Murdock's hypothesis: the 'Tropical Food Kit'

Murdock (1959:222 ff.) was the first author who pointed to the historical enigma presented by food crops in Africa assumed to be of Southeast Asian origin. At the period when Austronesian navigators were presumably reaching the East African coast (before 2000 B.P.), its only inhabitants would have been Cushitic-speaking pastoralists and Khoisan-related groups with a hunting-gathering economy (Blench 1994, 2007a, in press a). Neither of these societies are likely candidates for the transmission of vegetatively reproducing crops requiring elaborate agricultural skills. Murdock's answer to this was to postulate a 'Yam Belt', a corridor with its easternmost tip in southern Somalia, passing north of the equatorial forest, reaching as far as the Kru and other coastal tuber-growers in the west of West Africa. His candidates for the adoption and transmission of these cultigens were a people he called 'Megalithic Cushites', who he postulated had inhabited the highlands of southern Ethiopia, and represented today by people such as the Konso. A daring hypothesis at the time, it was significant in focusing attention on the role of cultigens in population dynamics; however, it has been discarded in the light of subsequent work (David 1976:258). The main difficulty is that there is no evidence that highland Cushites were settled anywhere near the coast, either then or now. Sam speakers (Somali, Rendille and Boni) were already present on the Somali coast before this period and their economy was either pastoral or hunting-gathering (Heine 1982).

Another difficulty is that Murdock's categorisation of the 'Indonesian' cultigens was not sufficiently precise. There are two major species of yam in Africa that have been transmitted from Southeast Asia. One is the Asian yam (*Dioscorea esculenta* (L.) Burkill), cultivated in the coastal zone in East Africa. The other is the water-yam (*Dioscorea alata* L.), found discontinuously throughout the continent, but particularly in West and Central Africa. Murdock similarly uses the term 'bananas' to refer indiscriminately to bananas and plantains. In defence of Murdock, it must be said that the descriptive literature available to him was inadequate, and he was not able to use Simmonds' (1962) classification of edible bananas. Throughout this paper 'plantain' is the term applied to the particular AAB subgroup defined by Simmonds (1962). This is essentially a West African usage, since the anglophone name 'plantain' in East Africa is applied to any starchy banana.

Nevertheless, exactly how and when elements of the 'tropical food kit' (as Murdock calls it), were introduced directly to the west coast of Africa remains problematic. The cultigens under discussion in this paper are the plantain, taro or 'old' cocoyam (*Colocasia esculenta* (L.) Schott) and the water-yam (*D. alata*). These three crops seem to have been well established in West Africa by the time of the first European contacts with the coast (Blench 1996). It was proposed that they diffused across the center of the continent via the Central African rainforest. Simmonds (1962:137; 1976:213) confidently shows a thick black arrow sweeping across the center of the continent from east to west schematically representing the diffusion of plantains and bananas. However, in a personal communication to the author in the 1980s, Professor Simmonds expressed doubts about the correctness of this model in relation to the plantains. It is, of course, easier to criticise than to put forward alternative solutions. One scholar who attempted to come to terms with this problem was A.M. Jones (1971) who proposed that Austronesian seafarers rounded the Cape and landed on the West African coast. His evidence for this was based largely on the tunings and distribution of certain types of xylophone, erroneously considered by him to have been introduced from Indonesia. He draws additional support from other musical instruments, mancala, sailing techniques, and brass-casting. These arguments are discussed at length in Blench (1982), but Jones' questionable methodology means that they must 'by and large' be discarded.

The 'Age-Area' hypothesis and its relevance to botanical evidence

A fundamental argument for the antiquity of Southeast Asian cultigens is the 'age-area' hypothesis: the relative time-depth of a given cultural trait in a specific geographic area is reflected by the diversity of vocabulary applied to it and by its morphological variation. Related to this is the degree of cultural 'embedding', that is, the significance of a trait or artefact in ceremonial life or oral lore. In the case of plants, this may be measured by the everyday uses to which parts of the plant are put, and by the elaboration of the ritual and belief surrounding the cultivation or collection of the plant.

