitic-speakers adopted *enset* and it became central to their production system.

onion *Allium cepa*

The onion is now essential to African cooking throughout much of semi-arid Africa, but it is quite a recent introduction south of the desert. The first records of domesticated onions are probably those carved on the walls of the pyramids on Unas (ca. 2423 BC) (Germer 1985:191-3). Actual onions are preserved from Egyptian New Kingdom tombs (Darby *et al.* 1977, II:661) and onions were involved in embalming mummies. Despite this, onions do not seem to be ancient south of the desert. Names for onion in West Africa are derived from Arabic *basal* and it probably came across the desert with the development of the trans-Saharan trade in the medieval era (Blench 1997b). On the coast of West Africa, vernacular terms are borrowed from Portuguese, thereby dating the introduction of the onion to the 17th century (Williamson 1970).

okra, gumbo, *Abelmoschus esculentus* [Formerly *Hibiscus esculentus*]

Although okra was previously considered to have been domesticated in South or SE Asia (Chevalier 1940), it is now generally accepted that its origin was in West Africa (Hamon & Van Sloten 1989; Burkill 1997:5-10). The 'wild' okra in India is now thought to be subspontaneous. Although okra only occurs in North Africa in a cultivated state and is grown in all the oases of the Sahara (Chevalier 1932a:834) there is no incontrovertible evidence for its presence in Ancient Egypt (Darby *et al.* 1977, II:695; Germer 1985:122), as the first reference to it in Cairo is as late as 1216 (Mauny 1953:702). Kahlheber (ined.) records finds of okra at Kursakata in Nigeria and Diamaré in Cameroun dated to the early Iron Age.

Throughout most of East Africa words for okra appear to be borrowed from Swahili, which has in turn borrowed from Arabic *bamiya* (FAO 1988). This suggests that okra did not survive the journey across the rainforest but was brought to the East African coast via the Indian Ocean trade, spreading inland during the medieval period. Table 11.27 shows a common root for okra that occurs in Benue-Congo languages of Nigeria. The table has been arranged so that the cognate elements are aligned as the root seems to have undergone significant compounding.

Table 11.27 A Benue-Congo root for okra

Branch	Language			Attestation			Comment
Yoruboid	Itsekiri	**i**		**ka**	**ra**	**bo**	
	Isoko	**ɔ**		**k**	**rʊ**		
Edoid	Degema	**ɔ**		**kὺ**	**rὺ**		
	Egene	**í**		**kú**	**ro**	**mu**	
Igboid	Igbo	**ɔ**		**k^{w}ʊ**	**rʊ**		
	Igbo		**tu**	**kwu**	**ru**		
Idomoid	Idoma	**i**		**kpo**		**ho**	
Kainji	Duka		**tu**	**ku**		**mek**	
	Lela		**tu**	**kw**	**e**	**nebe**	
	Ura	**un**		**gu**		**na**	
Plateau	Aten			**ku**		**sat**	
	Gusu		**tu**	**ku**		**ku**	
Cross River	Abuan	**ʊ́**		**kὺ**	**rὺ**		< Igbo
	Ogbia	**ɔ̀**		**kὺ**	**rὺ**		
Bendi	Bokyi	**o**	**tu**				
Tivoid	Tiv	**a**	**tu**		**ul**		
	Esimbi	**ɔ**		**kɔ̀**	**rɔ̀**		
Mambiloid	Mambila			**gà**		**ŋ**	
Nyang	Kenyang	**n**		**ga**	**ra**	**k**	

Source: expanded from Blench (1996)

The linguistic evidence for okra suggests that it was domesticated in West Africa and spread into the Bantu domain. The English 'okra' is often compared to Twi *nkruma* in dictionaries, but some of these forms resemble 'okra' more closely and it may be that languages such as Igbo are actually the source of the English name. Interestingly, the term *gumbo*, commonly used in the Southern United States to describe a mucilaginous soup made with okra, is also a borrowing from the Bantu languages of the Kongo-speaking area.

sesame, beniseed, simsim *Sesamum orientale* [formerly *Sesamum indicum*]

The original homeland of sesame is the subject of some debate, since it is grown from Africa to China and has been found in many excavations in Near Eastern sites. Earlier authors (e.g. Nayar & Mehra 1970) saw West Africa as its homeland, since most of the wild relatives of sesame are found there. However, during the 1980s, Bedigian *et al.* (1985) also Bedigian (2003) proposed that its progenitor was the Indian *Sesamum orientale* var. *malabaricum* which today grows wild on granitic outcrops and is found in a weedy form all over the subcontinent. More recently, Hiremath & Patil (1999) have advanced a strong case for *S. mulayanum*, also occurring in India.

Although most authors identify the *še-giš-ì* of the Sumerians as sesame, there is no archaeobotanical proof for this; it is at least possible it referred to another oilseed. Evidence for sesame in Egypt places it earlier than the 18th Dynasty (Darby *et al.* 1977, II: 497-8, 785-6; Germer 1985:171). Pliny (1938-1952: 18.22.96) mentions sesame as an import from India, a trade confirmed by the *Periplus of the Erythraean Sea*. If *S. mulayanum* is indeed the ancestor of *S. orientale*, then it was probably carried to Africa perhaps both via the Nile Valley and the Sabaean lane. However, West Africa has at least two other domesticated sesames not found outside the region, *S. alatum* and *S. radiatum*. Schippers (2002:159) lists several other species of sesame either grown or collected in various parts of Africa and notes that taxonomy is still very confused. The common use of domesticated sesames in most of Africa is as mucilaginous potherbs, not oil seeds, although the growing of oilseeds as a commercial crop is rapidly gaining ground. It may therefore be that the

white-seeded types domesticated in India later outcrossed with indigenous West African sesames to produce the mucilaginous and oilseed varieties grown there today.

The linguistic evidence for West Africa points to two quite different series, a well-established older form that probably refers to the mucilaginous potherb (Table 11.28), and more recent forms connected with Arabic *simsim* that reflect the later trans-Saharan diffusion of white-seeded varieties. Each form is broken up into its component elements in the table so that the cognate elements are clearly displayed.

Table 11.28 A Benue-Congo root for sesame

Branch	Language	Attestation			
Nupoid	Nupe	**e**	**so**		
Idomoid	Idoma	**o**	**ca**		
Kainji	Kamberi	**i**	**s**	**ua**	
	Kamuku (Uregi)	**bi**	**sa**	**wa**	
	Pongu	**ki**	**se**		**re**
	Duka	**gi**	**sha**		**k**
	Mala	**i**	**s**	**wa**	
Plateau	Aten	**n**	**c**	**we**	**le**
	Ninzo	**a**	**shi**		**shi**
Jukunoid	Kpan	**i**	**she**		**n**
Tivoid	Tiv	**i**	**sh**	**wa**	

Source: expanded from Blench (1996)

East African names do not seem to form any consistent pattern and it is likely that they refer to a variety of indigenous sesame species.

cowpea,black-eyed bean *Vigna unguiculata*

The cowpea or black-eyed bean is indigenous to West-Central Africa (Chevalier 1932a:855; Ng 1995), although its long-established presence in India was until recently considered as evidence for an Asian domestication. It probably originated in the Nigeria-Cameroun borderland from the wild *Vigna* subsp. *dekindtiana* var. *dekindtiana*. The cowpea must have been transmitted to Egypt from Sub-Saharan Africa early, for specimens were identified by Schweinfurth among offerings in Fifth Dynasty tombs, and Keimer noted small faenza models of the plant (Darby *et al.* 1977:692; Germer 1985:87-8). Finds of cowpeas are reported at Kintampo in south-central Ghana dated to 3500 BP, but their domestic status remains debatable (Stahl 1985). Albert *et al.* (2000:343) record cowpea from Oursi in Burkina Faso as *Age de Fer ancien*, dated to 1869-1807 cal. BP. In south-central Africa, the first record of cultivated cowpeas is in Central Zambia where seeds have been recorded from the second century AD (Phillipson 1993b:192). Blench (2003c) discusses the evidence for the early transmission of cowpeas to India; although not all archaeological records have been substantiated, it is likely that cowpeas were carried across the Indian Ocean by 4000 bp. The English name ‘cowpea’ is a reformulation of Hindi *kalpi*, and has nothing to do with either cattle or peas.

Blench (1996) shows that a root for cowpea can be reconstructed to Proto-East-Benue-Congo, supporting the idea of domestication in the Nigeria-Cameroun borderland. Cowpea is one of the very few crops the reconstructs unambiguously to Proto-Bantu, and was presumably carried to all parts of the Bantu-speaking zone (Table 11.29).

Table 11.29 A Benue-Congo root for cowpea

Family	Group	Language	#n-ko(n)di-
West Benue-Congo	Igboid	Ikwere	**à-kídɪ̀**
East Benue-Congo	Kainji	Reshe	**hí-kɔ̀nɔ̀**
	Jukunoid	Kuteb	**à-cikùn**
	Cross River	Proto-Lower-Cross	**ŋ̀-kótì**
Grassfields	Momo	Mundani	**mèkũ**
	Eastern	PEG	***kón`**
	Manenguba	PM	***kón**
	Bantu	Proto-Bantu	***-kúndè**

Source: expanded from Blench (1996)

Philippson & Bahuchet (1996: Fig. 5) map the distribution of the ***-kúndè** root, which occurs almost everywhere in the Bantu zone except in South Africa.

Bambara groundnut *Vigna subterranea* [formerly *Voandzeia subterranea*]

The Bambara groundnut is an annual herb grown throughout most of sub-Saharan Africa and on Madagascar for its multi-coloured edible tubers, which resemble the better-known groundnut (Busson 1965:250-1). It is one of Africa's least-known crops, and although widely cultivated in India and Java, it hardly enters into international trade. The Bambara groundnut is native to West Africa and was domesticated in the region of the Benue near the present-day Nigeria/Cameroon border (Harms 1912; Hepper 1963). Archaeobotanical evidence remains scattered. Albert *et al.* (2000:343) record Bambara nut from Oursi in Burkina Faso as *Age de Fer ancien* (*Couche* IIa) dated to ca. 1800 BP. In south-eastern Africa, the first record of cultivated Bambara groundnuts is at Inyanga, in modern-day Zimbabwe, where carbonised seeds have been recorded in a late Iron Age context (Summers 1958). The date and route by which the Bambara groundnut reached Asia is unknown (Ochse & Bakhuizen Van Den Brink 1980:439-441) but its absence in the Near East strongly suggests its transmission via the Indian Ocean trade.

Local terminology is often badly recorded and confused with the American groundnut (or peanut) which was introduced by the Portuguese. Nonetheless, there is evidence for the early domestication of the Bambara nut and its spread across the continent with the Bantu expansion. Table 11.30 shows the reconstructions for Bambara groundnut in Benue-Congo languages;

Table 11.30 Terms for Bambara groundnut in Benue-Congo

Branch	Family	Language	Form
			#-kpa
W. Benue-Congo	Yoruboid	Yoruba	**ekpa**
	Edoid	Isoko	**upapa**
	Igboid	Igbo	**ɔ̀kpa**
	Nupoid	Gbagyi	**opwa**
	Idomoid	Idoma	**ikpeyi**
			#-gunu
E. Benue Congo	Kainji	tHun	**ù-gwɔ̀nɔ̀**
	Dakoid	Nnakenyare	**guum**
	Mambiloid	Vute	**ŋgóm**
	Manenguba	Nkossi	**ŋgɔ̀n**

Source: adapted from Blench (1996)

The neat division between East and West Benue-Congo suggests that the domestication took place after the family split into East and West. Philippson & Bahuchet (1996: Fig. 6, 1998:114) observe that for the rest of

Bantu, from Pinji in the northwest (**ndjulu**) to Swahili (**njugu**) on the East Coast to Zulu (**índʱʒùùɓú**) in South Africa there is a single interconnected root and this can be unambiguously attributed to the Bantu agricultural repertoire. The term in some Northwest Bantu languages is **ŋgúbà** (Bahuchet & Philippson 1998:115), the source of an old-fashioned name in the United States, 'Congo goober'. This is turn has been re-applied to the ordinary peanut, called 'goober' in some southern dialects of American English.

