

## MOTHER EARTH: PAST AGRICULTURE IN NIGERIA'S RAINFOREST

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"It is an abomination!" the *edion* (elders) declared, "The ancestors demand sacrifice." Ada, a young girl from the Igbo tribe, had chased a playful kid into a small dark hut and, seeing some curiously carved staves, had taken one out into the daylight to examine it more closely (Plate 1). The hut was an *ogwedion* shrine to village ancestors of the Edo and the staves were an integral part of the worship, in which continuity was established between the living and the ancestral male *edion*. The rapidly convened council of Edo *edion* decided that Ada had violated the sanctity of the shrine and a cock would need to be sacrificed. Ada herself escaped death because, as an Igbo, she was ignorant of the local Edo customs.

The custodian of the shrine was the *odionwere*, the oldest man of the village. He was also in charge of the *inyato*, an *ikhimwin* tree planted as a shrine to the earth when this village site was first occupied. No house could be built, no land could be cultivated, and no sexual intercourse could take place until the *inyato* had been planted. Farm crops featured in numerous rituals right across the rural life cycle; and these were mirrored in an annual round of state rituals – *Ikhurhe*, *Eghute*, *Igue* and *Ague* - related to the annual farming cycle.

Archaeologists, ethnographers and historians have tended to focus on kings, palaces, spiritual beliefs and massive community structures: the less spectacular everyday farming concerns have captured less of their attention. Yet farming was the main occupation of most people. Past wars were waged largely to gain slaves and territory - the raw ingredients of power for the farm-



Plate 1: *Urhue* carved staves and handbell with the shrine custodian

based tribute (about 20% of the yams and palm-oil grown in the Benin rainforest zone), which sustained both the political state apparatus and its army. Iron-smelting concentrated more on beating out farmers' hoe blades and cutlasses than on making soldiers spears and swords. Over the millennia, African farmers radically altered rainforest vegetation and the cultural landscape. Use a hoe almost anywhere in apparently 'pristine' or 'primary' rainforest and evidence of the past African farmer is there - charcoal, pottery sherds or crop phytoliths (microscopic silica 'cell skeletons' of past crop roots, stems or leaves). To understand African farming, therefore, is to grasp many secret priorities of Africa's past.

Shrines to ancestral elders and to the earth's fertility lay at the heart of traditional rural communities; and this strong link with oracular ancestral authority has led to a particularly powerful western (Caucasian) myth that indigenous farming practices were constrained by traditional conservatism and so resistant to change. The 'carrying capacity' of traditionally cultivated forestland was perceived by the FAO as being 'fixed', so that population densities in excess of this 'carrying capacity' were deemed to represent 'overpopulation' and to justify interventionist population control policies. Local farmers' slow uptake of high yielding varieties (HYVs) of crops and other western 'scientific agriculture' development practices was blamed on the yoke of traditional strictures and taboos. By and large, more rigorous studies of indigenous practices have contradicted much of this western mythology to reveal sophisticated and complex farming strategies, which exhibit both innovation and adaptability. This article will tie in some of Nigeria's archaeological data with these new perceptions.

Evidence for Early Stone Age occupation of the rainforest is controversial. At Ajibode, next to Ibadan University, the late Professor Andah enthusiastically paced up possible past river terraces to show me enigmatic Oldowan-like quartz tools perhaps dating back a million or more years ago. At Nsukka University, I helped Dr Anozie to measure some of the thousands of large, roughly worked, thin flakes resembling ancient Acheulean tools. He had collected these from Africa's largest known stone-axe factory - a 7 metre high, 30 metre wide heap of dolerite stone tool waste at Ugwele near Okigwe in eastern Nigeria. We found that nearly all were too thin to have been rough-outs for typically thick Neolithic type hand-axes. In both examples, the impossibility of dating using present techniques is a severe constraint to their general acceptance; and where dating has been possible on similar problematic material elsewhere in the West African rainforest, none has been Early Stone Age (McDonald, 1995).

In the British Museum, I pulled out drawers full of stone tools collected by European amateurs in the early 20<sup>th</sup> century, some from the stone-less soils of today's rainforest area. My first contact with stone tools had been at the age of six; and I still recall my fascination with a well-shaped flint arrow head in the Pitts-Rivers Museum at Farnham (now at Oxford). That dormant interest was re-awakened as I went through these tools. Two had been collected on Lagos Bay by an anonymous donor, one by Lacaille from Benin, and numerous examples from the Calabar area donated by Chinnock, and the British Museum expert quietly

informed me that he was sure all these were Middle Stone Age, dating back 30-40,000 years. My pulse quickened; for these unsung individuals were the pioneers, the first people knowingly to gather the earliest evidence of man in Nigeria's rainforest zone. I had seen similar stones in soil-pits in Okomu Forest Reserve; so early man might indeed have been widespread in the African rainforest. But two queries dogged this issue. One query was item 4531 of the P1982 Wellcome collection - a partly polished 'Neolithic' sandstone tool in an otherwise apparently Middle Stone Age collection. The other query concerned rainforest location at that time.