Two reservations may be entered with respect to intraspecific variation of a cultigen. When a crop is introduced, a number of different cultivars may come simultaneously. The mango, for example, was brought to West Africa by the German colonial authorities in the first decade of the 20th century and different varieties were introduced simultaneously. The variations between these cultivars were immediately recognized by the local populations who began to encourage and protect mango trees, and the Yoruba today identify some six or seven types. In this case, only historical evidence indicates the recent introduction of the mango, because as soon as oral history ceases to record it as a 'new' crop, it will rapidly be assimilated into the repertoire of 'traditional' cultigens, just as maize, a 16th century introduction, has been.

If cultivated introductions reproduce sexually, they can be generally assumed to produce greater genetic diversity within a given period of time than cultivated plants that are sterile and can only be vegetatively propagated. Even the edible Musaceae, herbs notionally propagated vegetatively, can rapidly produce considerable genetic diver-

sity if a few fertile specimens are present among the introduced plants. However, in Africa the basic process for deriving new clones of the cultivated Musaceae is somatic mutation (Simmonds 1966:57). The exception is wild *Musa acuminata* Colla AA on Pemba island off the East African coast, suggesting that the navigators occasionally carried fertile wild relatives of the edible bananas with them in their boats (De Langhe 2009).

Whether these processes are relevant to the introduction of the plantain is unknown, but it is undoubtedly significant that the broad range of plantain varieties are both stable and culturally recognized. By contrast, although there are a wide variety of genotypes of both cassava and maize in West Africa, the actual number of culturally recognized cultivars of each in West Africa remains small. The diversity and range of plantain cultivars, as well as their cultural significance, may be important indicators of antiquity.

Evaluating the antiquity of crops by linguistic methods

In considering how to estimate the antiquity of crops by linguistic methods, the principle most widely accepted is that formulated by Williamson (1970, 1993) in her studies of terms for useful plants in the languages of southern Nigeria. She argues that we can gauge how old a reconstructible term is by the extent to which it undergoes regular phonological transformations within a language family. The normal linguistic term here would be 'root' but as the paper is concerned in part with root crops, it is replaced with the slightly ungainly collocation 'reconstructible term'. In other words, has the term in question changed according to the sound-laws established for that linguistic group? When terms cross over the boundaries of established language families they are probably not part of the core vocabulary of those families. A good example for West Africa is the term for 'onion', a medieval introduction from North Africa. Vernacular terms for onion are normally loanwords from Arabic through Hausa, and are borrowed by languages of the Kwa, Benue-Congo Gur, Chadic and Adamawa families with equal facility. Even without historical testimony, these linguistic transgressions would seem to mark the recent entry of the onion into the economy of West Africa. Linguistic evidence alone, however, is insufficient to confirm that the onion was introduced to West Africa, as demonstrated by the linguistic history of terms for the cola-nut. Although the cola-nut is indigenous to West Africa, its stimulant properties do not seem to have been widely recognized until the seventeenth and eighteenth centuries. This period sees a considerable expansion of the trade in cultivated cola, and the Hausa name for cola, **góórò**, is loaned into a variety of languages with the introduction of the nut itself.

For the Niger Delta, Williamson postulates three levels of antiquity for useful plants. The most ancient layer is constituted by the indigenous West African domesticates, the Guinea yam (*Dioscorea rotundata* Poir.) and the oil-palm (*Elaeis guineensis* Jacq.). The hypothetical reconstructions derived from the synchronic terms applied to these plants suggest that they have transformed phonologically according to the historical divisions within language-families. Assuming there has been no significant semantic shift, then if a term may be reconstructed for a proto-language it is reasonable to assume that the item corresponding to the reconstructible term was present at that period.

By contrast, the recent 'American complex' of plants brought across the Atlantic by the Portuguese and other early traders on the coast demonstrates a pattern of words freely crossing the boundaries of language-families (Blench 1997, 1998). Terms for cassava, groundnuts, and maize are found both in Ịjọ and the nearby but distantly-related Ogoni languages, and appear to 'jump' these boundaries. Plantain and taro, however, exhibit a curious intermediate status, crossing language boundaries to a limited extent, but apparently present before a number of the internal sub-groupings of the present language-families were established. Williamson suggests that they were brought to the Delta by the Ogoni peoples, speakers of a Cross-River language, who entered the Eastern Delta more than 1500 years ago. This suggests a considerable antiquity in West Africa, with these cultigens forming part of the original 'stock' of indigenous cultivated plants.