12. ANIMALS

Africa is a major centre for animal as well as human evolution and it largely escaped the megafaunal extinctions that have impoverished other continents. As a consequence, while the major African language phyla were evolving, their speakers would have interacted with a rich array of wildlife and this is reflected in their vocabulary. Indeed the importance of hunting in African culture until very recently is testimony to this close relationship. Probably as a consequence of the abundance of large mammals and the relative ease with which they could hunted, Africa never became a major source of domesticated species. The only species certainly domesticated within Africa are the donkey, the cat and the guinea-fowl, and these are from the arid and semi-arid regions bordering the Sahara. Nonetheless, Africa has adopted domestic animals from Eurasia and they now play a central role in the cultures of sub-Saharan Africa. Unearthing the complex history of relations between people and animals is an area where linguistics has an important role to play; understanding the changing pattern of human/animal relations over time adds a richness that archaeology alone cannot provide.

Wild animals

Terrestrial animals

There have been several attempts to reconstruct names for large animals in the language phyla of Africa. Skinner (1984) reconstructed antelope names in order to propose that Afroasiatic must have originated in a dry, Sahelian zone. Bancel (1987) describes mammal names in a restricted subgroup of Bantu, while Bastin (1994) explored names for lion, leopard, hyena and jackal in Bantu as a whole, detecting an enormous diversity of local roots, for what are in principle widespread and common species. Nonetheless, for the reasons outlined in §2., vernacular names tend to be replaced regularly and are of only local importance, making the tracing of ecological zones at any time-depth difficult.

Blench (in press, f) has looked at the potential to reconstruct large mammal names in Niger-Congo languages. It might well be assumed that such salient biological entities as large African land mammals would be reconstructible in a major phylum such as Niger-Congo. But this is not the case: no species reconstruct unambiguously to the proto-language of Niger-Congo and only a few even have widely attested roots. Among these species is the leopard, but otherwise the really widespread roots apply to smaller, less salient genera such as snake, crab and tortoise. A more common pattern is the presence of geographically determined roots, found in similar form in the languages of a particular region. Some of the main conclusions drawn from this study were that;

1. Cultural salience is not predictable; a species that seems to be both common and highly visible to outsiders may be treated as insignificant to particular ethnolinguistic groups
2. Salience (locally defined) *does* reflect linguistic elaboration; in other words, if a species *is* highly salient it will be elaborated within individual languages, perhaps through a wide variety of alternative names or specialized terminology. However, this does not necessarily mean it will be linguistically stable across languages, indeed the reverse may be true; elaboration can drives replacement.
3. Salience is dynamic; it reflects the technological and environmental situation of populations in history. As plant and animal distributions change, so does the linguistic elaboration surrounding individual species.
4. Ecological hypotheses that link the homeland of a language phylum to features of the natural environment at the time of purported origin of the phylum need to be treated with considerable scepticism; the inability to reconstruct a proto-form does not mean the absence of a species. No large savanna species can be reconstructed to Proto-Niger-Congo despite the fact that the homeland *must* lie in this ecozone.

The crocodile is a visible and highly salient species. Although there are three species of crocodile in Africa, the Nile crocodile, *Crocodylus niloticus*, is both the most common and the most predatory. Crocodile bones

appear in archaeozoological inventories in Egypt (Wetterstrom 1993 for various sites; Robertshaw *et al.* 1983 for South Nyanza in Kenya). Crocodile hunting was apparently an early feature of subsistence throughout Africa and the crocodile is represented by some widespread roots in the Niger-Congo languages (Table 12.1 and Table 12.2).

Table 12.1 A widespread Niger-Congo root for Nile crocodile

Family	Subgroup	Language	Attestation
Atlantic		Nyun	**kurut-**
		Mansoanka	**kurdu**
		Temne	**aŋ-kui**
		Bullom	**kew**
Eastern Benue-Congo	Kainji	Kambari	**má-kúnɛ́'ɛ̰**
	Plateau	Alumu	**kùrù**
		Nindem	**a-kur**
		Kulu	**èguru**
	Jukunoid	Kuteb	**ù-kúr**
	Cross River	Ufia	**kí-kwù**

The older Niger-Congo root was completely replaced in the Bantoid area of SE Nigeria and that Bantu-speakers set off across the rain-forest with a new term (Table 12.2);

Table 12.2 Nile crocodile in Bantoid/Bantu

Group	Language	Attestation
Dakoid	Nnakenyare	**nàmàn**
Mambiloid	Ndoro	**ŋ-gaaná**
	Mambila Ba	**ŋ-gàgà**
Tikar	Tikar	**ŋ-gã**
Jarawan	Mbula	**gandu**
Grassfields		
Ring	Babungo	**ŋgèe**
Momo	Meta	**ŋ-gàn**
Eastern	Bati	**ŋ-gé!ŋ**
Manenguba	Proto- Manenguba	***-gàndó**
Bantu	PB	**#-gandu**
Bantu	CB	***-gàndó**

It is surprising that the term for 'crocodile' was not replaced regularly given its predatory nature; perhaps crocodiles were not considered as dangerous in comparison with the hyena.

To demonstrate the contrast with other large animals, Table 12.3 sets out the names for 'elephant' in Mande and Atlantic languages. These two branches of Niger-Congo are virtually intertwined in the west of West Africa, yet their terms for elephant are extremely diverse and it would be difficult to propose reconstructions for either family, despite the fact that we know elephants must have been present in West Africa at the time of the initial diversification of these two subgroups.

Table 12.3 Terms for elephant in Mande and Atlantic

Language	Attestation	Language	Attestation
Mande		**Atlantic**	
Bambara	**sògò ba**	Wolof	**ɲey w-**
Vai	**kàmá**	Fulfulde	**nyiiwa (ba)**
Soso	**sílí**	Serer	**ɲig**
Loko	**hélé**	Palor	**caʔ (f-, y-)**
Dan	**biɤ**	Balanta	**-náaŋŋ** =/**g-**
Ngain	**bíè**	Mancagne	**looŋ (u-/ŋ-)**
Tura	**sóaa**	Pepel	**aiógan / ŋiógan**
Wan	**bè**	Pajaade	**waiwa**
Yaure	**fìi**	Bulom	**ëpêh** (pl. **së**)
		Kisi	**kàmàá**
		Temne	**rank**
		Mansoanka	**nange** *pl.* **nangɔma**
		Gola	**o-nyɜ̃**
		Bijogo	**kayoga / ŋayoga**

Source: Blench (in press, f)

This diversity illustrates the difficulties of using faunal names on a systematic basis for reconstructing phylum homelands where the name are subject to replacement.

Birds

Bird-bones are characteristic of many archaeological assemblages and it is likely that the capture and consumption of large wild birds was important until recently. Not long ago, ostriches were still roaming wild in the subdesertic regions of Africa. African bird names, however, are often difficult to use for historical purposes, since many are very local, and describe the call or habits of the bird. Linguists are often poor ornithologists, but the interpretation of bird names requires that they be recorded accurately, both linguistically and scientifically. Moreau (1942) may well have been the first scholar to systematically survey bird names in a particular region of East Africa and he provides a useful statistical analysis of the composition of bird names. Bird species with widespread names are those that are symbiotic with or represent a pest to human beings and thus become salient in a context of great avifaunal diversity. An example of this is the village weaver, *Ploceus cucullatus*, a highly social species that frequently forms large colonies in trees close to settlements. Although of no economic use, it is highly visible, and has attracted a common name across a wide area of West Africa. Table 12.4 shows a cognate series for the Benue-Congo languages;

Table 12.4 Terms for village weaver, *Ploceus cucullatus*, in Benue-Congo languages

Group	Language	Attestation
Yoruboid	Yoruba	**ɛ̀gà**
Edoid	Ẹdo	**àxà**
Igboid	Igbo	**àʃá**
Nupoid	Nupe	**èɡwa**
Idomoid	Idoma	**àga**
Plateau	Sur	**ɡwal**
Mambiloid	Langa	**màgaɾi**
Bantu	Proto-Manenguba	***-gàgè**

In this case, the weaver seems to have caught the attention of speakers early in the diversification of Benue-Congo, but there is no evidence for the word being borrowed across language boundaries. A contrary case is the hooded vulture, *Neophron monachus*. The vulture is part of Africa's indigenous avifauna, but it seems

that it has come to particular prominence as a result of the construction of slaughterhouses. The slaughter of domestic animals associated with Islam seems to have expanded the niche the vultures occupy. Once the colonial authorities established formal slaughterhouses across West Africa, vultures were attracted to them and became accustomed to sitting along the apex of the roof. This increased their salience enormously, and it seems that terms for vulture spread across language boundaries very rapidly, replacing whatever local name the vulture may have had. Table 12.5 shows a series of related terms for 'vulture' in different West African language phyla;

Table 12.5 Related terms for hooded vulture, *Neophron monachus***, in West Africa**

Chadic		**Benue-Congo**		**Nilo-Saharan**	
Language	Attestation	Language	Attestation	Language	Attestation
Karfa	**gulúk**	Hasha	**iŋgunuk**	Kanuri	**ŋgərwu**
Hausa	**ùngùlúú**	Tarok	**ǹgùluk**		
		Lopa	**saguru**		
		Nupe	**gulu**		

Although there are several species of vulture in West Africa with individual names in most languages, the other species show no common forms, presumably because their impact on human beings is relatively slight.

Fish

Fish represent an example of high archaeological visibility and very low linguistic reconstructibility. Fish-bones are easily recovered and identified to the extent that quantitative studies of the exploitation of particular genera over time can be undertaken (e.g. Horton & Mudida 1993). But fish populations are often too biodiverse and usage too varied to produce any very illuminating results from the large-scale study of vernacular names. There may be some distinction between marine and freshwater fish in this respect. Inland fisheries are associated with rivers, line structures that pass through the territories of many ethnic groups. By contrast, sea fisheries are often controlled by peoples who inhabit a coastal environment and may have diversified there and who often depend entirely on trading marine produce for staples. Table 12.6 shows the names for sawfish in the languages of the Niger Delta. The sawfish (Figure 12.1) is an important species not only for its flesh, but also for its saw, which is used in construction and represented in masquerades throughout the region. The local name is virtually identical in Ijoid languages and has been borrowed almost unchanged in the neighbouring Ogoni, Central Delta and Igboid languages.

