

# **\*Current issues in the Conceptualisation of the origins of African Agriculture**

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A systematic conceptualisation of the origins of African food production and the antiquity of African agriculture did not begin until a little over twenty years ago. There is general agreement in the literature that African agriculture is very old, but there is less agreement about the extent to which its origins are indigenous, and therefore the extent to which major advances such as domestication of plants, selective breeding, irrigation, etc, were originated by Africans themselves.

To some scholars, Africa is the original home of a large number of cultivated plants.<sup>1</sup> Many scholars however tend to believe that only certain parts of Africa could have independently developed agriculture. According to Murdock,<sup>2</sup> agriculture was independently developed at about 5000 B.C. by the Negroes of West Africa (the Mande) who lived around the head waters of the Niger River in the extreme western part of the Sudan. Baker<sup>3</sup> also suggests that the peoples of the Sudan zone were among the first to develop agriculture. Allison<sup>4</sup> argues that botanical analysis suggests a long period of development *in situ* in the Sudan zones of certain basic staple crops. He notes that guinea corn (sorghum) was, among others, developed as part of the Western Sudan agriculture complex, and like guinea corn, there are recognisable Nigerian (and by extrapolation West African) races of cowpea; which are markedly different in morphological development and disease resistance characteristics from those of the rest of the world.

Other scholars believe that seed agriculture in Africa began at very different periods in such widely separated regions as North Africa, the Sudan and Southern Africa. Harlan<sup>5</sup> notes that as we learn more about early agriculture, it becomes clear that it took a long time to develop and weld together the crops, technologies and social practices necessary to build an effective agricultural system. He notes further that African agriculture is a mosaic of crops, traditions, and techniques which does not reveal a centre, a nuclear area, or a single point of origin. Thus African agriculture appears to be basically non-centric in character. At least three independent centres have been demonstrated and there is a possibility for many more.

There is a third school of thought which suggests that African agriculture came from Asia. This school suggests that there exist indications of manipulation of plant and animal resources by groups of specialised hunter-gatherers in some parts of south-east Asia that are as early as the ninth millenium B.C. while no part of the African continent has provided evidence for domestication that is as early as this.<sup>6</sup>

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\*The author wishes to thank Professor Jan Vansina, Professor Leonard Ngongco, Mr. Jim Denbow, Dr Neil Parsons, and Professor M. Crowder for their critical comments of earlier drafts of this paper and for helping me to make my arguments with more enthusiasm. What remains of course is my own work and any criticisms of the work should not in any way reflect on them.

This school of thought claims that the oldest excavated farming settlements are in the Nile valley and had comparatively late dates in the fifth and fourth millennia. At these sites in lower and upper Egypt, emmer wheat and barley were cultivated and sheep, goats, pigs, and cattle were reared. All of these are proven or believed domesticates in south-western Asia and their presence at the Neolithic Egyptian settlement is taken as proof of their diffusion together with fully developed food-producing techniques into north-eastern Africa sometime during or anterior to the fifth millennium B.C.<sup>7</sup> de Wet<sup>8</sup> argues that during the fifth millennium B.C., the Fayum in Egypt was settled by farmers who grew emmer wheat, and other crops from the Near East rather than native African crops. This leads him to believe that the theory of an indigenous African agriculture is poorly developed.

Here then are three major and by no means the only theories of the origins of African agriculture and food production systems: The Sudanocentric theory which claims that African agriculture began in the Western Sudan Zone; the Multicentric theory which claims that agriculture was developed in several independent parts of Africa and; the diffusion theory which suggests that African agriculture was largely introduced by outsiders, probably mainly from south-east or south-western Asia. The three theories should be treated as analytically distinguishable and coherent explanatory systems. In reality, there are no such pure systems of thought which are supported beyond doubt by every iota of data.

It should be noted that historical research in Africa is still young, and most efforts have been directed towards 'trade' and 'state' topics for which the evidence was near at hand.<sup>9</sup> Thus, if the general history of Africa is only recently beginning to be understood, it should not be difficult to imagine why that of African agriculture, a more specialised topic, is even less understood.