Using satellite remote sensing data set to highlight iron-oxide wavelengths, Nichols (1999) had observed longitudinal outcrops of primary, red/ brown/ black laterite close to, and even within, Nigeria's present rainforest zone. Their east-north-east/west-south-west orientation and parallel spacing about a kilometre apart also occurred in relict drainage patterns similar to linear dune and fossil linear dune patterns found in the more arid areas of northern Nigeria. Recent research in southern Nigeria also revealed a range of other phenomena, which may indicate the past existence of desert linear dunes in today's rainforest zone and explain their subsequent disappearance. This data included aeolian (wind-blown) clays, silts and sands in the forest zone and in off-shore deposits, and aerial photograph dune-like lineations in rainforest near Arogbo in Ondo State (Plate 2; Vine 1988; Darling 2001). Otherwise, intense but

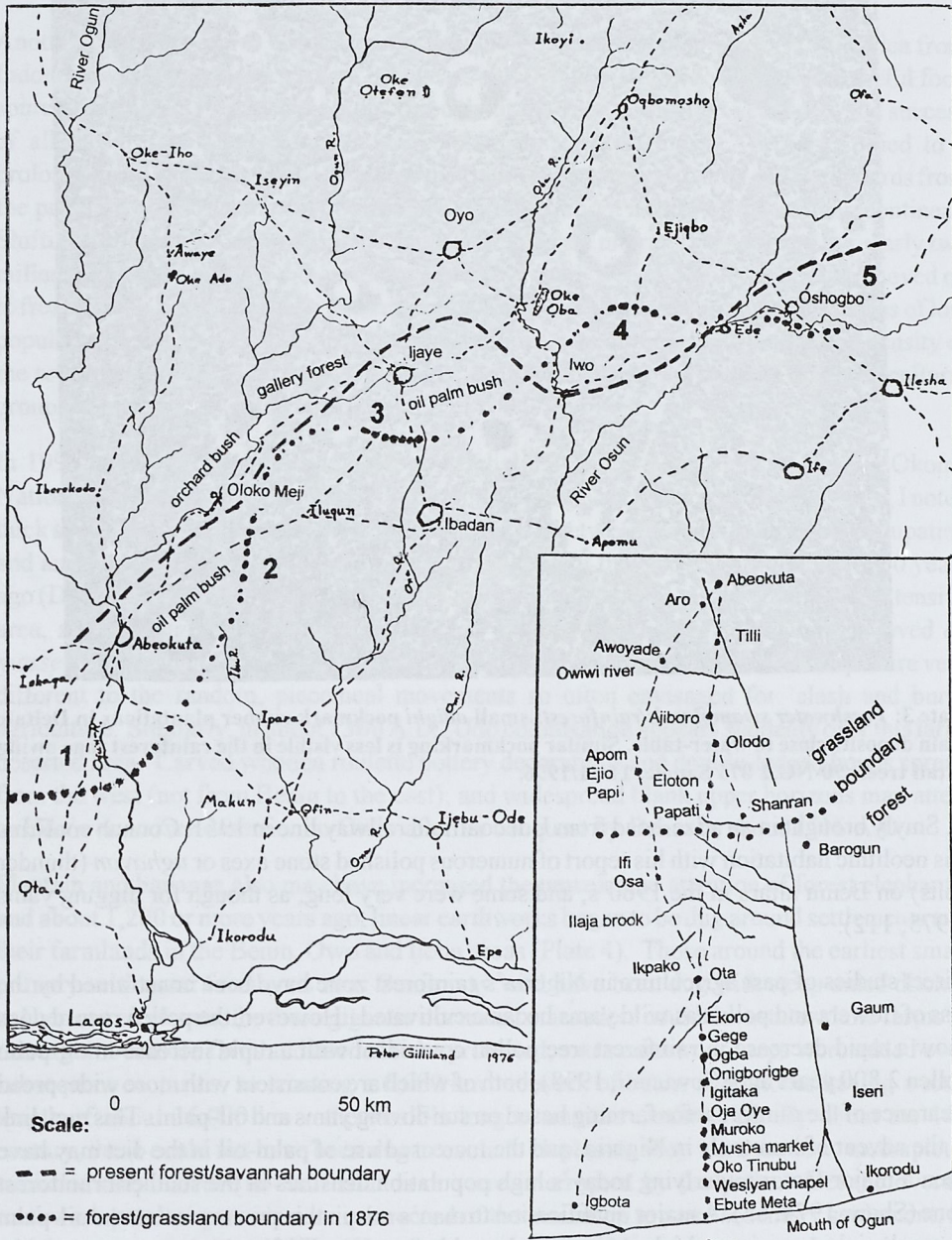


**Plate 2: Rainforest:** Subsequent critical fieldwork in this area has discovered a flat landscape with sharp sand and little silt - all indicative of some unexplained coastal or deltaic features, rather than wind-blown deposits. 212 NG 1 191 & 192, 24/12/1990 5°E 6°16'N.

little studied vertical and lateral silt migration seems to have been a major geo-morphological mechanism creating huge 'solution valleys' and capable of 'swallowing up' most past dunes in today's rainforest zone. The known southward extension of fixed dunes may soon be extended by several hundred kilometres; and Nigeria's rainforest refugia might have been tiny montane areas and linear gallery forests along rivers, streams and swamps.