The Musaceae in Africa: Botanical and geographical overview

The evolution of the bananas and plantains has been reviewed by Simmonds (1962, 1966, 1976), Stover & Simmonds (1987), Champion (1967), in Gowen (1995) and De Langhe & De Maret (1999). Modern genetic analyses have been applied to unravelling the evolution of *Musa* species, for example in D'Hont *et al*. (2000), Jarret *et al*. (1992), Osuji *et al*. (1997) and Raboin *et al*. (2005). The genus *Musa* is commonly divided into four sections: Eumusa, Rhodochlamys, Callimusa and Australimusa (but see Wong *et al*. 2001 for a revision of this classification). The cultivated Musaceae belong to Australimusa and Eumusa; only the Eumusa-derived varieties have spread to Africa. The terminology is not always coherent in the literature and 'banana' and 'plantain' are not consistently distinguished. All forms of AA, AAA, AAB and ABB can be sweet or starchy, so discrimination between them cannot be meaningfully consistent on the basis of common food classifications. African and Pacific plantains are two clearly defined AAB subgroups (since Simmonds) and the term 'plantain' should be exclusively used for them. Nonetheless in practice there is a strong distinction in West-Central Africa between the plantains and various other cultivars. For the purposes of this discussion, the paper will use the term 'banana' for all subgroups that are not plantains, which may be either sweet or starchy.

islands of plantain, surrounded by the more common AAA banana varieties. The other examples of starchy hybrids in Uganda, cultivated Musaceae mostly belonging to the ABB group, are both rare and apparently recent (Mukasa 1970). Compared with West African usage, some of the earlier literature contains confusing terminology. For example, an article by Masefield (1944) entitled 'Some recent observations on the plantain crop in Buganda' is largely a discussion of starchy AAA banana.

Flinn and Hoyoux (1976) synthesized this disparate material in the map accompanying a review article, showing quite clearly the virtual absence of the plantain from the whole East African coastal strip and Madagascar. Stuhlmann (1910) had previously observed the importance of the banana in this area, and it is apparent that the distributions of the two dovetail across the continent. This evidence seems to suggest that the coastal strip from the mouth of the river Zaire to the Bight of Bonny is the original center for the dispersal of the plantains (*Musa* AAB) in Africa.

A strange relic population in the Philippines

A puzzling report from the 1970s noted the occurrence of 'African' AAB plantains on the slopes of Mount Pinatubo in the Philippines (De Langhe pers. comm.). It is said that these are grown by Negrito populations, although this has not been confirmed. Geneticists generally concur that insular Southeast Asia is the source of African plantains, but this is the only place in the whole of Southeast Asia where they are grown. The explanation for this anomaly will remain unknown without further genetic work, but three alternative historical scenarios can be proposed:

a) These are a relic 'original' population of the genetic stock carried to Africa;
b) They were brought back from Africa long ago as part of early Austronesian voyages in the Indian Ocean (for other evidence see Blench in press b); or,
c) They were brought by Spanish ships in the 16th or 17th centuries.

It is hard to decide between these alternatives on present evidence. However, a conspectus of vernacular names for plantain in the northern Philippines (Madulid 2001) produces some unusual lexemes different from established Austronesian reconstructible terms (cf. Donohue & Denham 2009). This argues against an Hispanic introduction.

Summary

Both bananas and plantains are widespread in West Africa and their origin has not been satisfactorily explained. The plantains are predominant and have probably been grown for many centuries. Plantains have little or no significance in East Africa where starchy AAAs are common. The AA bananas mainly occur along the East African coast but are hardly known in the interior. Other starchy hybrids (mostly ABBs) are of recent introduction.