Figure 12.1 Sawfish (*Pristis sp.***)**

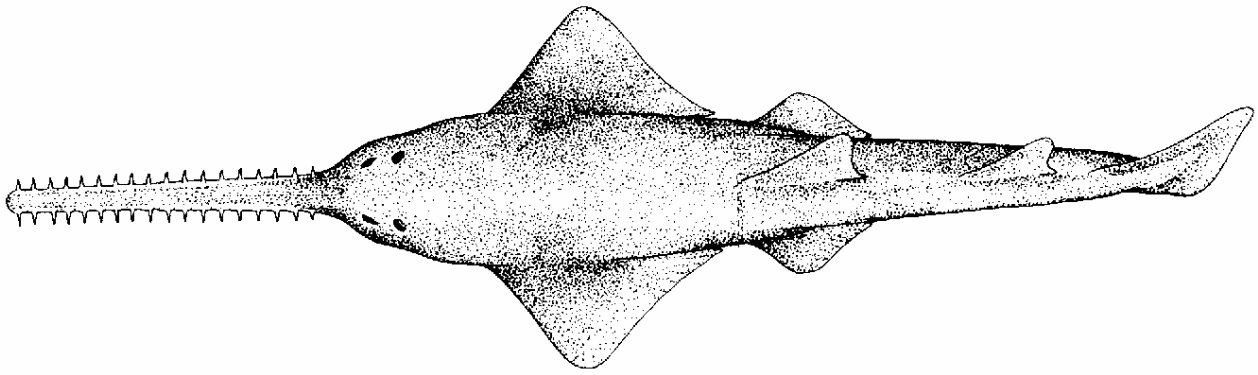


Table 12.6 Terms for sawfish (*Pristis sp.*) in Niger Delta languages

Ijoid	Kalaḅarị	**oki**
	Okrika	**okii**
	Iḅanị	**oki**
	Bụma	**oki**
	Oporomọ	**oki**
	Agụọbiri	**oki**
	Tarakiri	**oki**
	Ogboin	**okii**
	Ekpetiama	**oki**
	Kolokuma	**okií**
	Tungbo	**oki**
	Kabo	**oki**
	Mein	**oki**
Ogoni	Kana	**oki**
Central Delta	Abua	**oki**
	Ogbogolo	**oki**
Igboid	Ogbah	**oki**

Source: Richard Freeman (p.c.)

The problem is, that even after the painstaking compilation of data, the lessons can be rather limited. Speakers of Proto-Ijoid expanded into the Delta and encountered the sawfish early, developing a name which persisted across Ijoid. Non-Ịjọ neighbours adopted the same names as a result of the trade in the saws and its dried flesh or because they experienced the masquerade based on it. As with so many biological fields, the study of fish names is still at an early stage; with longer, more carefully collected lists in more languages, perhaps broader similarities will emerge.

Domestic animals

Introduction

Historical studies of the domestication and diffusion of livestock, such as Zeuner (1963), or the contributors to Mason (1984a), often give Africa short shrift. This is especially the case for so-called 'minor' species; i.e. any species other than cattle, sheep and goats. While it is probably poor practice to award regions of the world marks for originating domesticates, it is worth noting that Africa may be responsible for four species of domestic animal in common use today, the donkey, the cat, the guinea-fowl and (probably) cattle. Of these, only cattle have attracted substantial attention from archaeozoologists.

Africa represents an elaborate mosaic of livestock species and production systems (Blench 2000d). Sheep, goats, chickens and pigs arrived in Africa fully domesticated and although local races have developed, there can be no further interaction with their wild relatives. The donkey was almost certainly domesticated in Africa and there is evidence for some introgression of genetic material from wild ass populations in historic times. On the other hand, the guinea-fowl is part of the indigenous avifauna of Africa and has been only partly domesticated; its wild ancestry is reflected in the habit of laying eggs scattered in the bush, rather than in a single place. The only author to consider some of these species in detail was Lagercrantz (1950), who reviewed the literature on cats, pigeons, ducks, geese and turkeys and drew distribution maps. The development-oriented literature on ruminant breeds includes synchronic distribution maps of major species and races that can be exploited for its historical relevance (Blench 1993a).

Compared with crops, livestock represent a much more clear-cut way of testing the link between historical linguistics and archaeology. The metrics of domestic animals are better known than crops, partly because preservation of bone is better, but also because there are fewer species. In addition, the exotic nature of most common species and their association with human productive activities makes them readily identifiable.

Livestock terminology is usually innovative; it is not ordinarily transferred from wild progenitors[42], in contrast to indigenous crops. It is also highly conservative; basic roots for 'cow', 'sheep' and 'goat' are spread over much of the continent (Blench 2000c).

In contrast to crops, studies of nuclear and mtDNA in livestock have also recently begun to produce intriguing results (e.g. Loftus *et al.* 1994; Bradley *et al.* 1994, 1996 on cattle; Hiendleder *et al.* 1998 on sheep; Giuffra *et al.* 2000 on pigs; Luikart *et al.* 2001 on goats). The origins of the domestic dog have recently been the subject of renewed interest (Savolainen *et al.* 2002; Gallant 2002). DNA studies tend to show multiple origins for well-known species, with the consequence that classical osteometric work in archaeozoology will to be rethought and this may in turn stimulate new approaches to the linguistic evidence.

This section discusses all the major species of domestic animal found in Africa, with particular emphasis on the contribution of linguistics to the dating of their introduction and diffusion.

Camel

Camels are found in the desert regions of Africa from Senegambia to the Horn of Africa. The typical transport animal of Saharan caravans, they are also increasingly used for agricultural work in sub-Saharan agricultural villages. The one-humped dromedary is originally an Asian domesticate (Epstein 1971; Wilson 1984), although wild camels were known in North Africa in the Pleistocene. Camels were re-introduced from Arabia in the Graeco-Roman period (Bulliet 1990) although occasional representations suggest that the camel was brought to Egypt as an exotic significantly earlier (Brewer *et al.* 1994:104). Finds of camel-hair and ceramic models of camels confirm that at least some camels were kept in Egypt, but the introduction of the camel in large numbers may be associated with the Assyrians (ca. 500 BC). In the case of sub-Saharan West Africa, the camel is almost certainly more recent. Bones dating to between 250 and 400 AD have been found in the Middle Senegal Valley and bones and camel dung have been identified at Qasr Ibrim, in Egypt in the early first millennium BC (MacDonald and MacDonald 2000).

Linguistic evidence for the camel in West Africa is reviewed in Blench (1995b, 2000d). In West-Central Africa, there are two sources of words for camel, loans from Berber and from Fulfulde. Versions of Berber **lɣm* are common through from Northern Nigeria to Chad, whereas in Adamawa, Fulfulde *ngelooba* is usually borrowed. Skinner (1977:179 ff.) discusses the history of the **lɣm* root, which was probably a borrowed from Arabic *gml* (also borrowed into English) and that the Fulfulde term is probably another version of the same root, perhaps borrowed directly from Arabic *al-gml*.

More problematic is the antiquity of the camel in the Horn of Africa. Archaeological finds of camel materials from this area are disappointingly late, but as Marshall (2000) observes, this may be an artefact of sampling, given the much earlier dates in the Nile Valley. Esser & Esser (1982) and Banti (1993) have argued for direct domestication in the Horn of Africa, arising from translocated wild camels in the Arabian peninsula. Linguistic evidence for the camel in the Horn of Africa is given in Heine (1978, 1981). Heine (1981) points to the regular reconstruction of terms connected with camel production, for example the word for 'camel-bell' in Proto-Sam, i.e. Somali-Boni-Rendille (Table 12.7).

[42] One of the occasional discussions between historical linguists is whether African livestock terms *are* derived from indigenous fauna. Greenberg (1963) compared Niger-Congo terms for cattle with antelope species and Blažek (ined.) Cushitic terms with those for rhinoceros. More surreally, South Semitic terms for 'shark' have been compared with Afroasiatic cattle terms. I remain conservative on these issues.

Table 12.7 Reconstructed items in Proto-Sam showing the antiquity of camel pastoralism

Proto-Sam	Gloss
***gaal**	camel
***áùr**	male camel
***hal**	female camel
***ìrbáàn**	milking camel
***qáálìm**	young male camel
***qààlím**	young female camel
***wàdáám**	skin watering bucket
***kor**	camel-bell

Source: Heine (1981)

The camel could therefore have spread across from Arabia in 'pre-Arabic' times and thence up the Red Sea coast to Egypt and North Africa, as well as down the Somali coast and inland to Lake Turkana. The camel is little-known on the Ethiopian Plateau and terms in Cushitic and Omotic languages are loanwords from Oromo.

Horse

The history of the horse in sub-Saharan Africa remains poorly known, although it has been the subject of a number of studies (Epstein 1971; Law 1980; Seignobos 1987; Blench 1993a; Pezzoli 1995). The horse was domesticated somewhere on the steppes of Central Asia and spread through the Near East into Egypt with the Hyksos occupation of Egypt (ca. 1730-1570 BC) and along the North African coast shortly thereafter. By 1230 BC, horses were being captured by the Egyptians *from* the Libyans (i.e. Berbers) as war booty. Horses are extensively depicted in Saharan rock art and referred to in classical authors. It is usually assumed that they were the dominant transport species in the desert by the first millennium BC (Law 1980:1-2) and remained so until replaced by the camel. Curiously, however, equid remains have only been recovered in small numbers from the tell sites of the Niger and Senegal river basins, with no finds from the southern Sahara to the coast prior to 0 AD. The best osteological evidence for domestic equids in West Africa comes from the Middle Senegal Valley tell sites during the first millennium AD (MacDonald and MacDonald 2000).

Using historical, artistic, and linguistic evidence, Blench (1993a) argues for the presence of small horse breeds in West Africa during the first millennium BC. There is some archaeological support for this, although none of the sites with equid remains, such as Ropp in Central Nigeria, are securely dated. But both Law (1980) and Seignobos (1987) observe that many vernacular terms for horse in West-Central Africa are not linked to Arabic and seem to indicate an early period of spread and adaptation of equids to the harsh conditions of sub-Saharan Africa.

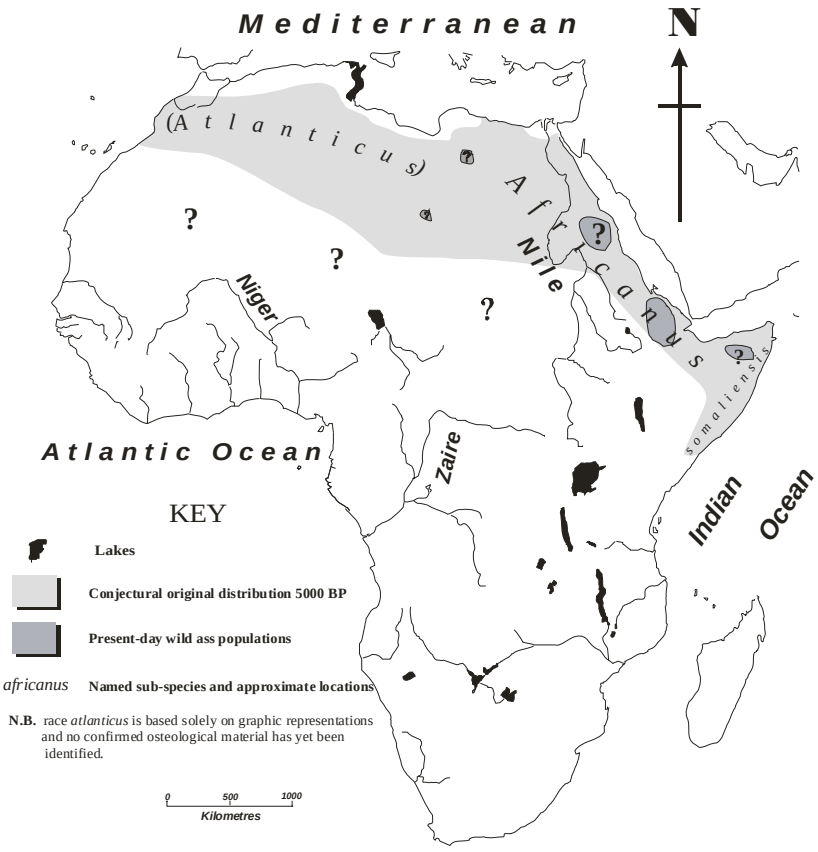
The horse and mule are highly embedded in the culture of Ethiopia, but are nonetheless quite recent. The Amharic term, *färäs*, ፈረስ, is borrowed from Arabic and the mule, *bäqlo*. The horse probably spread from the Nile Confluence where the Dongolawi breed originated. Epstein (1971) observes that Ethiopian horses are so variable in conformation that it is likely there were multiple introductions from different geographical areas.