In 1976, Gilliland compared archival records from Lagos' CMS and Ogbomosho Baptist Seminary with the contemporary forest/savannah boundary: he found an apparent overall 12-20 kilometre northward advance of rainforest vegetation over the last century (Map 1). Several caveats must qualify any simplistic assumptions arising from this estimate. Firstly, 19<sup>th</sup> century European observers merely noted open and closed vegetation cover: they did not make botanical distinctions between rainforest and savannah flora. Secondly, rainforest/savannah interfaces are complicated mosaics related to underlying soils and the prevailing climate: they neither expand along a simple broad front, nor do they retreat just because of burning. Thirdly, savannah 'terrestrial' fauna were often trapped in the expanding rainforest: most of today's arboreal forest species - notably squirrels, hyraxes and monkeys - have 'terrestrial' origins (Kingdom, 1990); and Zaire rainforests contain both the fleet-footed okapi and Ba'aka memories of rhinoceros. Similarly, Satabie (1991, 1996) notes that some rainforest and savannah 'sister species' are just varieties of the same species, despite pronounced differences in orientation of the first leaves, length of the epicotyl at six months and the diurnal rhythms of both epicotyl and leaves. More work is required to discover what proportion of today's rainforest flora has derived from *in situ* savannah flora and similarly adapted its morphology and behaviour. Finally, the latest arid phases causing rainforest retreat were about 1,000 and 2,000 years ago - not just during the Ice Age maxima as previously supposed.


The evidence above suggests that early man in today's rainforest zone did not always live in a rainforest environment; and this would have been particularly true of the northern forests, as possibly indicated in the Iwo Eleru rock-shelter excavations (Shaw; 1978;20-22, 45-51). If or when man was in rainforest, it is uncertain whether he was mainly hunter, fishermen and gatherer; or whether he grew shade-loving crops such as cocoyam; and/or whether he was cultivating yams and oil-palms in small, scattered clearings. Whatever the case, the sparse evidence gathered so far suggests that these early occupants of today's rainforest zone tended to favour sites on the interfluves close to stream valleys, around *odighi* (shallow seasonal lakes), or in rock shelters (Plate 3). Back in the British Museum, there is a further roll call of the unpublished early discoverers of the Neolithic habitation of Nigeria's rainforest zone. Rev. A.H. Richardson found a yam-shaped tool from Umuahia in 1921. F.S. Clarke found a spatulate like tool at Emene near Enugu in 1922. M.D.W. Jeffreys found a stone axe at Itu, Cross-River in 1926. The famous ethnographer, P.A. Talbot, discovered celts, a hammer and a grooved pebble at Okuku near Okoja in 1931. W.E. Nicholson found three celts at Awka near Onitsha in 1933. C.W. Hobley found an axe and adze near Benin in 1947; and a Miss



Scale: 0 50 km

--- = present forest/savannah boundary

..... = forest/grassland boundary in 1876

Island of Lagos   
 Sketch of the Roads between Lagos & Abeokuta  
 Rev. J A Maser, 11.7.1876. CMS CA2/068 end of 2<sup>nd</sup> volume.

Map 1: Historical evidence for advancing rainforest in south-western Nigeria

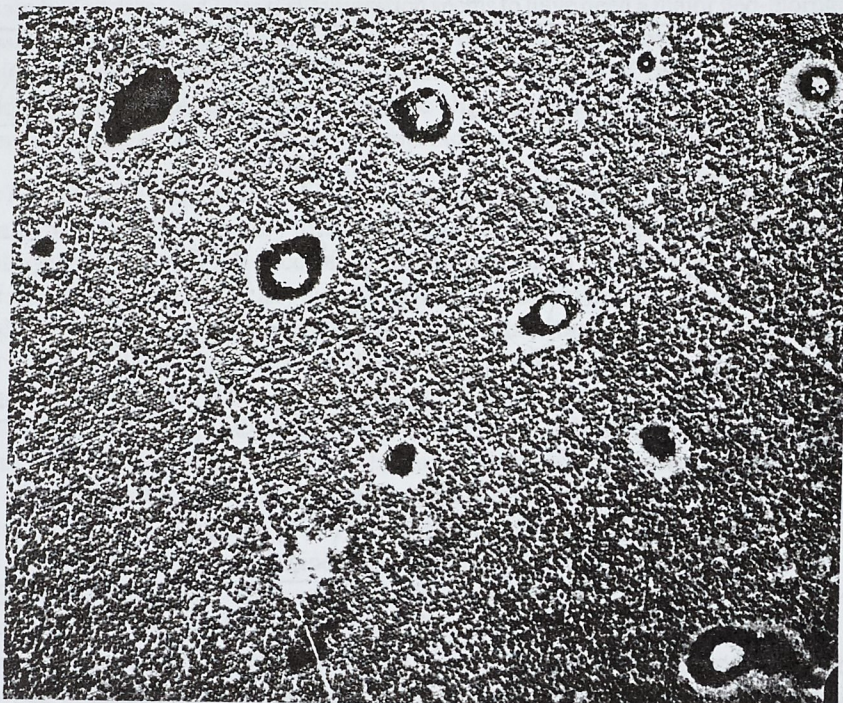


Plate 3: *Freshwater swamplands/rainforest*: small *odighi* pockmark rubber plantations in Deltaic Plain deposits close to water-table. Similar pockmarking is less visible in the rainforest zone owing to tall trees. 90-NG.2 076 Sapele, 11/11/1996.

G. Smyly brought in an adze-head from Udi coalfield railway line in 1951. Connah confirms this neolithic habitation with his report of numerous polished stone axes or *ughavan* (thunder bolts) on Benin altars in the 1960's; and some were very long, as though for digging yams (1975; 112).