Linguistic and Cultural Evidence

More than any other species, bananas and plantains have attracted linguistic analyses in an attempt to determine their prehistory. Blench (2007b) explores the evidence for cultivated ensets in Ethiopia. Walker (1931) lists the names of 27 plantain cultivars for each of the eight principal languages in Gabon, as well as numerous cultivars with more restricted distributions. The plantain is highly embedded in traditional life, and Walker gives pages of material on the varied uses of parts of the plant, as well as ritual restrictions governing its cultivation. His analysis of the names in Gabon shows that the generic term for plantain in all the languages studied contains the **#-ko** reconstructible term, normally in the form **#kondo**, which was later shown to be widespread in Bantu (Guthrie 1967-1971). The reconstructible term **#-to**, in the form **#toto**, is applied to sweet bananas.

A pioneering study by Blakney (1963) listed and grouped the vernacular terms across the continent. Blakney found that two principal word-stems, **#-ko** and **#-to**, were widespread. Unfortunately, the data that Blakney used failed to consistently distinguish between plantain and banana and, since he seems to have been unaware of their very different distributions, he failed to match any of the widespread reconstructible terms with either type. Blakney concluded that the broad dispersal of **#-ko** must indicate that it formed part of the core vocabulary of the Niger-Congo language phylum. This is an extremely problematic assumption; if this were the case, then the cultivated Musaceae would have to be more than 10,000 years old in West Africa (not 4000 as Blakney states). This is highly unlikely on the basis of present botanical evidence (e.g., Swennen *et al*. 1995). Nonetheless, as is argued later, **#-ko** may be an element in an old term applied to wild enset and thus not be linguistic evidence for *Musa* cultivars. Other authors (e.g., Vansina 1990) argued for an early date for the banana in the equatorial rainforest on the basis of linguistics, although without setting out the evidence in detail.

Schoenbrun (1993, 1998) represents an attempt to analyze *Musa* vocabulary of the Great Lakes region to understand the history of banana production in this region. Rossel (1989, 1991) studied the vernacular terminology of plantain and banana in Nigeria and later (Rossel 1998) extended the analysis to the entire continent. Both of her studies accumulate much fresh data, but reach the rather idiosyncratic conclusion that 'a westward spread of *Musa* (from Asia) began only in Islamic times and reached Africa not long afterwards' (Rossel 1998:52).

Table 1. The **#-kom** reconstructible term for enset and cultivated Musaceae in West-Central Africa. (See Blakney 1963:71 for more forms.) The Narrow Bantu names apply more broadly to bananas and are scattered across the Bantu domain. It is unclear whether these all derive historically from the **#kom** reconstructible term or are local developments from **#konde**.

Group	Language	Attestation	Gloss
West Chadic	Mwaghavul	**kúrgwàm̀**	wild banana
Ubangian	Gbaya	**kɔ̀n**	**banane**
Plateau	Izere	**ìzàkɔ̀m**	enset
	Berom	**makom**	enset
Jukunoid	Kente	**m-gbomgbo**	enset
Jukunoid	Kuteb	**úkwām**	banana
Upper Cross	Mbembe	**ógwɔ̀m**	all cultivated *Musa*
Upper Cross	DuRop	**ká-kám /bá-**	plantain
Lower Cross	Efik	**ú-kɔ́m**	plantain
Dakoid	Daka	**kom**	enset
Tivoid	Saari	**ŋgɔ̀mbē**	plantain
Ekoid	Ejagham	**egomé**	plantain
Beboid	Noni	**gɔ́mtɛ̀ɛ̀n**	wild banana
Momo	Mundani	**àngɔ̰̀**	plantain
Eastern Grassfields	Proto-EG	***-gòm´-**	plantain
	Oku	**kengom**	banana
	Shu Paməm	**ŋgwòm**	plantain
	Yamba	**gòm**	banana
Ring	Proto-Ring	***-ŋ̀gɔ̀m**	plantain
	Ndemli	**kɔ̀ŋ**	plantain
Narrow Bantu	Bobangi	**komo**	plantain
	Mpama	**komo**	plantain
	Doe (G30)	**ŋgombwa**	**banane**
	Ngulu (G34)	**mgomba**	**bananier**
	Yao (P21)	**ligóómbo**	banana
	Tsonga (S 53)	**ŋkompfá**	banana

Related material culture: musical instruments

There are some items of material culture related to plantains that seem to be related to their diversification in the Bight of Biafra vicinity. Two musical instruments connected with plantains have distributions suggesting an origin in this region. The first is a noise-maker made from a plantain leaf-stem. A series of incisions are made on the surface of the stem, creating a number of 'tongues' in a line parallel to the long axis of the stem. When stroked longitudinally by hand the tongues slap against the stem producing a series of sharp concussions. Reports of this instrument come from Liberia, Ivory Coast, southern Nigeria, Congo-Brazzaville and DRC. A survey of vernacular names for the instrument in the Niger Delta shows that it is invariably associated with the plantain, although in theory, it can equally well be made from a banana leaf-stem. This sound-producer is only otherwise reported from the Malay peninsula (Laurence Picken unpublished field notes).