Donkey

Donkeys are in use throughout semi-arid Africa, although their spread into the Southern African region is relatively recent. Blench (2000b) has reviewed the evidence for the history of the donkey in Africa. The wild ass, *Equus asinus africanus*, is indigenous to the African continent and formerly a chain of races or subspecies spread from the Atlas mountains eastwards to Nubia, down the Red Sea and probably as far as

the border of present-day Northern Kenya (Groves 1986; Haltenorth & Diller 1980:109). Recent work on donkey mtDNA has shown that the wild ass was domesticated at least twice, some 5-7000 years ago (Beja-Pereira *et al.* 2004). 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 of West Africa. Map 12.1 shows the range of the wild ass in the 1990s (Kingdon 1997) superimposed on the hypothetical former distribution prior to Roman depredations in North Africa. The wild ass of the Atlas mountains became extinct by 300 A.D. and is known only through depictions (Haltenorth & Diller 1980:109). War and civil insecurity in the Horn of Africa has probably impacted heavily on the remaining wild asses and only the Eritrean population is known to have survived.

Map 12.1 Distribution of races of wild ass in Africa



Mallam Dendo cartographic services 2005

Substantive archaeological data remains sparse, but the domestic donkey is well documented in Egyptian wall-paintings and other iconography. Donkeys can only be distinguished from wild asses if they are shown in use; not all representations are evidence of domestication but only of their presence. Wild asses are represented in rock-art by a few scattered petroglyphs in the Saharan Atlas and the Mathendous (Southern Libya), but the donkey is remarkable chiefly for its absence. A review of West-Central Saharan rock-art found virtually no images of wild asses or donkeys (Muzzolini 1995). Similarly, and perhaps more surprisingly, there appear to be no representations of asses or donkeys in the Horn of Africa (Phillipson 1993a:350). Osteological records of domestic donkeys begin in Egypt in the 4th millennium BC from the site of Maadi (Midant-Reynes 1992) and there are clear representations of working donkeys by the middle of the next millennium (Epstein 1971:392; Brewer *et al.* 1994:99). At about the same period there are textual records of large assemblages of donkeys, many of which were used for portage. Under the Pharaoh Pepi II (ca. 2270 BC) trading expeditions to Punt (Ethiopia) consisted of caravans with pack donkeys (Kitchen 1993).

Archaeologically, there are few certain records of domestic donkeys in sub-Saharan Africa. The earliest record of a donkey in West Africa is at Siouré in Senegambia. The stratigraphy of this site appears to be

reliable and the donkey bone is dated to 0-250 AD (MacDonald and MacDonald 2000). The picture for eastern Africa is much richer. Marshall (2000) gives evidence for domestic donkeys near the Nile confluence as early as the fourth millennium BP.

Two authors, Skinner (1977) and Bender (1988), have looked at the potential for reconstruction in specific language groups, respectively Chadic and Omotic. Blench (1995b) is an exploration of the terminology for donkeys in the Lake Chad area and Blench (2000b) an Africa-wide study. Tourneux (1987) discusses names for equids in *Afrique Centrale* as part of a study of the antiquity of the pony in this region. The principal base forms identified are;

#kuur-	Widespread in Africa
#harre	Ethiopian languages
#d-q-r	Cushitic languages
#aɣyul	Berber
#aʒəḍ	Berber

and these are discussed below.

#kuur-

Bender (1988:152) reconstructs Proto-Omotic **kur* for 'ass'. Words with this general formula run through Cushitic and Chadic as well as Omotic and presumably the Omotic form gave rise to the others. However, many Omotic languages also have the common Cushitic *harre,* perhaps loaned into Omotic as a term for the domestic donkey. Attestations of the *#kuur-* root are found through much of Afroasiatic, notably Chadic languages. Its presence in Nilo-Saharan languages such as Kanuri suggests that it was carried across Central Africa as part of the westward expansion of Cushitic. Table 12.8 shows the distribution of the *#k-r* root for donkey;

Table 12.8 The Africa-wide distribution of the #k-r root for donkey

Phylum	Family	Branch	Language	Attestation
Afroasiatic	Omotic	Gimira	Benc Non	**kur[2-3]**
		Mao	Hozo	**kuuri**
		Southern	Karo	**uk'ulí**
	Cushitic	Eastern	Borana	**bukura[o]**
			Saho	**okáalo**
	Chadic	West	Karekare	**kóoróo**
		Central	Vulum	**kùré**
		Masa	Peve	**koro**
		East	Nancere	**kurá**
Nilo-Saharan	C. Sudanic	Sara	Mbay	**kòro**
	Saharan		Kanuri	**kóro**

[o]young donkey

Another root, *#ħarre,* is found across the Horn of Africa, and appears virtually unchanged in numerous East Cushitic and Omotic languages. The most probable source for *ħarre* is the Oromo word for 'zebra'. Zebras are not part of the fauna of the Ethiopian highlands, but they are widespread in the lowlands south of the Plateau and are 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 the donkey once it was fully domesticated. The zebra would then become the 'donkey of the plains'.

There are two widespread roots in Semitic, *#ḥ-y-r* and *#ḥ-m-r*. These may ultimately be related, but both occur synchronically in many languages. Table 12.8 shows a series of attestations for these forms;

Table 12.8 The *#ḥ-y-r* and *#ḥ-m-r* roots for donkey in Semitic

Branch	Language	Attestations	
		#ḥ-y-r	***#ḥ-m-r***
	Ugaritic	**pḥl**	**ḥmr**
Canaanite	Classical Hebrew	**ḥayr**	
Arabic	Classical Arabic	**ḥayr**	**ḥimaar**
	Shuwa Arabic		**ḥumaar**
South Arabian	Mehri	**ḥayr/ ḥəyeer**	
	Epigraphic		**ḥmr**
	Soqotri		**ʃmálhen**
Ethio-Semitic	Amharic	**ahɨyya**	
	Gurage Caha		**əmar**

Source: adapted from Blench (2000b)

These widespread roots suggest that the wild ass was familiar to Proto-Semitic speakers and that the term was transferred early to the donkey.

Cattle

African cattle can be divided into two broad types; humpless taurines and humped or zeboid cattle. Taurines in turn divide into longhorned and shorthorned races, often known in the literature as ndama and muturu (Blench 1993a, 1998b,c). Reviews of the archaeozoology of African cattle can be found in Macdonald & Macdonald (2000) for West Africa, Marshall (2000) for East Africa and Smith (2000) for South Africa. Broadly speaking, taurine cattle began to cross the Sahara some 7000 years ago, penetrating both East and West Africa around 4000 BP and finally reaching South Africa some 2000 years later. Table 12.9 shows selected dates for sub-Saharan African cattle in different parts of the continent;

Table 12.9 Selected dates for sub-Saharan African cattle

Region	Location	Site	Date*
Sahara	Air Massif	Adrar Bous	5000-3350 BC
Sahara	Niger	Adrar n Kiffi	4680-4000 bc
West Africa	Mali	Winde Koroji West	2200-950 BC
West Africa	Nigeria	Gajiganna	1520-810 BC
West Africa	Mali	Kolima Sud	1400-800 BC
Horn of Africa	Djibouti	Asa Koma	~1500 BC
Horn of Africa	Ethiopia	Lake Besaka	~1500 BC
East Africa	Kenya	GaJi 4	~2000 BC
East Africa	Tanzania	Gogo Falls	~1480 BC
Southern Africa	Botswana	Lotshitshi	>200 AD
Southern Africa	South Africa	Happy Rest	>300 AD

*All dates normalised to a standard format

Sources: adapted from Macdonald & Macdonald (2000), Marshall (2000), Smith (2000)

Less clearly dated is the introduction of the zebu, the humped cattle typical of India. Genetic work has shown clearly that zebu arose from an independent domestication (Loftus *et al.* 1994). It is claimed that zebu can be distinguished in the archaeozoological record if certain bones are present, but this is disputed. Nonetheless, zebu had a major impact on cattle races in Africa, vanquishing the humpless longhorns shown in rock-paintings in the Horn of Africa (e.g. Gutherz *et al.* (2003)) and all but eliminating the humpless shorthorns which now survive only in residual populations in the Sheko valley in Ethiopia and on Soqotra island. Linguistically, zebu are rarely distinguished from taurines, so the traces of their intrusion are hard to

uncover. Molecular biology may enable us to uncover the pathways whereby zebu spread within Africa (Bradley *et al.* 1994).

The linguistic evidence for cattle is somewhat perplexing. There is no consistent term for cattle in Nilo-Saharan, despite the importance today of cattle among certain Nilo-Saharans such as the Nilotic peoples. This strongly supports the idea that Nilo-Saharan broke up well before the introduction of cattle into sub-Saharan Africa. Table 6.3 shows a widespread Afroasiatic root for cattle, only absent from Omotic, making it certain that speakers of Proto-Cushitic were familiar with cattle (Table 6.2). This is earlier than is consistent with current archaeological evidence, but wild cattle were part of the indigenous fauna of Northeast Africa. Prior to domestication proper, Cushitic speakers would have had names for wild cattle and were perhaps managing them, rather as reindeer are managed today in Northern Eurasia. In the case of Niger-Congo, cattle also reconstruct to a high level. Table 12.10 shows the widespread root #-**naŋ**-, which occurs in every branch of Niger-Congo except Kordofanian, although it is conspicuously absent in Bantu;

Table 12.10 A common Niger-Congo root for cattle

Branch	Language	Attestation
Dogon	Duleri	**na**
	Tomo Kan	**nahan**
Ịjọ	Nkoro	**nambulo**
	Defaka	**árámˡɓá**
Mande	Soninke	**na** *pl.* **naanu**
	Tieyaxo	**naa**
	Bobo	**ɲànga**
Atlantic	Fulfulde	**nagge**
	Palor	**naal**
	Bullom	**ënarr**
Gur	Kulango	**nãã**
	Tyebara	**nɔ̀**
	Deg	**nàʊ́**
	Mõõre	**na**
Adamawa	Mumuye	**nàpo**
	Yendang	**nàa**
Kwa	Agni	**ɛ̀nàlɛ́**
	Eotile	**ɛ̀nɛ́**
Benue-Congo	Nupe	**nànkó**
	Idoma	**ɛ̀nà**
	Tiba	**náksa**
	Efik	**enaŋ**

The ubiquity of this root indicates that speakers of the different proto-languages were familiar with cattle, but that Kordofanian split off before cattle were introduced.