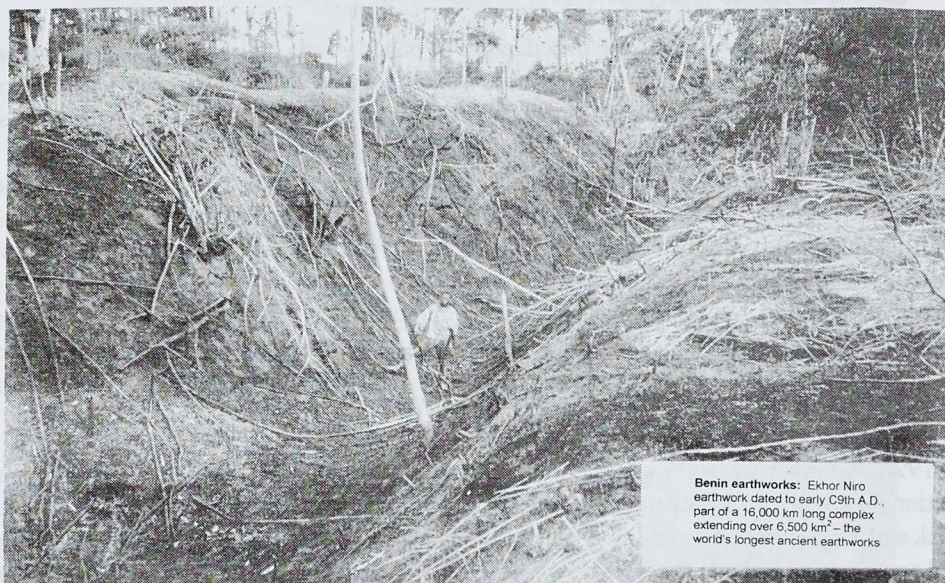
Direct studies of past agriculture in Nigeria's rainforest zone have been constrained by the loss of flowers and pollen as wild yams became cultivated. However, the pollen record does show a rapid decrease in rainforest tree pollen coincident with a rapid increase in oil-palm pollen 2,800 years ago (Sowunmi; 1998), both of which are consistent with more widespread clearance of the rainforest for farming based on sun-loving yams and oil-palm. This may link to the advent of iron tools in Nigeria; and the increased use of palm-oil in the diet may have been a major factor underlying today's high population densities in the southern rainforest zone (Shaw; 1974; 65). A major qualification to man's role in this process is that the oil-palm is a colonising species, which occurs in a broad belt as the rainforest advances or retreats (Maley; 1998); and man initially may have been taking advantage of a natural phenomenon

rather than engaging in deliberate, massive clearance.

Another factor may have been the introduction of banana and plantain to West Africa from Indonesia via Madagascar some 2,300 years ago (Mbida, 1996); for these were useful food sources during any 'hungry' seasons throughout the year. By 2,000 years ago, the success of all these crops (particularly along the savannah/forest mosaic, perhaps) allied to a prolonged arid phase may have triggered the Bantu expansion eastwards and southwards from the present Nigeria-Cameroon border area to cover about a third of the African continent. Shifting agriculture was the main mechanism of this vast migratory movement for nearly two millennia. As soils became exhausted or overgrown with weeds, whole settlements moved on to fresh areas – a cost-effective and environmentally friendly solution under conditions of low population density (less than 8 per km<sup>2</sup>). Within the area of increasing population density of the southern Nigeria rainforest, evidence of similar migratory movements of whole cultural groups tells a slightly different story.

In 1995, the controversial expansion of Michelin's rubber plantations in today's Okomu National Park in Edo State required the digging of rescue archaeology soil-pits. Here, I noted thick soil horizons almost entirely devoid of artefacts between the first evidence of occupation and an occupation phase coincident with the building of the Udo town wall about 700 years ago (Darling, 1995; White & Oates, 1999). These blank horizons occurred over an extensive area, so they might indicate that some early shifting agricultural communities moved *en masse* to settle and farm new areas as soils became exhausted or weed-ridden – a picture very different to the random, piecemeal movements so often envisaged for 'slash and burn' agriculture. Similarly, in about 1300 A.D., Udo colonisation appears suddenly over this large deserted area. Carved wooden roulette pottery decorations and double-ledged bowls spread from the west (not from Benin to the east); and widespread blank upper horizons may attest to Udo's *en masse* desertion to Ondo after its conquest by Benin in about 1516 A.D.

Plantain and bananas also may have increased the unwelcome attention of forest elephants; and about 1,200 or more years ago, linear earthworks began to be dug around settlements and their farmlands in the Benin, Owo and Ijebu areas (Plate 4). Those around the earliest small primary settlement farmlands near Benin may well have been dug with steep-sided ditches to keep out elephants, for these gigantic nocturnal marauders could devastate whole farms in one night. As more farmland needed to be protected, extra earthwork loops were added over subsequent centuries, so creating a 6,000 km<sup>2</sup> network of banks and ditches having a total length of about 16,000 km – the world's longest ancient earthworks. By about the 14<sup>th</sup> century, these could not have been dug to exclude elephants: they were too low, incomplete, excluded only narrow no-man's-lands or were interrupted by footpaths. Yet the overall earthwork patterns provide a unique record of the transition to more sedentary settlement, in which new rotational bush fallow farming systems were able to support population densities up to about 80 per km<sup>2</sup>.