The second is the plantain-stem xylophone, the distribution of which maps very approximately against plantain diversity (Figure 2). The wooden bars of the xylophone are laid transversely across fresh *Musa* stems (Figure 3). No analogous instrument is reported from Indonesia, suggesting that the instrument evolved subsequent to the introduction of the plantain. This xylophone is today found in areas where the banana is the staple, but the map suggests very strongly that West-Central Africa is its original nucleus of distribution.

Table 2 . The **#-kondo** reconstructible term for plantain (see Blakney 1963:69 for a much more extensive table of forms in Narrow Bantu languages). It is assumed that the occurrences in Mande, Atlantic, Kwa and Gur languages (highlighted in red) are all borrowings from Bantu and that this must have occurred as a result of late Portuguese transfers of crops along the coast. Kaalong [A.52] has **kpende**, which would seem to reflect both the labialisation and the front vowels in Cambap and Kenyang, suggesting a far better proto-Bantu form would be ***kpende** and **konde ~ kondo** a later development. An intriguing question is whether the Igbo form is also cognate. This has in turn been loaned into many languages north of Igbo, but the velar and the sequence of two mid-front vowels are very suggestive. Curiously, some of the Muṇḍā languages in NE India have **konDoG** for 'plantain'. Whether this can be in any way related would depend on more precise lexical and botanical information.

Group		Language	Attestation	Source
Mande		Kono	**kondeke**	< Bantu
		Mende	**konde**	< Bantu
		Vai	**konde**	< Bantu
Atlantic		Sherbro	**kpende**	< Bantu
		Gola	**konde**	< Bantu
		Fulfulde	**kondoŋ**	< Bantu
Kwa		Twi	**kwadu**	
		Ewe	**kwadu**	
Gur		Gurunsi	**kodu**	< Twi
West Benue-Congo	Igboid	Onitsha Igbo	**ògèdè**	? related
Bantoid	Mambiloid	Cambap	**kwɛ̀nd´**	
	Nyang	Kenyang	**ékwá**	
Grassfields	Bamileke	Ngyemboon	**ŋ̀kàndɔ̃ŋ̃**	
		Ngomba	**ŋ̀kɛ̀ndɔ̀ŋ**	
Bantu	Zones ABCDFHKLMNR		***konde**	BLR3

Table 3. A N.E. Congo reconstructible term for *Musa* (adapted from Rossel 1998:134).

Phylum	Group	Language	Attestation	Gloss
NC	Ubangian	Ngbandi	**gbeke**	plantain cultivar
		Zande	**ngbikpi**	banana cultivar
	Bantu	Amba	**gbebe**	plantain cultivar
		Twa	**bebe**	plantain cultivar
NS	Central Sudanic	Madi	**agbepa**	*Musa* sp.
		Medjo	**gbikpi**	*Musa* sp.

Is the Plantain Co-distributed with other Vegetative Cultigens?

The water-yam or greater yam, Dioscorea alata

The water-yam or greater yam, *D. alata*, is traditionally presumed to be of Southeast Asian origin, but Lebot *et al*. (1998: 508) have concluded that 'original geographic and wild sources are still unidentified'. Various authors have argued for a New Guinea origin, for example Lebot (1999) who pointed out that the water-yam flowers naturally and is coincident with its area of greatest diversity.