Sheep

African sheep can be divided into four main races; thin-tailed hair and wool sheep, fat-tailed and fat-rumped sheep (Blench 1993a). All African sheep ultimately come from outside the continent and all these races derive from two maternal lines (as defined by mtDNA) in Central Asia (Hiendleder *et al.* 1998). Wool sheep are only found on the edge of the desert in Mali and Sudan and are probably marginal and late introductions, but hair sheep have a long and complex history in sub-Saharan Africa. 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) 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, is generally accepted. Sheep and

goat bones cannot be reliably distinguished in most sub-Saharan sites, and they are therefore listed together as ovicaprines, despite the two species almost certainly having rather different histories. Table 12.11 shows selected dates for sub-Saharan African ovicaprines;

Table 12.11 Selected dates for sub-Saharan African ovicaprines

Region	Location	Site	Date*
Sahara	Air Massif	Adrar Bous	5000-3350 BC
Sahara	Niger	Arlit	4300-3700 BC
West Africa	Mali	Winde Koroji West	2200-950 BC
West Africa	Mali	Kolima Sud	1400-800 BC
West Africa	Nigeria	Gajiganna	1520-810 BC
Horn of Africa	Ethiopia	Lake Besaka	~1500 BC
East Africa	Kenya	GaJi 4	~2000 BC
East Africa	Kenya	Ngamuriak	1000 BC – 0 AD
Southern Africa	Namibia	Falls rockshelter°	190 BC -383 AD
Southern Africa	South Africa	Ma38	2-300 AD

*All dates normalised to a standard format °Known to be sheep

Sources: adapted from Macdonald & Macdonald (2000), Marshall (2000), Smith (2000)

The complex linguistic history of sheep is shown by a widespread root, *#t-m-k*, which occurs in Afroasiatic, Saharan, and Niger-Congo. This distribution suggests borrowing, although it the source language is unclear. Table 12.12 shows the distribution of this root;

Table 12.12 The *#t-m-(k)* root for 'sheep' across Africa

Phylum	Family	Branch	Language	Attestation	Gloss
Afroasiatic	Cushitic	East	Oromo	**tumaamaa**	castrate
	Chadic	West	Hausa	**túnkìyáá** *pl.* **túmáákíí**	sheep
		Central	Bade	**taaman, təmakun**	sheep
			Higi of Kiria	**tɪmbəkə**	sheep
			Tpala	**tə̀mâk**	sheep
		Masa	Masa	**dímíína**	sheep
		East	Mubi	**túmák**	sheep
			Kera	**taaməgá**	sheep
	Berber		Wargla	**adəmmam**	hair sheep
Nilo-Saharan	C. Sudanic	Moru-Madi	Moru	**temélé**	sheep
	Kadu	Eastern	Krongo	**ḍéémà**	female goat
	Saharan		Kanuri	**táma**	female lamb
			Berti	**tami**	lamb
Niger-Congo	Benue-Congo	Nupoid	Ebira Okene	**atɛ́mɛ́**	ewe
	Gur		Kirma	**tumaŋo**	sheep

Source: expanded from Blench (1999d)

A quite different root, #**ku**, is reconstructible for Central Khoesan (cf. Table 7.1), and this almost certainly is to be correlated with the introduction of the sheep in Namibia. Somewhat surprisingly, the sheep kept by Khoe peoples were the fat-tailed race, better-known from Arabia and NE Africa. This links with the idea that these sheep were in the possession of Cushitic speakers practising pastoralism more than 2000 years ago in what would today be Zambia, and that it was there they encountered Khoe speakers and both the animals themselves and the practice of shepherding were transferred. Sadr (2003) has reviewed the evidence for

sheep in Southern Africa in both rock-paintings and excavated sites and establishes clearly that both and sheep and indeed pottery reached the Khoe prior to the incursions of Bantu-speakers in the area.

Given the dates for sheep in the Eastern Sahara, it is perfectly credible that the speakers of Proto-Chadic already had sheep. Sheep probably spread into Africa both down the Nile Valley and across the Red Sea from Arabia creating rather diverse pastoral cultures, but remained on the edge of the desert for some time, before gradually adapting to the wetter climates of West-Central Africa proper. This would have been well after the main branches of Niger-Congo had become established, hence the scattered nature of sheep names in Niger-Congo. Sheep were carried south and west across the continent by Cushitic-speaking pastoralists and were responsible for a major re-orientation of the culture of one group of hunting-gathering Khoe.

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 (Mason 1984b). Luikart *et al.* (2001) investigated the maternal DNA of goats worldwide and concluded;

> These results, combined with recent archaeological findings, suggest that goats and other farm animals have multiple maternal origins with a possible center of origin in Asia, as well as in the Fertile Crescent. … Goat populations are surprisingly less genetically structured than cattle populations. In goats only 10% of the mtDNA variation is partitioned among continents. In cattle the amount is >50%.
>
> Luikart *et al.* (2001)

One of their most striking conclusions is that the variability of goat mtDNA implies substantial movement of goat races between continents in prehistory in contrast to cattle. The explanation for this is presumably that goats are not pastoral animals in the same way as cattle and sheep. Breeding stock are often transported in boats, or even on the back of camels. The diversity of goats in Ethiopia illustrates the way goat races are constantly being brought in and exchanged between populations (FARM-Africa 1996).

Goats were certainly kept in Egypt after 5000 BC and presumably spread to sub-Saharan Africa shortly after that. Haua Fteah, Cyrenaica in North Africa, has small ruminant bones dating from 6800 BP with no associated cattle, but at Kadero, near Khartoum, there are both cattle and small ruminants at 6000 BP (Gautier 1981:336). Table 12.13 summarises the sub-Saharan Africa dates for ovicaprines, with the caveat about their uncertain identification.

Linguistic evidence for goats certainly appears to support early dates. A single root, #*k-r-* (Table 12.13), is spread across the southern branches of Afroasiatic and is borrowed into different branches of Nilo-Saharan. Its presence in both branches of Omotic is very striking, suggesting that it is even more deeply embedded in Afroasiatic than cattle.

Table 12.13 The #*k-r-* root for 'goat' in Afroasiatic and Nilo-Saharan

Phylum	Family	Branch	Language	Attestation	Gloss
Afroasiatic	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 castrated goat
			Bade	**akûn**	goat
		Central	Dera	**kwáarà**	goat
Nilo-Saharan	Kuliak		Ik	**kɔl**	goat
	Kadu	Central	Katcha	**kɔrɔmɔk**	goat
	E. Sudanic	Surmic	Bodi	**koloy**	goat
		Temein	Dese	**kwɔ́rɔmàl**	he-goat
		E. Nilotic	Turkana	**a-korai**	goat
		S. Nilotic	Proto-Kalenjin	***kwɛr**	he-goat
	Saharan		Kanuri	**kəláwo**	virgin she-goat

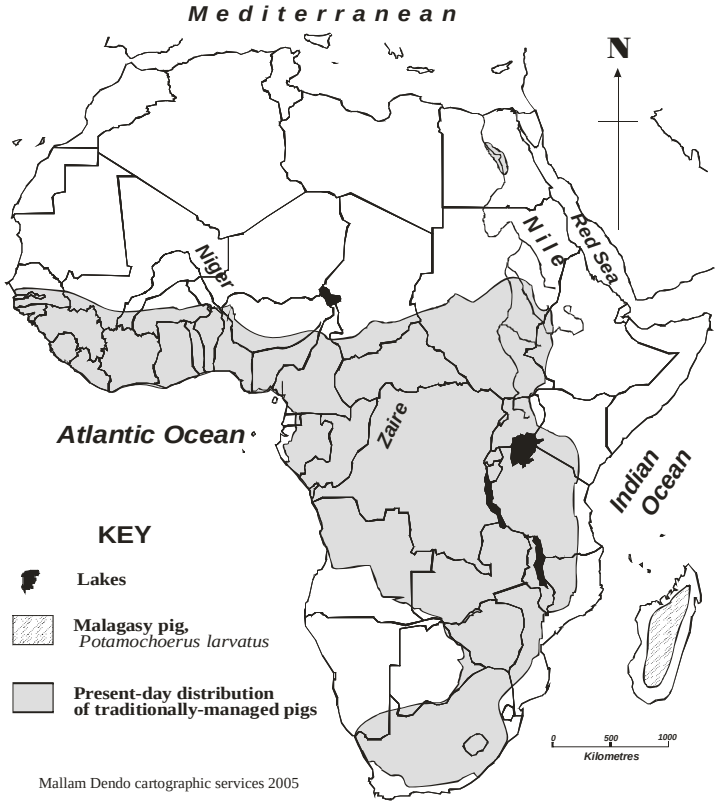
Source: expanded from Blench (1999d)

There is also a distinct Niger-Congo root reconstructed by Mukarovsky (1976:37) as #**budi**, pointing strongly to a separate introduction of the goat across the Sahara into West Africa. Westermann (1927:219) notes that although this root is widespread in West Africa, it sometimes also means 'sheep'. Williamson (2000a) tabulates evidence showing additional cognates in Niger-Congo including Kordofanian. This would be problematic for the view of Niger-Congo in which Kordofanian is the primary branching, but once it is demoted and thus becomes somewhat more recent (Table), the presence of this root in Kordofanian becomes consistent with the appearance of small ruminants in West Africa around 6-5000 BP and the subsequent intertwining of borrowed names between language families.

Pig

The history of the domestic pig in Africa is highly controversial (Blench 2000e). The pig was domesticated in the Near East around 9000 BP and also apparently independently in Asia at a similar date, as the ancestral wild forms are separated by more than half a million years (Jones 1998; Giuffra *et al.* 2000). Crossbreeding European with Asian pigs in the nineteenth century has blurred the genetic picture and since both types were brought to Africa, the overall picture is very mixed. The ancestor of the Eurasian pig, *Sus scrofa*, is native to north Africa, and its range extends along the Atlantic coast. The Maghreb race is sometimes known as *Sus scrofa barbarus* and there was in addition a Saharan race known as *sahariensis* (Epstein 1971, I:314). Pig populations were found from northwest Africa to the Nile Valley, down the Nile and into the Ethio-Sudan borderlands. Whether they spread any further into Sub-Saharan Africa is still in doubt; Murdock (1959) considered that evidence for cultural embedding made it likely that there were old populations of pigs in various parts of the continent. This is possible but has yet to be confirmed by archaeozoology. The only report of pig-bones 'out-of-place' are the domestic pigs reported from ninth century Natal (Plug 1996). However, the coming of the Portuguese transformed the situation, by bringing what Epstein called 'unimproved Iberian swine' to every part of the continent. The Portuguese also brought Asian pig races from Macau to the East Coast of Africa, further confusing the genetic picture. If there were resident pig populations these were rapidly displaced by the incoming porcines, making their history still more difficult to unravel. Map 12.2 shows the present-day distribution of domestic pigs in Africa.

Map 12.2 Traditionally managed pigs in Africa



One of the more surprising pig populations in Africa are the feral pigs on Madagascar and the Comoro islands, *Potamochoerus larvatus*[43] (Kingdon 1997; Garbutt 1999). Madagascar has a modern pig industry of French inspiration, but the wild pig is apparently related to the mainland bushpig *P. larvatus*. These pigs show signs of semi-domestication, even though there is no evidence for traditional rearing of *P. larvatus* on the mainland. Certainly the Malagasy pigs must have been translocated from the mainland at some point in the past by populations with experience of pig production. The most likely hypothesis is that the ancestors of the Austronesian-speaking Merina transported the mainland pigs, either in a failed attempt at domestication or as a wild food source.

The expansion of Islam has played a crucial role in transforming the distribution of pig production in Africa. Islam forbids Muslims to eat pork and this rule is usually interpreted as a prohibition on any sort of contact with pigs. Where Islam becomes dominant, all pig production is forbidden. Pigs were once kept all along the Maghreb and into Egypt; they survive now only among the residual Coptic communities on the Nile. The Ethiopian Christian church, whose dietary prohibitions are based on the Old Testament, bans the eating of pork; pigs in Ethiopia are only kept in the non-Christian regions in the west of the country.

In the Northeast Africa, the Semitic root for 'pig', *khanziir*, goes back to the proto-language (Table 12.14). Pigs are attested throughout the Ancient Near East and the Semitic root goes back at least to Ugaritic. However, knowledge of the pig was paradoxically spread by the Arabs, partly through Islamic prohibitions on the animal, as the word for pig is a loanword from Arabic all across the fringes of the Islamic world in Central Africa and South Arabia.

[43] Described by Jori at http://pigtrop.cirad.fr/fr/petits_curieux/SV_Potamochere_Mada.htm. Blench (2000e) omits all mention of this remarkable population.