Benin earthworks: Echor-Niro earthwork dated to early C3 in A.D., part of a 16,000 km long complex extending over 6,500 km<sup>2</sup> – the world's longest ancient earthworks

#### Plate 4: Benin earthworks

Pottery sherds and earthwork enclosures show that most early settlement concentrated along the edges of the level interfluves and avoided the valleys. Later earthwork loops enclosed land towards the interfluves' interiors rather than descending far into the valleys. Why was there this preference? One early European explanation echoes the myth of miasmal mists:

*"The soil at some distance from the river is extraordinarily fertile; and whatever is planted or sown there grows very well and yields a rich crop. But close to the river the land is not good, for although what is sown comes up, yet the close proximity of the moisture from the river kills it."* (Nyendaël in Roth 1903; 147).

A similar explanation based on soil fertility and site location logistics has been advanced for the Azande on the northern margins of the Congo basin (Chisholm; 1968; 106-107). In fact, the Azande avoided the most fertile soils, because the thick tussocks of elephant grass (*Pennisetum purpureum*) which grew on them were too strong for their hoes; and this grass grows on moist ground near streams once the forest cover is cleared for farming. Soil fertility is demonstrably not a strong argument within the Edo rainforest catena, too; for the valley soils have been cultivated quite satisfactorily, first by the Urhobo and then by today's Bini and Esan. Ease of clearance and weeding in the 'warmer', sandier soils of the interfluves offers only a more satisfactory, albeit partial, explanation for why early forest dwellers once avoided settling and farming the valleys; for there was another compelling rationale.



The empty, unfarmed valleys became the main areas of uncleared forest, together with shrine groves and the no-man's-land interstices between villages. Melzian's 1937 dictionary notes how important rainforest products were to the everyday life of the Bini. There were medicinal concoctions for leprosy, loose teeth, fevers, abscesses, ganglions, gonorrhoea, 'black tongue', women before and after childbirth, and purgatives (including a mild one for children). There were potions to put people asleep, charms to make yams grow, and poisons for trial by ordeal and to put on arrow or harpoon tips. Different timbers were used for nearly every aspect of house-building, for making tools, native harps, canoes, paddles, tobacco-pipe stems, traps, platters, chewing sticks and for collection as firewood. Burnt wood derivatives included charcoal, potash, salt and ashes for 'native soap' and 'native butter'. Other raw materials included gum for candles and adhesives; beeswax for bronze-casting; sponges for polishing house walls; sedge and bark for mats, bags and war caps; fibres for rope, bowstrings, baskets, toilet paper substitutes, dance rattles, guttering, stuffing for pillows, black and red dyes, black rubber, and gourds for containers. Many fruits, seeds, roots and leaves were gathered for the preparation of different soups. Men hunted or snared bush pigs, duiker, grass-cutters and porcupine; whilst women gathered wild beans, honey, edible fungi and giant snails as coveted delicacies to supplement the basic diet. In one 15<sup>th</sup> century Bini market place, one observer noted roasted baboons and monkeys, bats, giant pouched rats, parrots, dried lizards, fruit and palm wine (Talbot; 1926; Vol.III, 921). By not clearing trees in the river valleys, shrine-groves and no-man's-lands in centuries past, Bini farmers were effectively conserving and managing their indispensable forest resources within well-defined and respected zones.

Sixteenth to nineteenth century European visitors to Benin (Welsh, Dapper, Nyendaël, Adams) distinguished only farm and forest. Boisragon, fleeing for his life, described the undergrowth as '*a maze so thick that neither man nor beast can pass through it*' (1897; 94). Under conditions of less duress, Connah noted its '*uniform impenetrability*' (1975; 101). Ecologists recorded the ever-changing mosaic of plant succession within the forest, with secondary forest being characterised by the presence of the short-lived *Musanga cecropioides* (Jones; 1955; 1966); but the distinctions so often made between primary forest, secondary forest and old fallow were never clarified satisfactorily (Keay; 1993). The Bini differentiate thorny bush (*okankan*) from thick bush (*ezi*) but, more usefully, perceive fallow (*ogo* – an overgrown farm clearing) as an extension of farmland (*ugbo*) and not forest (*oha*), as is exemplified in the terms *og-ugbo n'ukpo* (last year's farm) and *og'ugbo n'ekpia* (last year but one's farm). This perception is fundamental to an understanding of rotational bush fallow systems; for the farmers aim to create '*a regular system of fallows which are never permitted to return to woodland or forest*' (Morgan; 1969; 251). It explains the lament of one old man when an elephant was killed near Benin; for he saw in this an indication that political disturbance had caused much fallow land to revert to forest (Egharevba; 1950; 42-3).

The perception also indicates that the African farmer had grasped the concept of 'threshold densities' – the minimum population required to maintain a particular farming system. Being well-defined and fairly inelastic, threshold densities have turned out to be a more useful analytical tool than 'critical densities' or 'critical carrying capacities'. The weakness of these critical concepts is that their key variables, particularly the ratio of farm to fallow land and the level of inputs, are not fixed but elastic in their response to increasing population density and/or other forces. Despite this, 'critical density' is an implicit concept in terms such as 'over-population', 'agro-ecological zones', and 'the fragile environment' so frequently employed to generate a sense of crisis in the popular media. Benin's past farmers lived with the threshold density reality that manpower was constantly required to beat back the ever-resilient rainforest re-growth on the fallow lands inside their earthwork enclosures; and any 'critical density' was more social, political or religious than environmental.