Within Africa, the water-yam is cultivated throughout West Africa and sporadically in East Africa and Ethiopia, as well as on Madagascar. Ethnobotanical material on the water-yam is rare, presumably because of its limited global commercial significance. Less research is thereby generated, so that the lists of cultivars and distributional data typically available for the plantain do not exist. The exact distribution of water-yam is unknown because of the tendency of non-specialist observers to confuse them with other species of yam. Chevalier (1936:522 ff.) concluded that the water-yam was long-established in West Africa, although he offers no hypothesis about the route of its introduction. He observes that under certain circumstances it gives higher yields than *Dioscorea cayenensis* Lam., the indig-

to have these cultigens diffuse from the Nile valley. Dalziel (1937:468) suggests this for the plantain, and Burkill (1938:95) and Plucknett (1976:11) for the cocoyam. The claim in Plucknett *et al*. (1970:413) that taro was brought by 'Megalithic peoples' to the Eastern Mediterranean is unsupported speculation. A study of food and cultigens in Egyptian civilization that considers material up to the fifth century A.D. (Darby *et al*., 1977) makes it clear that none of these plants were recorded by this date. Water-yam was unknown, and the cultivated Musaceae seem only to have spread there in the later Islamic period. The term *Colocasia*, however, was used in the Graeco-Roman period to refer to a quite different plant, a usage that may have misled earlier scholars. The Arabic term **qulqas**, recorded in later sources, was transferred to *Colocasia* and travelled unchanged across the desert to become the **kolokas** recorded among the Shuwa Arabs.

Chronologically, the responsibility is then shifted to the Arabs. This is even more unlikely on a number of grounds. Primarily, it makes the introduction too late historically and more important, there is an absence of motivation. Why should Arab traders carry across a desert cultigens that can only flourish in a humid zone far outside their normal orbit? A study of West African food-plants referred to in medieval Arabic sources (Lewicki 1974) reveals no mention of these crops while, in comparison with known introductions such as the onion, the behavior of vernacular terms is totally aberrant. The hypothesis of transmission from North Africa can be safely discarded.

Introduction and disappearance in the East African area

An alternative explanation for the African distribution of Indo-Pacific cultigens is to suppose that they were originally introduced on the East Coast but have since been displaced. To account for their marginal presence there today, two arguments have been advanced. Either they were once widely cultivated, and were later dropped in favour of other crops (e.g., Simmonds 1966), or else they were traded across to West Africa directly and never became established on the East Coast (De Langhe *et al*. 1996).

The main objection to the idea that these crops were established on the East African Coast at an early date is that there is no evidence for any sort of agriculture on the coast at the likely period of Austronesian contact. The cultivation of root-crops and vegetatively reproduced herbs such as the bananas and plantains requires their borrowers to be part of a fairly sophisticated agricultural tradition. The banana could have become established in Ethiopia by the sixth century, because of its ancient tradition of agriculture, but no comparable traditions existed on the coast. Yet the plantains are conspicuous by their absence in Ethiopia.

Although a few scattered Horn/False Horn types exist along humid mountain slopes of East Africa, such as on Mount Kilimanjaro, on coastal areas and further south, plantains are almost absent from the region. This is problematic precisely because of the highly evolved cultivation of starchy AAA. Given that cultivation techniques, yields and even cooking abilities are much the same for both plantain and banana, why should the plantain have been so conclusively eliminated? To take a comparable example, the new and the old cocoyams require very similar cultivation techniques, although *Xanthosoma* yields slightly better under most conditions. Yet *Colocasia* shows no sign of disappearing. Both on historical grounds, and in the light of botanical evidence concerning traditional cultigens in East Africa, to assume the displacement of a complete set of humid-zone cultigens in this way is laboring the evidence.

Introduction via trade routes through Southern Sudan

Could the Indo-Pacific cultigens have been carried to West Africa across the Southern Sudan by traders? Murray Last (pers. comm.) has argued that the extent of Coptic trade along this route has been underestimated, and it may well be that the use of the domestic camel contributed to an expansion of the trade in spices and easily transported concentrated sale-goods such as cloth and henna. However, the argument also has a chronological problem, since the identity of traders who would be carrying humid-zone cultigens over such distances remains to be established. Even if this were the case, their point of arrival would then presumably be the area of Lake Chad. Yet plantain and water-yam are unknown in this area, whereas taro was clearly introduced by the Arabs at a much later date.