Table 12.14 The #x-n-z-r root for pig in Afro-Asiatic

Branch	Sub-branch	Language	Attestation	Source
Cushitic	Beja	Beja	**hanziir**	< Arabic
	East	Afar	**hereya**	Eth. #ḥ-r-y
		Saho	**hara**	Eth. #ḥ-r-y
Chadic	East	Mokilko	**kìnzîr**	<Arabic
		Migama	**kìnzîr**	<Arabic
		Toorom	**kinziir *pl.* kaanzir**	<Arabic
Semitic	North	Ugaritic	**ḥnzr**	
		Mandaic	**hozuura**	
	Arabic	Shuwa Arabic	**khanziir**	
	South Arabian	Mehri	**xənziir**	<Arabic
		Jibbāli (=Shahri)	**xanzír**	<Arabic

Source: adapted from Blench (2000e)

Round the coasts of Africa, loans from Portuguese *porco* are very common. For example, domestic pigs, *Sus scrofa*, are called *puruku* in the Comores and *oporoko* in the Niger Delta. Inland, it was more common for terms for wild pig to be applied to them. Nevertheless, it is possible that domestic pigs were widely spread in West-Central Africa prior to the Portuguese introductions. Table 12.15 shows a widespread root in the different phyla of Africa that stretches virtually across the continent and has nothing to do with either Portuguese or any of the major vehicular languages. Some of these terms are also applied to either the bushpig or the warthog, and this might be their ultimate source, but many languages now have quite distinct terms for domestic and wild species.

Table 12.15 A common Central African term for pig

Phylum	Family	Branch	Language	Gloss
Nilo-Saharan	Koman	Anej	**kuturu**	
	Eastern Sudanic	Nyimang	**kudur**	
		Old Nobiin	**kutun**	
		Temein	**kudur**	
		Uduk	**ḳuthar**	
	Maba	Aiki	**gìrwà**	wart-hog (?C)
	Saharan	Kanuri	**godú**	warthog
	Kadu	Kadugli	**kuḍuru**	
Niger-Congo	Kordofanian	Orig	**kàdìrú**	
	Kordofanian	Otoro	**kudur**	
	Kwa	Fon	**agurusa**	
	Gur	Dagbane	**kurutʃu**	
	Benue-Congo	Nupe	**kutsũ**	
	Bantu	CB	**#-gùdú**	wild pig
Afroasiatic	Omotic	Kefa	**gudinoo**	
	Semitic	Sudan Arabic	**kadruuk**	
	Chadic	Hausa	**gursunu**	

Source: adapted from Blench (2000e)

The history of the terminology for the Malagasy feral pig is quite intricate. The names for the two races recognised on the island are *lamboala* and *lambosui*, hence the basic term for wild pig is *lambo*. The source of this term is presumably either Austronesian or Bantu. The Proto-Malayo-Polynesian for domestic pig is *babuy lebu*, where *babu* is the basic root for the pig. Proto-Bantu for pig is **gòdòbè*, which is found widely across the Bantu zone. Neither of these look like probable candidates for the origin of the Malagasy term. Beaujard (1998:453) notes that the original meaning of *lambo* was 'cattle' and that this still survives in archaic terms such as *lambohamba*, 'twin cows', the name of the royal shrine of Sandrañanta. If so, this can

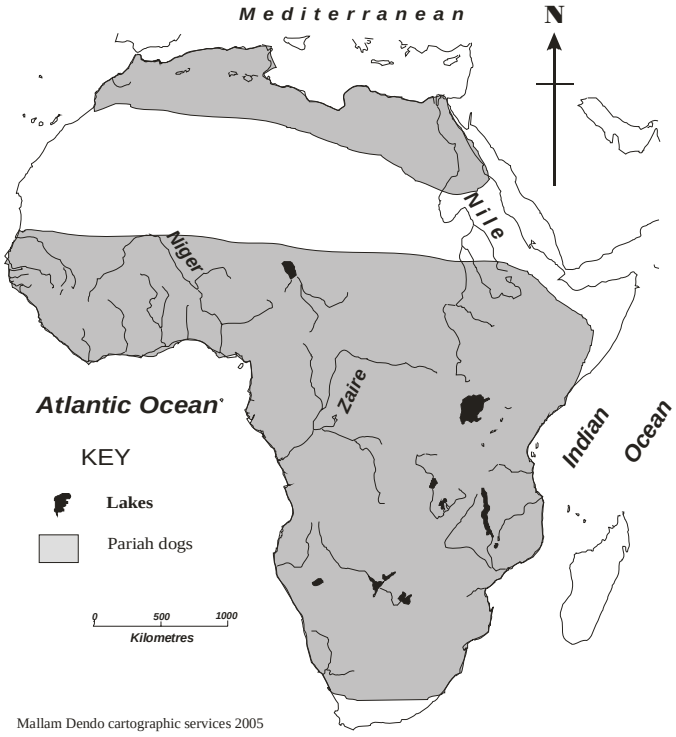
be compared to Proto-Malayo-Polynesian **ləmbu*, 'bovine'. If this is correct, then the ancestors of the Austronesian migrants who reached Madagascar may have captured wild pigs on the African mainland, transported them to Madagascar, and made an attempt to domesticate them while giving them the name of the bovines familiar from their home island. Their large size compared with the island pigs of SE Asia may well have inspired the analogy with cattle. When the Austronesians began to transport both African people and their cattle from the mainland, the Bantu word for cattle, *ngombe*, displaced the Austronesian term and but the older term was still applied to pigs. To add further to the complexity, the term for dugong on Mayotte, one of the Comorian islands, is *lamboara* (borrowed into Shimaore, the local Bantu language, as *lambwara*)[44]. This is a shortened form of the Malagasy *lamboharano* which Decary (1950) translates as *sanglier d'eau*, literally 'wild boar of the water'. However, there is every reason to believe that this originally meant 'bovine of the sea', a presumably unintentional calque of the antiquated English term 'sea-cow'.

Dog

The ancestry of the domestic dog remains uncertain and a number of canids may be implicated in present-day types (Vilà *et al.* 1997; Clutton-Brock 1984, 1999). Genetic studies (Savolainen *et al.* 2002) place the origin of the dog in East Asia, deriving from the Chinese wolf, a view rather at odds with previous opinion, which focused on the Middle East. European dog remains go back to at least 10,000 BP. The dog is not native to Africa and was introduced at an unknown period in the past. According to Brewer *et al.* (1994: 114 ff.) dogs were known in pre-Dynastic Egypt (Merimde Beni Salame at 6800 BP) and Gallant (2002:51) dates the introduction and spread of the dog in Africa at 7000 BP.

Three basic types of dog are recorded in Ancient Egypt, the pariah dog, the greyhound and the mastiff (Epstein 1971). The pariah is the common dog found all over Africa (Map 12.3), while Map 12.4 shows greyhounds and mastiffs. The greyhound was divided into two types, the *tesem* and the *saluki*, the *tesem* being the lean, tall, prick-eared dog represented in many wall-paintings. The *tesem* seems originally to have come from further south, from Nubia and Punt, although where they evolved remains uncertain. The mastiff, or 'Molossian' hound, is usually thought to have been brought into Egypt from Mesopotamia during the Middle Kingdom period (Brewer *et al.* 1994:117). Cesarino (1995, 1997) studied dogs in Saharan rock art and shows that they virtually always occur in hunting scenes. There is clear evidence for the use of the mastiff in hunting (possibly for lions) far to the west of the conventional distribution as is shown by a figurine of a mastiff dated to 3630 BC from Wadi Athal in the Lybian Acacus (Cesarino 1997:103). If Cesarino's tracking of rock art images is correct, the dog crossed the Sahara by four separate routes, down the Atlantic coast, through the Hoggar to the Adrar des Iforas, through the Tibesti and down the Nile. However, only the ancestors of the pariah spread out through Africa, the greyhounds remaining in North Africa and the mastiff effectively disappearing.

Map 12.3 Pariah dogs in Africa

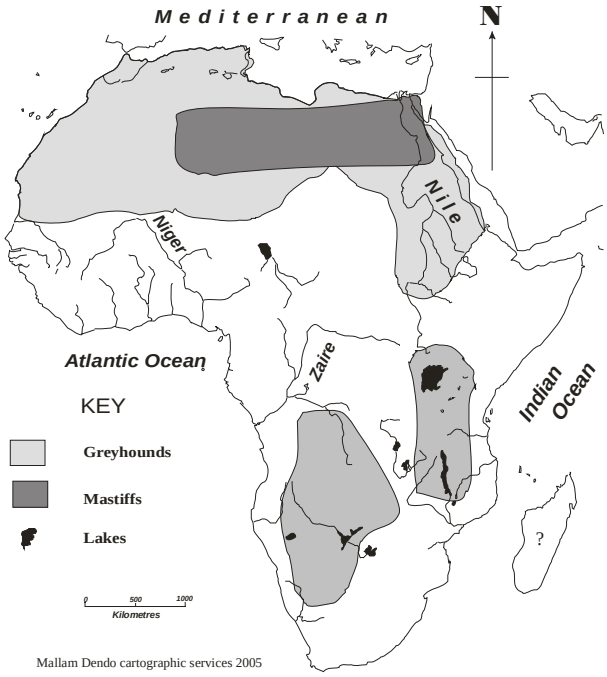


Mallam Dendo cartographic services 2005

[44] Thanks to Martin Walsh for drawing my attention to this

The social and cultural importance of dogs in African culture, as well as the antiquity of their domestication in the Near East, argues that they should be at least as old as other domestic stock in Africa. Archaeological evidence for the antiquity of dogs in sub-Saharan Africa is limited (MacDonald and MacDonald 2000; Smith 2000). Although Paris (1992) reports inhumations of domestic dogs dating to at least the early second millennium BC from Chin Tafidet in Niger, elsewhere in West Africa there are no sites dated earlier than 200 BC. Despite this, all other types of circumstantial evidence suggest dogs are of considerable antiquity and it is likely that either dog bones have been confused with those of jackals or it is a consequence of the system of keeping. Simoons (1981), Blench (2000d) and Linseele (2003) have reviewed the evidence for dog eating, which is well attested in the ethnographic record, and find that it was probably extremely widespread in prehistory.