**Social.** Only teasing fragments of memory tell us about past farmers' social conditions. "In the past", one male informant stated, "I never used to cross *iya* (earthwork) or *ada* (earthwork entrance)." (Plate 5; Bradbury; n.d.; 15/11/1957; BS 550/1.) Another old man told me how his grandmother and her mother used to sing out whenever they came to an *iya'n'uwu* (boundary earthwork between villages). One Benin legend tells how when Aruanran the giant male warrior reached the Okhunmwun *iya*, 'he transformed himself into a little girl selling *emieka* (banana pudding)' (Jungwirth; 1968; 167). Another record notes that dogs and menstruating women had a special gateway - so as not to defile the spiritual protection of the *iya* (Thomas: 1910). The pattern is the same: men normally stayed put inside their earthwork enclosures, whilst women were permitted to cross the village boundaries. This is what would be expected in small, lineage-based, exogamous settlements: *i.e.*, those hamlets and villages where taboos against marriage to kin within five or even seven generations usually forced women to marry out of their settlements of birth. (The old English Prayer Book contains similar taboos by listing whom men and women may not marry). Yet, the main characteristic of Edo society half-a-century ago was that it was not lineage-based, unlike that in much of the rest of Africa (Bradbury; 1952). Centuries of free population flux within the Benin Kingdom had broken down the earlier patterns. Only a few chance remarks and a complicated network of overgrown earthworks echo these ancient rainforest farmers' patterns of social organisation.

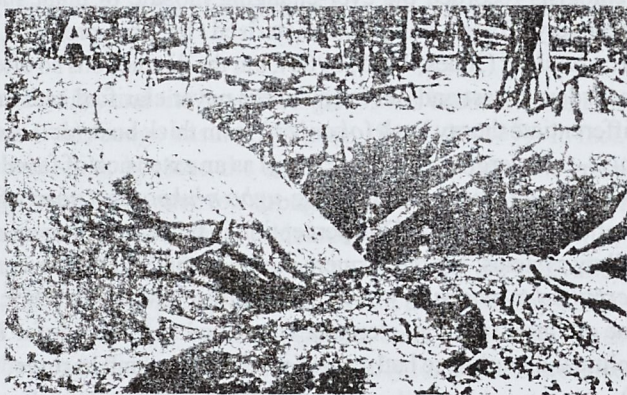


Plate 5: Gateway (*ada*) through the earthworks

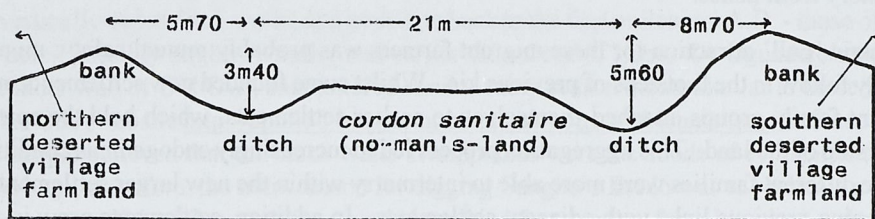


Figure 1: Cross-profile of a cordon-sanitaire - an unrecognised universal phenomenon

**Political.** Over a thousand miles of survey, of ripping tracksuits in thorny undergrowth, of pushing through eye-stinging *Awolowo* weed (*Eupatoria oderata*), of wading through swamps, and of brushing off tailor ants and wasps has been needed to begin piecing the past political jigsaw together. So far, the overall distribution of the Benin earthworks reveals a zonation of settlement size, spacing and boundary typologies. The inner core zone is characterised by small, closely packed settlement enclosures with numerous additional loops and narrow no-man's-lands or *cordons sanitaires* (often just five metres wide) between the settlements (Figure 1). The outer periphery zone contains considerably larger and more widely spaced settlement enclosures, few additional loops, and broad bands of no-man's-land up to a kilometre wide. This zonation is strongly suggestive of early state formation processes, in which numerous short-distance migrations occurred from the densely packed core zone to the more open periphery, and in which settlement size and nucleation increased over time.

At Ekhor, for example, 9<sup>th</sup> century A.D. enclosures colonised the east side of the interfluvium and expanded westwards towards Benin in a competitive push for new farming land. Narrow *cordons sanitaires* subdivided the territory of at least one settlement's farmland territory; so it is tempting to invoke physical carrying capacity arguments as 'push' factors in the migratory movements. This is over simplistic. Physically, fallow lengths could have been considerably shortened and farmland subdivision could have proceeded far further; but such radical changes to any farming system usually only occur when precipitated by a crisis. In this case, the migration option averted any crisis. The main mechanism behind the migrations was probably primogeniture: the oldest son inherited the farmlands, whilst the younger sons moved into the freer lands of the expanding periphery - termed a 'migratory ring front'. On the survey evidence to date, three main migratory ring fronts can be identified. The earliest front to the south-west created petty chiefdoms including Benin with its subsequent kingdom and empire; another front to the south-east culminated in the 14<sup>th</sup> century Ugha kingdom; and a 15<sup>th</sup> century front to the north-east gave rise to the Ishan mini-kingdoms. Although Benin and Ishan histories both cite Benin's Oba Ewuare as a major 'push' factor in the Ishan migrations, Ishan ward oral histories note that the Ishan settlements were founded from all directions: in other words, there were also strong 'pull' factors attracting farmers into the

migratory front zones.