The anomalous distribution of SE Asian cultigens

Murdock's 'tropical food kit', redefined here as the plantain, taro and water-yam, shows every sign of ancient establishment on the coast of West-Central Africa. It is important to emphasise that even if research suggests complex multiple origins in the Indo-Pacific region, maritime voyages of the Austronesians are the only reasonable vector for bringing these crops to Africa. Hence the proximate origin will be insular Southeast Asia, even if New Guinea has played a significant role in their ultimate origin. The other hybrid cultivars (mostly ABB plantains) are apparently recent introductions to East Africa, whereas cocoyams and wateryams are either absent or of minor importance. De Langhe *et al*. (1996) and De Langhe (2007) point to a similar view in relation to plantains.

Southeast Asian food crops and the Bantu expansion

The early introduction of these humid-zone cultigens may have important consequences for our interpretation

of African prehistory. The region of greatest morphological diversity of these crops corresponds well to the area of the Bantu, Bantoid and Benue-Congo-speaking peoples. Johnston (1919-1922) and Greenberg (1963) originally proposed the idea that the Bantu homeland was to be located in present-day Cameroon. Despite some initial controversy, this idea was vindicated by Heine (1973) and several papers in Bouquiaux *et al*. (1980) and the date generally advanced for this is >3000 B.P. The evidence for this has recently been reviewed in Blench (2006). Ar-chaeological evidence remains meagre, but nothing has been found to directly falsify this hypothesis.

Although the route travelled by Southeast Asian cultigens remains quite obscure, it seems credible that their im-pact on existing agricultural societies in the Bight of Be-nin must have been considerable. Evidence from pottery points to a primary Bantu expansion along the waterways, an aquatic expansion, but it is likely that a combination of iron technology and three new high-yielding staples that could be grown successfully in the tropical rainforest per-mitted a second marked phase of Bantu expansion. New finds in southern Cameroon now provide direct evidence for agricultural tools in the rainforest (Eggert *et al*. 2006). Moving south and east, presumably along the waterways, the Bantu seem to have rapidly colonized the equatorial forest. The conjunction of these crops with iron tools for clearing the forest permitted the colonization of half the continent in a relatively short period of time.

Summary and Conclusions

The linguistic evidence for the history of Musaceae in Africa can be summarized as follows:

a) *Ensete gilletii* is established as an indigenous plant with magical attributes in West Africa and as such has an old reconstructible term, **#kom**, in Benue-Congo languages.

b) Plantains are introduced by an unknown route to West-Central Africa before 3000 B.P. and the **#kom** term is transferred to them. It is likely that taro and water-yam are introduced during the same period.

c) The plantain becomes a crucial cultigen in the exploitation of the Central African rainforest and thus one of the engines of the Bantu expansion.

d) Compounding **#kom** produces a variety of names for plantain, including **#kondo** and **#kombo** which diffuse through the Bantu area.

e) The Portuguese trade spreads plantains to the west along the coast, along with the Bantu name, which appears as **#konto** and **#kodu** as far as Senegambia; another name, **#boro**, may also be spread by the Bantu.

f) The name **kondoŋ**, borrowed into Fulfulde, then spreads back to agricultural societies in West Africa as an irrigated garden crop.

g) The few sweet banana cultivars are brought by the Portuguese from India and Brazil. The word banana may derive from either their Indian trade name, **palana**, or possibly the languages of Taiwan.

h) This name is borrowed into Mandinka a**ɓàrandá** and thence diffused into other Mande languages, where it undergoes phonological transformation and shorten-ing. Forms like Vai **ɓàànà** are likely to have been bor-rowed into English as 'banana'.

i) Banana is then re-introduced into languages of an-glophone Cameroon in the colonial era and borrowed into neighboring languages, eventually spreading into Chad.

Two further observations are in order. Despite the great accumulation of data in Rossel (1998) the linguistic evidence does not support her conclusion of a late spread of plantains associated with Islam. There is, moreover, no purely linguistic evidence for an east-west spread of the plantain across the continent as proposed by Murdock, Simmonds and De Langhe in various forms. The introduction of the 'tropical food kit', despite its enormous impact on the peopling of Africa, remains unresolved and only further microfossil analyses (phytolith and starch grain analyses) are likely to shed light on this issue.

Acknowledgements

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