### Reasons for some confusion

Much of sub-Saharan Africa lacks detailed archaeological research of the kind in which organic remains and ecological interpretations are sought, and over much of the area's organic remains are rapidly decomposed and so destroyed.<sup>10</sup> The result is that Africa lags behind Europe, Asia, and the New World on archaeological research and therefore on specific knowledge about the beginnings of food production. The inadequate evidence in Africa, compared with other parts of the world where much more is known about agricultural origins means that a number of different explanations or theoretical models are open for debate. The result is that, in the present state of our knowledge, any considerations of the beginnings and development of agriculture in Africa must largely be a survey of our ignorance and a reasoned essay in speculation.<sup>11</sup>

Direct archaeological evidence, in the form of the remains of domesticated plants and animals in context, is not sufficient to make unquestionable statements about ancient African agricultural systems. Similarly, indirect archaeological evidence, that is, all other material discovered in an archaeological context that by their nature suggest the presence of agricultural and a food producing economy, are, although to a lesser extent, nevertheless insufficient. In the same way, evidence from botanical, ethnographic and linguistic studies is at best fragmentary. It is nevertheless, possible and indeed desirable to make as much as we can out of the little available evidence. While it is highly desirable to have as much data as possible, this does not mean that we should delay the construction of conceptual schemes which help to shape the nature of what we "should" look for, and how we "should" interpret our data. We should not be delayed or debarred from building systematic theories, or hypotheses whose assumptions, both stated and implicit, can be systematically exposed and hopefully criticised; only then can our knowledge about origins of food production systems in Africa be expanded and enriched.

## The Arguments

It is believed that no population prior to that of anatomically modern man is known to have had agriculture. Furthermore, anatomically modern man has existed for about 40,000 years, or possibly for 90,000 years in Southern Africa.<sup>12</sup> Secondly, it is generally held that a society is a group of persons whose activities as an organised whole suffice to ensure that material and psychological needs of each of its members will be satisfied and that society could not exist without a culture, a collective heritage handed down from generation to generation which saves its members from having to re-invent all adaptations.<sup>13</sup> In the light of these beliefs it should follow that anatomically modern man, in order to survive the harsh circumstances of antiquity, must have evolved a heritage of adaptation in which food production was not only central but essential.

Vansina<sup>14</sup> argued that such sayings as "man ist was man isst" (you are what you eat) or "il faut manger pour vivre" (you eat to live) -- and similar sayings all underline how essential food production is to any human society and culture. Now, whether or not man started in Africa, and how long ago that might have been, are significant but not decisive questions for understanding the origins of food production in Africa. Wherever there was man, it should stand to reason, there was a system for providing the basic need of food. This does not necessarily mean that there was agriculture in any form resembling what we know of it today. In addition, insofar as man lived in a society -- which by definition implies some form of organised interdependence in a system of social and cultural exchange -- he developed a collective heritage of food production to be handed down from generation to generation.

There is no reason for us to assume that Africans must have waited for Asians or any outside group to teach them when or what to do in order to meet the most basic human need - food. An increasing amount of evidence is becoming available to show that the human populations living in the Nile valley from Nubia northwards, were already more intensively exploiting both plant and animal resources from 13,000 B.C. or earlier, that is, at least at a time when some south-east Asians were doing the same thing.<sup>15</sup>

But even in the light of such arguments there continues to exist mental or ideological resistances against finding an indigenous African agriculture. For example, de Wet<sup>16</sup> agrees that plants were domesticated in Africa but in the same breath notes that it is not known whether the idea of food production was introduced from the Near East or developed independently south of the Sahara. De Wet seems to doubt that food production, which implies organisation of people into systems of labour, could be of African origin. These doubts are more firmly expressed by the Hamitic hypothesis which maintains that Negro culture, left to itself, was never able to produce more than a very low level of organisation. This hypothesis suggests that the organisation of agricultural production, like that of state formation and everything else considered modern and valuable by Europeans, could only have been brought into Africa by non-African invaders or innovators.<sup>17</sup>

The problem with the Hamitic hypothesis is first that its proponents, mainly European upper and middle classes, have a prejudice which makes it easy for them, on one hand to associate tillers of the soil with inferior status and capacity which led them to describe Negroes as agriculturalists,<sup>18</sup> while on the other hand the same writers were so firmly convinced that tropical Africa owed all the rudiments of civilisation to foreigners. How could they be prepared to suggest that people of inferior status possess the basis of all civilised life - namely agriculture. Once they were convinced that agriculture was central to what they conceived of as modern life, it became difficult for them to see how people of inferior status such as native Africans, like everyone everywhere, could have, on their own, developed such crucial

practices as seed selection, domestication of plants, irrigation, fertilisation - all of which are the most basic and most revolutionary concepts in food production. To be sure, these processes are fundamental to the so-called Green Revolution which is no more than a recent popularised version of ancient principles of seed-crop manipulation. But the Green Revolution has hardly produced suitable results for present-day societies given the fact that the inputs and irrigation systems required eliminate, more than ever before, great populations of farmers from participating and therefore benefitting in the so-called "most modern western scientific breakthrough in agricultural production." The only thing to be concluded from this school of thought is not only its inconsistency in reasoning, but more importantly, we have come to see how the ethnocentric prejudices of generations of scholars led them to build massive edifices of fact out of small scraps of ambiguous legend.<sup>19</sup>