Map 12.4 Greyhounds and mastiffs in Africa



Using linguistic evidence to uncover the diffusion of the domestic dog has a specific problem; a tendency for names for dog to be phonaesthetic. The root #**kon**- shows up in Proto-Indo-European, in Proto-Omotic and in Chinese. Barth (1862, II) observed long ago that the widespread similarities in names for dog in Africa argued for a single broad introduction into Africa. This may seem initially credible, but names for dog show similarities worldwide, rather like names for 'crab' (Blench 1997a). However, in Niger-Congo, there is a quite distinct root, something like #-**buli** (Table 12.16);

Table 12.16 'Dog' in Niger-Congo languages

Family	Subgroup	Language	Attestation						
Dogon		Tintam	**ŋ**	**w**	**ɛ**				?C
Ijoid		Kalabari	**o**	**b**	**i**	**r**	**i**		
		Biseni	**e**	**b**	**i**	**r**	**i**		
Defaka		Defaka	**e**	**b**	**e**	**r**	**e**		
Kordofanian	Talodi	Tegem	bɛ	**-b**	**u**		**i**		pl. **ɛrui**
		Eliri		**b**	w		a	**k**	pl. **abuk**
Mande		Tura		**gb**	**ǵ**		**ɛ**		
		Susu		**b**	**a**	**r**	**e**	**na**	
		Mende	**n**	**g**	**i**	**l**	**a**		
		Boko		**gb**	**ǵ**				**/-ɔ́**
Atlantic		Serer		**ɓ**	**ɔ**			**x**	
		Pepel	**ɔ**	**-b**	**o**	**l**			
		Manjaku		**b**	**u**			**s**	
		Bijogo	**e**	**b**	**o**		**o**	**t̪**	
Kru		Guéré		**gb**	**e**				
		Seme		**b**	**u**		**-o**		**/-e**
Gur		Moore		**b**	**a**	**r**	**a**		
		Gurma		**b**	**u**		**a**		**-ga /-mu**
		Dagare		**b**	**a**	**r**	**e**		
		Hanga		**b**	**a**	**'**	**a**		
	Gurunsi	Chakali		**v**	**a**		**a**		
		Delo		**b**	**a**				
	Senufo	Nyarafolo		**p**	**ú**	**n**			
		Waama		**b**	**ú**		**u**		**-ka**
		Bariba		**gb**	**o**				
Adamawa		Yungur		**b**	**w**		**e**		

Family	Subgroup	Language	Attestation							
		Mambei		**v**	**w**		**a**			
Ubangian	Sango	Yakoma	**m**	**b**	**ò**					
		Ngbaka		**b**	**ɔ́**	**n**	**ɔ̃**			
		‘Dongo-Ko		**ɓ**	**é**	**l**	**à**			
		Nzakara		**b**	**a**	**n**	**á**			
Kwa		Ebrié		**gb**			**à**			
	Central Togo	Nyangbo	**é-**	**b**	**ú**					**/be-**
	Gen		**à**	**v**	**ú**	**n**				
Benue-Congo	Edoid	Uhami	**à**	**b**	**ù**		**à**			
	Platoid	Yeskwa	**e-**	**b**	**u**					
	Jukunoid	Kpan	**i-**	**b**	**u**					
	Cross River	Efik	**e-**	**b**	**u**		**a**			
Bantoid	Dakoid			**v**	**o**	**n**	**a**			
	Mbe	Mbe		**b**	**o**			**g**		
Bantu		PB		***-b**	**ʊ́**		**à**			(9/10)
		Duala	**m**	**b**	**o**					

Discussed in Westermann (1927); Mukarovsky (1976); Williamson (1988:118)

If, as Table 12.16 suggests, the dog was introduced early in the development of Niger-Congo, then this is a testimony to its considerable antiquity. Either it is older than any archaeological evidence testifies or a semantic shift occurred in an early phase of Niger-Congo. Either the term originally applied to jackal and later shifted to dog, or perhaps the jackal bones that occur in faunal assemblages include dog bones that have yet to be identified.

Cat

Domestic cats are kept in all parts of Africa, and are used to hunt vermin and for medicinal and magical purposes. In some places, like dogs, they have become semi-feral. Domestic cats are usually considered to have developed from *Felis sylvestris libyca*, still found wild through much of arid North Africa (Robinson 1984). Indeed the English ‘cat’ derives from Latin *cattus*, which is probably borrowed from Berber *giṭṭus*, applied to the North African wild cat. Pennisi (2004) suggests that a Neolithic burial in Cyprus dated to 9500 BC shows that cats were already pets at that date. Cat remains are found in Jericho as early as 7000 BC and in Egypt at 4000 BC, but there seems to be no way to establish whether these are domestic are simply tamed wild cats (Brewer *et al.* 1994:108). The Egyptians are likely to have brought the cat into domestication gradually, with full domestication by 1000 BC. There is no evidence for the date or route whereby it spread south of the Sahara, although today it is found throughout the continent.

There are virtually no archaeological records of the domestic cat in sub-Saharan Africa, apart from a find at Jenné-Jeno and even here it is unclear that wild or feral types can be adequately distinguished (MacDonald 1995). Cats are well embedded in the culture of Arab North Africa and it is assumed that they spread as commensals both across the Sahara and down the Nile into sub-Saharan Africa after 1000 BC. Although cats are usually considered as forbidden for food, there are widespread reports of their consumption for magical purposes. Cats seem to thrive and there have almost certainly been multiple importations from different sources. There appears to be at least one very ancient stratum of cat populations, since the cat, like the pig, is common among the Omotic and Nilo-Saharan populations of the Ethiopia-Sudan borderlands, who have until recently been rarely exposed to trade. Strikingly, among the Dogon in Mali, the cat is considered as belonging to the inhabitants of the aboriginal people of their country. At the same time, European traders introduced cats all around the coast and Muslim traders brought cats across the Sahara, while the Indian Ocean trade brought Persian cats to all the ports of East Africa.

There have been some limited linguistic studies, notably Skinner (1977) and Blench (1995b). Cats, like dogs, often have phonaesthetic names, typically *mus* in West Africa and *nyau* in East Africa, and it is difficult to draw any very firm conclusions from the distribution of such forms. Skinner (1977:181) argued

that the Cushitic and Chadic lexemes were cognate and thus cats were of great antiquity among Afroasiatic-speakers, but this seems unlikely in view of the marked absence of archaeozoological materials.

Birds

General

African domestic poultry consists of chickens, pigeons, Muscovy ducks, guinea-fowl and turkeys, although only the guinea-fowl is indigenous. Chickens and pigeons came long ago, via routes that are disputed, whereas the Muscovy duck and the turkey were introduced from the New World in the sixteenth century.

Chickens

Chickens are by the far the most important poultry species in Africa, both numerically and in terms of social and economic significance. Despite this, the chicken is an exotic import of relatively recent date compared with domestic ruminants. MacDonald (1995), Macdonald & Macdonald (2000) and Blench and MacDonald (2001) examine the history of the chicken in Africa in greater detail. In a pioneering study, Johnston (1886) used the words for chicken in Bantu languages to show that chicken cannot be reconstructed to Proto-Bantu because of its irregular reflexes and he considered it likely that the chicken was introduced into the Bantu area from the east. In more recent times, Williamson (2000b) undertook a detailed overview of the linguistic evidence for the spread of the chicken in Africa.

According to mtDNA analysis, the chicken was domesticated from the races of jungle-fowl found in northern Thailand (Fumihito *et al.* 1994). This fits with the archaeological data presented in West & Zhou (1988) for domestic chickens in China as early as 6000 BC. Chickens spread from China across Central Asia, north of India proper, arriving in Europe by 3000 BC. A much-reproduced painted limestone ostracon from the tomb of Tutankhamun clearly illustrates a cock and several other images suggest the occasional presence of fowl as exotics in Egypt during the New Kingdom (c.1425-1123 BC) (Darby *et al.* 1977, I:297 ff.). However, there is no further evidence in the graphic record until ca. 650 BC, after which they are shown in abundance (Coltherd 1966). Osteological evidence for chicken in Africa is becoming more common. Chami (2001) has reported chicken bones from a Neolithic context on Zanzibar, dated to ca. 800 BC. After this, most finds are from the mid-first millennium AD, with records from Mali (MacDonald 1992), Nubia (MacDonald and Edwards 1993), the East African Coast (Mudida and Horton 1996), and South Africa (Plug 1996) all dating to this period.

It is hard to know how to interpret this gap; were the Zanzibar finds left by Indian Ocean traders with no implication for the mainland, or is it simply that we have yet to find earlier sites on the continent itself? Linguists would like to see the earlier dates, based on the degree of embedding of words for chicken (Johnston 1886; Manessy 1972; Blench 1995b; Williamson 2000b). The linguistic evidence suggests rather strongly multiple introductions, both across the Sahara, via the Berbers, on the East coast and possibly a separate introduction to Ethiopia via the Red Sea Coast.

Many African languages have onomatopoeic words for chicken, usually based on the cry of the cock. But there is one extremely widespread root, *#taxV-*, which appears to track the spread of the chicken from its original zone of domestication to the heart of Central Africa. From Korea across Central Asia to the Near East, North Africa and south to Lake Chad a series of very similar terms forms a chain (Table 12.17). This suggests that the chicken not only diffused westward from China as far as Central Africa, but it did so *after* the principal language phyla were established.

Table 12.17 A Eurasian and African root for 'chicken'

Phylum	Branch	Language	Attestation	Gloss
Daic	Kadai	Hlai (=Li)	**kʰai**	
	Kam-Sui	Dong	**aai**	
		Maonan	**kaai**	
	Tai	Lü (=Xishuang Banna)	**kai**	
Miao-Yao	Miao	Laka (=Lajia)	**kai**	
	Yao	Mien	**čai**	
Koreanic	Korean	Korean	**ta(r)k**	
Altaic	Mongolic	Buryat	**taxyaa**	
	Tungusic	Manchu	**coko**	
		Hezhen Nanai	**töqo**	
	Turkic	Chuvash	**chax**	hen
		Uyghur	**toxu**	
		Kazakh	**tawɪq**	
Sino-Tibetan	Trung	Nu-jiang	**dɑŋ^{31}gu^{55}**	cock
		Rawang	**tanggu**	cock
Indo-European	Iranian	Sarikoli	**tuχi**	
		Russian	**petux**	
Afroasiatic				
Chadic	Bura-Higi	Bura	**mtəka, təkaʏ**	
		Kyibaku	**ntɬka**	
		Njanyi	**ɗeke**	
	Wandala-Mafa	Dghweɗe	**ɣatukulu**	
		Sukur	**takur**	
	Masa	Masa	**ɬek-ŋa**	cock
	East Chadic	Mubi	**dììk pl. dàyàkà**	cock
Semitic	Arabic	Classical Arabic	**diik**	cock
	Ethio-Semitic	Harari	**atäwaaq**	
Berber		Awjila	**tẹkaʒẹ̄ṭ**	
		Tamesgrest	**tekəʒʒit**	
		Tafaghist	**tekəʒit**	
Niger-Congo				
Mande		Ligbi	**tùgɔ**	
Atlantic		Temne	**atɔkɔ**	
East Kainji		Jere	**bètókóró**	

Source: African language entries from Williamson (2000b)

The dates for chicken on mainland do not seem to reflect the linguistic evidence and an earlier date is predicted than any yet recorded.

Guinea-fowl

The crested or helmet guinea-fowl, *Numida meleagris galeata*, is the only poultry species native to Africa (Mongin & Plouzeau 1984). It is distributed from Senegambia to South Africa and is only absent in areas of dense humid forest. There are no certain finds of *domestic* guinea-fowl in sub-Saharan sites, although remains attributable to either wild or domestic guinea-fowl are common in West Africa (MacDonald and Macdonald 2000). Poultry are poorly represented in early African historical sources, but Ibn Sa'īd mentions guinea-fowl in Jaja, i.e. medieval Borno (Lewicki 1974:91).