The main 'pull' attraction for these migrant farmers was probably mutual safety: migrants usually follow in the footsteps of previous kin. Whilst some founded new settlements, many migrant family groups attached themselves to earlier settlements, which held the spiritual ownership of the land. This aggregation process led to increasingly endogamous conditions: *i.e.* the different families were more able to intermarry within the new larger settlements, so weakening previous links with adjacent settlements. In addition, settlements grew in size, power and political complexity. The previous unit of political stability had been the farming village: now emerged another stable unit – the petty chiefdom. In the petty chiefdoms north of Benin each primary earthworks enclosed about ten times as much farmland as primary settlements at Ekor; and no-man's-lands were so wide that they later became a means of Benin consolidating its power with a new set of farming settlements. Oral traditions suggest that each chiefdom encompassed several villages, and that internecine conflict developed between the petty chiefdoms – Okhunmwun even raided Benin market in broad daylight (Bradbury; n.d.; OB15). Once earthwork digging had occupied the farmers' dry-season: now, as the farmer increasingly became the soldier, dry season forays set the pattern for subsequent processes of kingdom formation and its accompanying demands of diverting 20% of yams and palm-oil into tribute production.

**Religious:** It was a frenzied madman who focussed my attention on the religious dimension of Nigeria's ancient earthworks. Bulldozers were churning up the ground as they widened the eastern gateway of the Benin City 'Wall' close to Ikpoba stream. The madman was waving a stick at them, the threaded coins in his matted hair jerking up and down; and his screams of defiance could be heard above the roar of the machines. Then he began scribbling energetic symbols on the bare earth, something like: \* X ⊖ Z \* S ⊙ #. With a final flourish, he hitched up his rags and stalked off. It was not until years later that I began to understand the significance of what had happened. By then I had read Landolph's 1778 account of the 'poor' being flung into village earthwork ditches two or more centuries ago (in Roth; 1903; 42); and Melzian's note on the Bini proverb *us'omo gh'iso* indicated that 'poor' was better translated as 'lacking children', especially a son old enough to perform the necessary rites to lay his father's spirit to rest. The ditches acted as a limbo, a boundary between the real physical world (*agbon*) and the unseen spirit world (*erinmwin*); and the City wall was believed to link to all Benin's other linear earthworks like a heart to its blood vessels. According to these perceptions, madness was a contact with the spirit world; and that madman's actions made sense. Centuries earlier, Oba Ewuare had buried charm pots beneath each gateway in the Benin City wall; and only the madman had seen that the bulldozers were breaching that sacred line of defence, letting loose its ancient demons over all the land.

Such deep magic was not confined to Benin City. Over 200 km further west lay the great kingdom boundary ramparts of Sungbo's Eredo around Ijebu-land and Orile Owu (Old Owu),

original home of the Egba people and Abeokuta. Both sets of ramparts were originally dug with vertically-sided ditch walls; and both date back to the first millenium A.D. - those of Old Owu being possibly slightly smaller and earlier than those of Ijebu. Dr Ogundele's survey of the inner wall of Old Owu encountered similar rainy season moats similar to those found at Ijebu-Ode (website <http://apollo5.bournemouth.ac.uk/consci/africanlegacy/>). Some local Ijebu people believed that the black water swamplands were the abode of evil spirits (Plate 6). Perhaps, therefore, the main reason for digging Sungbo's Eredo was to replicate a spirit environment and lure demons up to provide spiritual protection for a kingdom - the only practical way to defend territory in the rainforest where visibility is so restricted. This would explain why the northern parts of the ditches are much lower in the clayey soils of the Basement Complex than the very deep southern sections dug into the more porous Coastal Plains Sands. In turn, this may throw more light on why the Benin City Wall was dug so deep and why it was the only moated ditch in the Benin area. It may explain why people still throw sacred chalk into the moat when returning from funerals outside the City Walls; and why the Oba of Benin still feeds the spirits of the City Wall at the annual *Emobo* ceremony.

Today, one can still learn more about the forest farmer. On the farms in a great swathe around Benin, the rotational bush-fallow system is reaching its crisis point: most trees have gone and *Awolowo* weed dominates the short fallows. Many farmers are leasing out their land to Igbo farmers and using the money to become landlords in Benin City. The transition crisis to permanent agriculture, which has occurred in many high population density areas throughout Africa (Gleave & White; 1969; 273-297. Darling; 1993), is overdue. Perhaps this crisis has been prolonged by traditional taboos on the use of manure - taboos apparently shared by World Bank ADPs, which emphasised research only on imported chemical fertilisers (with their attendant subsidy scandals). Past farming history provides every hope that indigenous developments of mulching, agro-forestry and manuring will soon take place.

In village backyards, where the ground is swept immaculately clean, one can still see evidence of food



Plate 6: Mirror-like black-water swampland, perceived as the abode of evil spirits.