Such ethnocentric hypotheses lead naturally to a diffusion theory which tends to suggest that, apparently, only the Asians crossed over to Africa (probably due to their superior navigation and other superior skills) and brought with them, not only practices which could be classified as agricultural, but artifacts, which being made by a more advanced technology, lasted long enough to be discovered in the 20th century as archaeological evidence for Asian influence in Africa, while the inferior artifacts of Africans perished, leaving only a few durable articles which were not sufficient to leave a convincing proof of an unquestionably indigenous origin of African Agriculture.

The problem with the diffusion theory is that it tends to suggest uni-directional, unilinear and systematic change from Asia to Africa over time. This is only part of a general notion that Africa developed as a result of a penetration, peaceful or otherwise, mainly from outside. Not much is made of a diffusion of ideas from Africa to other continents. This would lead to an unacceptable theory of a cross-fertilisation of ideas between people, who at least initially, were equal partners in regional development.

The presence of Asian beads and chinaware for example, can only lead to demonstrate Asian presence in Africa. It is not sufficient proof that African agriculture originates from Asia. Japanese cars may be stronger or better in gas mileage than American cars, but this does not mean that Japanese cars were developed first. Similarly, American Universities are built of longer lasting materials than Egyptian Universities but this does not mean that universities originated in America. But imagine an archaeologist 90,000 years from now trying to make sense out of university ruins or automobile remains and finding Toyotas buried in American soil and Chevys left in Japanese universities. The point is that there is more confusion from the existing evidence than scholars seem willing to acknowledge. Morgan<sup>20</sup> argued, for example, that there is at least as good a case for an original West African development of root crop cultivation using indigenous materials as there is for the suggestion by some authors that such cultivation and its associated plants was introduced from South-east Asia.

Since later evidence seems to speak more favourably for an indigenous African agriculture than earlier studies, it would seem therefore that the problem in understanding the origins of African agriculture has been an artifact of theoretical and methodological bias. The theoretical assumptions, and therefore, research designs and instruments have made it unlikely for scholars to conceptualise and develop a theory of indigenous African agriculture. Research designs are not value free; they are shaped by the nature of what their users wish to find and that in turn is shaped by their a priori expectations or hypotheses.

But even some of those who believe in African origins, tend to make certain African regions more important centres of origin than others. The assertion that agriculture was independently initiated in the upper Niger area by the ancestors of the Mande-speaking peoples about 5000 B.C.<sup>21</sup> does not mean that other regions in Africa did not or could not have also independently initiated agriculture. For example, it is well established that the wild ancestors of the true cottons was Gossypium anomalum<sup>22</sup> a desert shrub which grows only on the fringes of the Kalahari and the Sahara. Clearly, the Kalahari is not anywhere close to the Mande-speaking peoples. Another cotton plant Gossypium herbaceum grows in a belt running across Southern Africa from Ngamiland to Mozambique.<sup>23</sup>

Wrigley argues that the combined evidence from cotton genetics and Indian archaeology leaves no reasonable escape from the conclusion that cotton was being cultivated in Africa before 3000 B.C. Further, although cotton was grown this long ago, it is not likely to have been among the first African plants to be domesticated. It makes common sense to expect that people will cultivate or manipulate edible crops before experimenting with the likes of cotton.

But the fact that scholars have found more evidence on the Sudan Zone does not necessarily mean that African agriculture was developed there first. Even if the people of the Sudan Zone were among the first to develop agriculture, this should not be interpreted to mean that they were the very first or that the first were very few. Baker<sup>24</sup> argues that there does not appear to be any strong (botanical) support for the localisation of pioneering agricultural efforts in the nuclear Mande area. While there is more data to support Sudanic origins, there is some evidence to suggest that there is not one, but several origins of agriculture.

The problem with evidence is that, due to climatic and other factors, the critical data in some regions may have decomposed and thus eliminated our ever knowing about them. In addition the difference in ecosystems means that even if we could assume that every region was practising agriculture at any given point in the past, we would also have to note that different regions would require different crops and animals as well as different practices - all of which would decompose differently and present different archaeological and interpretation problems. What we have seen so far is that some parts of Africa have been excavated more than others, and some seem to have more data than others. But we have also seen that even in places like Kenya where the oldest known man is believed to have lived, not much is said about his agricultural talents; or perhaps it should be concluded that he must have been waiting to be influenced by peoples from the Sudan Zone or better yet those from Asia.