While the guinea-fowl is definitely domestic in West Africa, it remains wild through the rest of the continent. There is no clear terminological distinction between wild and domestic races. There is a widespread root for guinea-fowl in West African Niger-Congo languages, #**kaŋa**, while the Chadic languages have a different, but similarly embedded root (Table 12.18);

Table 12.18 Guinea-fowl in Chadic languages

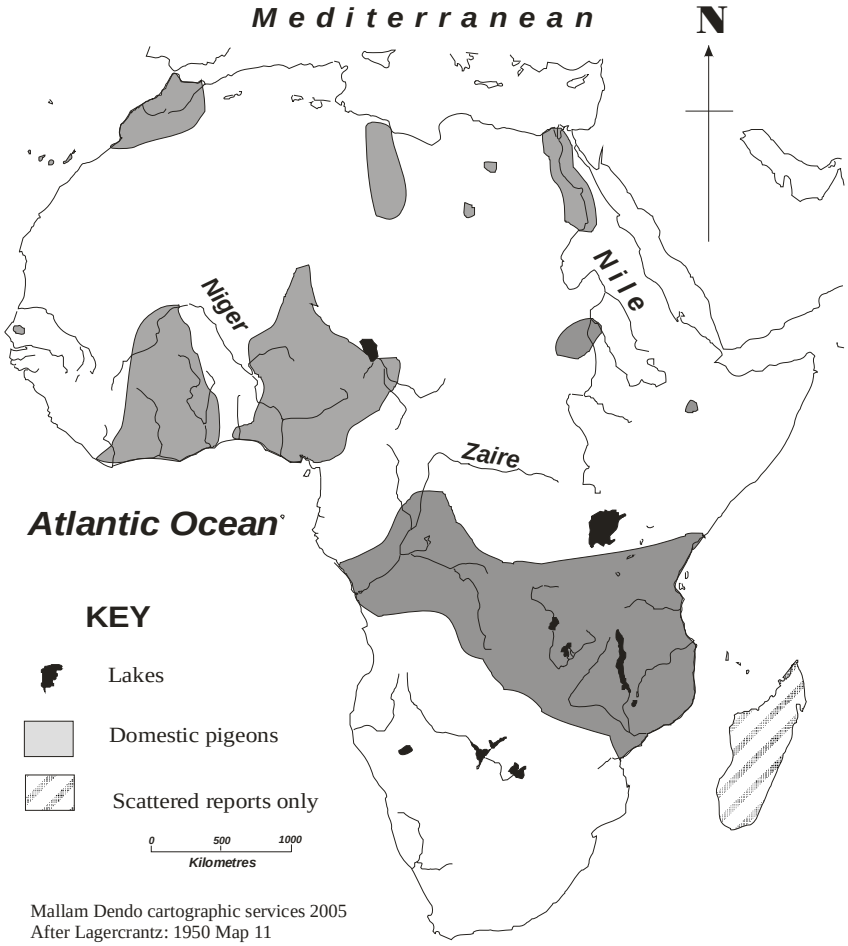
Family	Branch	Language	Attestation
CHADIC	Hausa	Hausa	**zàabóó** *pl.* **zàabii**
West	Bade group	Bade	**sáávànyín**
		Ngizim	**záabànú**
	Warji group	Diri	**ázàvúna**
		Pa'a	**jààvʉnaa**
		Warji	**zabríyai**
	Zari cluster	Zakshi	**zubm**
	Boghom	Boghom	**shàp**
		Jimi?	**zubben**
Central	Tera	Tera	**civàn**
		Ga'anda	**safana**
		Gabin	**ʃèfène**
	Bura-Higi	Bura	**tsəvər ki**
		Kyibaku	**dzàvèr**
		Higi of Kiria	**zàvunɛ**
	Daba	Daba	**zàvun**
		Tpala	**zɔ́vɔ̀ŋ**
	Wandala	Mandara	**ʒabre**
		Glavda	**zhábə̀ra**
	Mafa	Matal	**zàvúr**
		Hurza	**sávnà**
	South	Muyang	**dzàvár**
		Sukur	**zabul**
	Mandage	Kotoko (s.l.)	**sàfàŋ**
	Kada	Kaɗa	**zamvəna**
Masa	Zime	Zime	**jafan**
		Sorga-Ngete	**jufɔn**
		Heɗe-Rong	**jafanok**
East	Sibine	Sibine	**shibərí**

Rather like 'goat', these two distinct roots in different language families suggest the early salience of the domestic guinea-fowl, but without better osteometric data to distinguish domestic from wild races, limited further progress can be made.

Pigeon

The identification of the rock-pigeon, *Columba livia*, as the ancestor of the domestic pigeon, was made first by Charles Darwin. The rock-pigeon is indigenous to sub-Saharan Africa, but the system of keeping domestic birds is apparently introduced from outside. Hawes (1984) argues that pigeon-keeping may have begun in Persia and spread to Egypt. Domestic pigeons have been known for some 3000 years, and the practice of attracting semi-feral pigeons to stay near the household is probably equally ancient. Lagercrantz (1950: Map 11) shows the distribution of managed domestic pigeons in Africa and Map 12.5 is an adapted and updated version of this;

Map 12.5 Managed Domestic pigeons in Africa



The antiquity of pigeon-keeping in West-Central Africa is unclear, as the grey pigeon is part of the indigenous fauna of the region. Al -ʿUmarī reports the peoples of the 'Sudan' kept pigeons in the fourteenth century (Levtzion & Hopkins 1981:267). In Egypt, depictions of pigeon-cotes first appear in the Graeco-Roman period (Husselman 1953) although it has been suggested that pigeon domestication took place earlier (Keimer 1956).

Linguistic evidence from the names of pigeon in the vernaculars of West Africa is discussed in detail by Blench (1995b). The widespread Hausa name *tàantabàřa*, is borrowed from Twareg (and is ultimately connected to Latin *turtur*, 'turtledove'), supporting the hypothesis of a trans-Saharan introduction. Barth (1862, II:201) says 'This domestic pigeon has, beyond a doubt, been introduced into Negroland by the Sonɣai'. A few names in NE Nigeria attribute an Egyptian origin to the pigeon, such as Mandara 'cock of Egypt' or the Marghi 'bird of Egypt'. Although such terms are not necessarily a reliable guide, in this case, it does seem likely that the culture of pigeon-keeping travelled across the desert with the caravan trade, probably in the early Middle Ages.

Duck

The common African domestic duck is the Muscovy Duck, *Cairina moschata*, first brought from South America by the Portuguese in the sixteenth century. Clayton (1984) and Donkin (1989) describe the domestication and spread of the Muscovy duck. The linguistic evidence makes it clear that ducks spread inland from the coast in West Africa, but also across the desert with the Arabs. The Hausa name, *àgwáágwáá*, is borrowed from Nupe *gbàngbă*, spoken further south, and thence loaned into numerous other languages in the region. The duck is known in Kanuri as *kuwî yárawábe*, the 'chicken of the Yoruba',

presumably because it was first seen kept by Yoruba traders. This has been borrowed into a wide range of other languages as *yaraba* or something similar, even by people who may not have encountered Yoruba directly. In languages further east, borrowings from Cairene Arabic *baṭṭ* are common, suggesting the duck spread down the Nile after being introduced into North Africa. Forms such as Swahili *bata* probably derive from Portuguese *pato*.

Turkey

The turkey is of North American origin, and was first taken to Europe in the sixteenth century. It is usually considered to have been introduced to Africa only in colonial times. Lagercrantz (1950:87-91) has reviewed references to its presence and shows that these are almost entirely associated with coastal settlement. In West Africa, the turkey is widely known by the name *tolotolo* or some variant. This name was probably derived from the Mixe-Zoque languages of Central America, where Wichmann (1997) has recorded very similar terms, for example Jicaque *tolo*.

13. SUMMING UP

This book presents both a summary of current views on the prehistory of Africa seen from the linguist's point of view and puts forward original ideas based on my own research. From the perspective of archaeology it would be attractive to have a neat synthesis as the basis for further archaeological research. But in many areas, disagreement reigns and will probably continue to do so. Nonetheless, this should not distract us from accepting that real progress has been made, both in organising data and establishing reconstructions, identifying widespread loanwords and flagging significant gaps in the available information.

What emerges from all this? If nothing else that the interactions between archaeology and linguistics are currently extremely lively. The engines driving this are undoubtedly the flourishing of research, both putting names and classifications to the languages of the world and ensuring that at least a small scattering of datapoints populate previously blank areas of the archaeological map. Nationalist concerns and the increasing articulacy of indigenous peoples have also played an important role in shifting the archaeological agenda. The rise of studies in historical human DNA have focused some linguists both on developing defensible sampling frames and interpreting their classificatory schemas in terms of the findings of molecular biology.

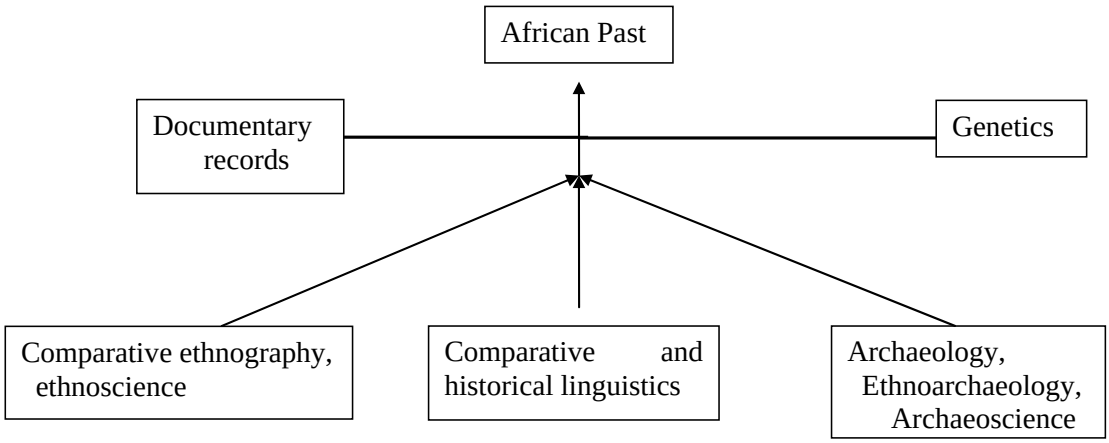
For a more fruitful interchange, historical linguists need to consider more carefully what sorts of reconstructions they research, focusing in particular on areas where material remains can be recovered by archaeologists. This in turn may require rethinking certain types of data collection, particularly as regards technological vocabulary. Linguists will also need to find ways to present their results in terms accessible to those outside the discipline. Archaeologists seeking a more rounded prehistory should in turn try and work with linguists to discover what models of language distribution are current for their region of interest and in turn what hypotheses could be tested by further research. It seems unlikely that any archaeologist has ever conducted an excavation solely to explore a linguistic model; the relative scale of the archaeological endeavour and its inherent inertia militates against this. But it can at least be imagined; this is a topic that will not go away. Geneticists too will need to develop a more ethnolinguistically informed procedure for obtaining their samples and a collaboration that asks interesting questions. Too often it is acceptable simply to use materials already 'in the freezer' and publish results from their analysis, regardless of whether any useful conclusion has emerged. It is yet to become entirely clear whether results from genetics could ever entirely converge with the other disciplines. Genetics *should* show different results from language and ethnographic studies if all we understand about the diversity of marital patterns and language shift is to be taken into account.

This book has highlighted the potential of comparative ethnography to illuminate various issues in the reconstruction of the Africa past. Unlike the other disciplines discussed here, this subject has no lobby and

no academic respectability. Discarded in the wake of the rise of social anthropology, it lived on for a while in America, Sweden and Germany as material culture studies, a subject in search of an analytic framework. Material culture has been re-invented by archaeologists more concerned to study the fate of tin-cans in modern economies as a springboard for seminar-room theories; hardly any of this literature is informed by the older studies, many of which are in German, and certainly not by the richness of the objects themselves. An avaricious desire to collect African art by individuals with no interest in the continent has exacerbated theft of archaeological and ethnographic objects with the loss of context. And yet, rather as with endangered languages, there was never a more pressing time to study African material culture; as the objects themselves disappear all over the continent, their meanings and symbolism are forgotten in the rush towards globalisation.

If these arguments are accepted, then a possible future configuration for reconstructing the African past can be imagined. The primary requirement is that disciplinary specialists move away from their training and re-orient themselves towards their goal. In other words, rather than doing archaeology or linguistics in Africa, the goal should be to reconstruct the African past with whatever tools are to hand. This is often difficult, given the structure of university careers and the system of academic rewards, but the potential is considerable. Figure 13.1 imagines these varied disciplines and sub-disciplines converging on a single point;

Figure 13.1 A possible future configuration for reconstructing the African past



As it becomes clearer that our common humanity develops from an African past, developing a deeper, richer understanding of that past is surely a high priority.

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