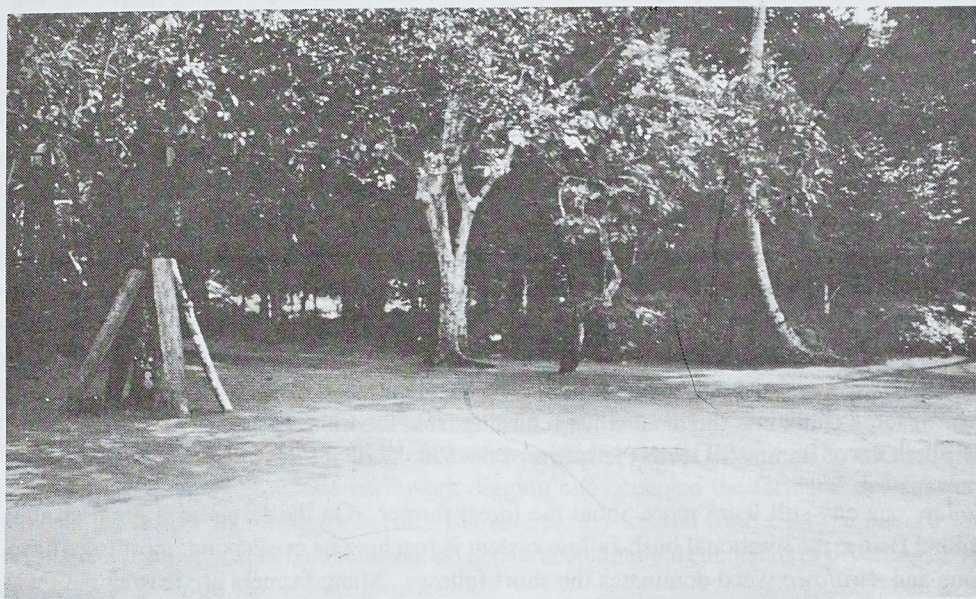


Plate 7: Immaculately swept backyards expose Benin's coastal plains sands at Ekhon n'Idumw'Olu.



Plate 8: Cassava is the main crop around Ekhon. Harvested in the cooler mornings, they are peeled in the farms, then processed in the village for sale as garri. Cassava grows better than yams in these impoverished sandy soils.

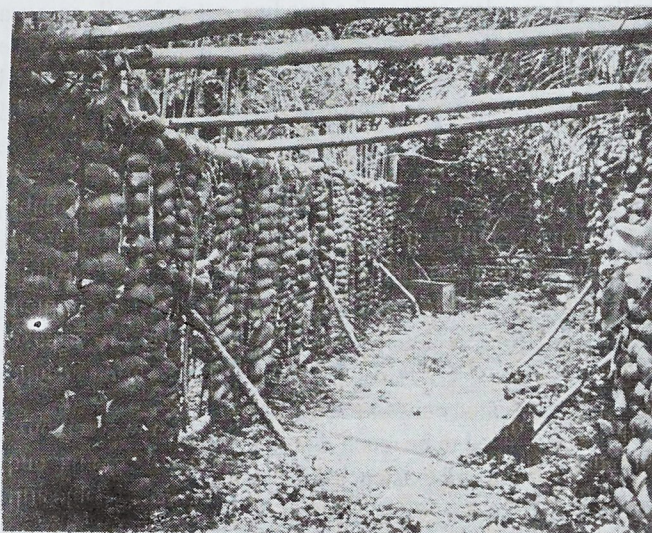
processing, – piles of snail shells, old wooden canoes for treading out palm-oil, cassava presses and pots for garri frying (Plates 7 & 8). Yam 'barns' erected to inhibit fungal rot are now rare (Plate 9); but small squares of *ikhimwin* trees around big water-storage pots still keep the water cool in some village *egun* (Plate 10). In Ishan, many old ponds are still functioning – a mixed blessing for they often carry guinea-worm. Around the compound edge are water-plants and incipient herb gardens, where new herbal remedies are being identified as an adaptation of the disappearing forest herbs: indeed, some herbs may have been deliberately taken from the forest to be planted in these gardens. Only in the last decade has the WHO and RITAM realised that such traditional sources are the only viable way to escape the western pharmaceutical treadmill in the fight against tropical diseases. Numerous shrine groves still persist – a viable indigenous conservation practice (Chouin, 2001), which may have positive spin-offs in terms of Nigeria's World Heritage Sites (Darling, 1996) and is often less problematic than externally generated conservation (Darling, 1995). All the way down the millenia, the forest farmer has proved to be much more than just a farmer; and the proud traditions of adaptability and a rich cultural existence still characterise those who still practice this ancient profession.

#### DEDICATION

This article is dedicated to the late Mrs. Marion Johnson, my supervisor, who urged me some twenty years ago to collate my observations on these topics. It is my overdue tribute to her unstinting friendliness and helpfulness; and to her incredible courage in the face of death.

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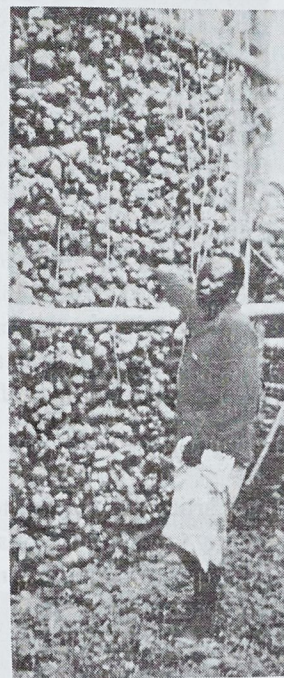
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Yam barns keep the tubers free of fungal rot and are a measure of wealth.



Yam store belonging to the Oliha of Udo (right)



**Plate 9: Yams.** Linguistics suggest that yams were used as a major food crop at least 6-10,000 years ago, and they are incorporated in many rituals. For example, when a man dies, his widow goes to a special place at night to collect a yam from her late husband's farm and to grieve over it. Such rituals are integral to the cultural landscape but are associated with no obvious features.

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Plate 10: *Egun*: Water storage pots enclosed by *ikhimwin* trees store valuable dry-season water.