The finding of evidence is probably to a large extent a reflection more of choice of archaeological site and other extraneous methodological factors than to the truth about the history of ancient peoples and their agricultural practices. The interpretation of evidence is even more problematic. For example, although polished stone tools and the cultivation of the soil are so closely linked in the minds of archaeologists that the term "neolithic" has virtually come to mean "food-producing," there is in reality no universal or necessary connection between these two techniques. Wrigley<sup>25</sup> points out that even in the last century, many thoroughly agricultural African peoples did not use either iron or stone hoes. He notes further that in the equipment of "neolithic" Jericho there was an almost complete lack of picks or hoes for working the soil. An agriculture sufficiently advanced to support a town of perhaps three thousand people was apparently carried on by means of the stone-weighted digging stick, such as was used by many ancient African peoples who have not been accorded neolithic status.<sup>26</sup>

The interpretation of data is indeed a difficult task. Data can, and indeed it has shown, that agriculture has a long history in Africa. But to affirm that the cultivation of the soil has a long history in Africa, is not necessarily to affirm that it has no connection with developments in Asia or elsewhere outside of Africa. On the other hand, to affirm that African agriculture has connections with Asia, does not necessarily mean that it originates from Asia. Furthermore, to talk about Asian-African relations and influences of any kind, is to presuppose continental travel which a people without a surplus or at least adequate local food production are probably unlikely to engage in. It also assumes a rapidity of movement which would ensure that cultural items taken from one place would arrive, without modifications along the way at their (African) destination. One cannot fail to see the 20th century, jet-age overtones in the thinking of those who have proposed diffusion theories.

The diffusion theory and later modernisation theories have tended to hang on principles which have led them to seek development of anything they cherish; anything which is said to belong to "civilisation", from present-day "advanced" countries. This school of thought is ideologically committed to the notion that Africa, which is now underdeveloped, has always been a backward continent requiring the unquestioned acceptance of innovations and ideas from the outside world which paradoxically is said to be the only source of its development. Nothing that can be called development can be indigenous to Africa except perhaps the "Kaffir potato" and the Guinea yam - products of forest gardening - which were, according to Wrigley<sup>27</sup> probably practised before the coming of the Asiatic yams.

The problem of theoretical stances is that they soon cease to become explanatory hypotheses and become ideological dogma whose proponents are motivated more by defending their original but no longer profound thesis. Every school of thought will do well to acknowledge that an explanatory system for the origin of a given crop or agricultural practice need not be generalised to all or "most important" crops and practices at all times and to all places. The truth is that some crops were introduced from outside at different times just as some were independently developed.

### **The Evidence**

We have argued that man needs food to survive. Food production, however, often provides only part of the nutritional requirements of agricultural societies. African pastoralists as well as agriculturalists harvest an array of wild fruit, vegetable and cereal species and often sow wild annual food plants to increase the size and densities of natural populations.<sup>28</sup> But the time when they first began domestication and crop manipulation is hard to tell with certainty in the light of existing evidence. Archaeologists are really only able to tell us something about when certain agricultural practices were found and perhaps when they were predominant.

It is known that the most characteristic feature of indigenous African agriculture is its adaptation to the savanna although not restricted to this zone. It has become adapted to the forest margins of West Africa and the Zaire basin as well as the East African Highlands.<sup>29</sup> de Wet notes that the savanna complex of African crops is impressive in the number of different species being grown. It includes the cereals, animal fonio, bland fonio, African rice, pearl millet and sorghum. Indigenous cultigens also include Bambara groundnut (*Voandzeia subterranea*), bottle gourd (*Lagenaria siceraria*), watermelon (*Colocynthis citrullus*) and numerous minor fruit and vegetable species. These crops are native to the West African savanna, but may have been domesticated elsewhere.

Domestication of plants was not necessarily concentrated in a few centres. de Wet notes that indigenous pulses, oil crops, tuber crops, fruits and vegetables as well as nine species of wild cereals were domesticated in Africa. Some were widely cultivated while others became confined to the savanna, forest margin, or East African Highlands. There seems little reason to continue to believe that domestication in Africa had to await the development of agricultural techniques in Asia.<sup>30</sup>

Some 3000 to 5000 years ago, the Sahara was wetter than it is today and many species of domesticated plants were found in this region.<sup>31</sup> The Sahara was occupied by people who undoubtedly harvested plants and who it would appear were also manipulating them.<sup>32</sup> Most of the world's crops were in use by 3000 B.C., some of them in highly evolved forms which imply a very long prior history.<sup>33</sup> Although there is no adequate justification for a precise date and place of origin of each and every plant species, Murdock's<sup>34</sup> main contention, that the antiquity of African agriculture is well founded is a correct observation.

Varieties of the cultivated cottons Gossypium herbaceum and Gossypium arboceum have a long history in the continent. Varieties of the herbaceum species are widely distributed in Northern Africa, Persia and Central Asia, but until recently its original centre was believed to have been in or near Southern Arabia.<sup>35</sup> The cultivation of plant crops, ensete, bananas, yams, oil plants and trees, fluted pumpkins, pulses, and so forth were almost certainly local developments south of the Sahara.<sup>36</sup>

Several African cereals were introduced to South Asia, probably during the second or third millenium B.C. where they became important food plants.<sup>37</sup> de Wet<sup>38</sup> also notes that Finger millet is the oldest African cereal on record. It was grown at Axum in Ethiopia some 5000 years ago, probably reached India during the second century B.C. and became widely distributed in Southern Africa by the beginning of the Iron Age.

To claim a long original history of agriculture in Africa, however, is not the same as to suggest that Africa did not learn anything agricultural from other continents. de Wet<sup>39</sup> notes that the Near Eastern cereals wheat and barley are important food crops in North Africa, Ethiopia, Kenya and South Africa while the foreign import maize has replaced sorghum as the staple food across the wetter zones of the savanna; and the foreign import cassava (manioc) is often grown in preference to native tuber crops along forest margins.

Although maize is often listed as one of many crops introduced in Africa by the Portugese, how and when it was brought to the continent cannot yet be established with certainty.<sup>40</sup> More is known about the time when maize began to be important in parts of Africa than about the precise points of introduction or the possible agents. So it would appear, even something as straightforward and as "well known" as the introduction of maize in Africa cannot go unquestioned. We do know that maize has, since World War II or so almost completely replaced traditional starchy foodstuffs such as the millets and sorghums. It has also at one time or another been a major export of tropical African countries. But we are not sure exactly when it was introduced for the first time.

The next major introductions from the outside were plants from South-east Asia including the important beans, taro, eggplant and sugar cane.<sup>41</sup> Vansina notes that beans play a capital role in crop rotation because of their nitrogen fixing capacity but we do not know much about them.

Although agriculture is the main topic of our discussion, it should be noted that a considerable number of communities were first fishermen, not farmers. Fishing as a livelihood is much older than farming.<sup>42</sup> Fishing communities could be found along the coast and even more so along the major reaches of the Zaire river and its main affluents from Zambia to the Cameroons and along the Ogowe. Agriculture was ancillary to the fishermen, who relied in part on the exchange of fish and other products of their aquatic environment (pottery) for farm produce.

Apart from fishing, there is something to be said about animal husbandry. Wrigley notes that domestic animals are not attested archaeologically in many regions of Africa until fairly recently.<sup>43</sup> He notes that sheep and goats were present at Shaheinah in the late fourth millenium. Cattle and sheep were present in the Kenya Neolithic. It is believed nevertheless that animal husbandry did not develop independently in Africa South of the Sahara where the fauna does not and did not include possible ancestors of the domestic cow, sheep or goat. But just like in agriculture, the time and manner of their arrival is not known.

## Conclusion

The foregoing has not been a piece of original research work or of original insightfulness nor is it a work likely to attract a large audience. Who wants to hear about theory and methodology anyway? We have borrowed ideas and data from others to make an almost original point, or at least a plea that the conceptualisation of the origins of African agricultural systems should be approached with the clear mind that the facts so far have not spoken for themselves. Clearly, there is more confusion than it has been common to acknowledge. But history textbooks, like their biology or physics counterparts, have fed students with a historic presentation of events and processes which historically were not as systematic and logically connected as they have tended to make them appear. Highly debatable events with unclear consequences, or with several potential and actual consequences, are often presented with a hypnotising logical connectedness which does not stimulate soul searching about issues of important significance. To be sure, research, at least ideally, is stimulated when issues have been raised which point to some form of lack of clarity. And we believe that we have pointed to the lack of clarity about food production in Africa. What socio-cultural and ecological factors were involved in the emergence of food production in different micro-environments in Africa, and what lessons can be learned from surviving agricultural practices, remain important questions which are largely unanswered by the relatively young research effort on African food production systems. Only one thing is clear, namely, that the antiquity of African agriculture is much greater than archaeologists have until very recently been willing to concede.



## Footnotes

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