Evidence for the African Origin Of the Oil Palm

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Although there is some disagreement as to the natural habitat of the oil palm in West Africa (Chevalier, 1910; Briey, 1922; Exell, 1944 and Waterson, 1953), it has been widely assumed that the oil palm has an African origin (Popenoe, 1934; Bailey, 1948 and Okiy, 1960). The claims of Cook (1901, 1910, 1940 and 1942) that the oil palm is American in origin are based upon arguments which are not very convincing, but his thesis that it came from the Americas, probably Brazil, is difficult to refute.

The usual practice in general works on the oil palm is to quote Cook's theory and also that of Chevalier (1934) who holds the opposing view of an African origin, and to go on to say that the oil palm is now well established in West Africa.

This account examines a little more closely than usual such evidence as is available on the distribution of the oil palm at the time of the early Portuguese voyages of discovery during the 15th and 16th centuries. No new information is presented; all the evidence has already been published elsewhere, but the historical and botanical aspects have not previously been integrated for the oil palm in the way this has been done for other crop plants.

Discoveries in the Americas

In chronological order, the Portuguese (and some Spanish) voyages of discovery and other relevant historical events were, briefly, as follows:

1492 Christopher Columbus sailed on his voyage of discovery of the New World.

1493 Papal Bulls of Demarcation of May 3rd and 4th which precluded the Portuguese from the Americas and the Spanish from Africa.

1494 Treaty of Tordesillas based on the Papal Bulls of 1493. The line demarcating Spanish and Portuguese territories was extended to 370 leagues W. of Cape Verde, and included a part of Brazil. (then called Terra de Vera Cruz) on the Portuguese side.

1498 Columbus discovered South America.

1500 Brazil discovered by Pedro Alvarez Cabral who made landfall at 17° S. Actually a Spanish landing was made by Vincente Yáñez Pinzón earlier in the same year, but this was not followed up because of the Treaty of Tordesillas. Cabral then continued his journey via the Cape of Good Hope to Calicut.

1501 The discovery of Brazil followed by an expedition with Amerigo Vespucci as pilot. There was very little further interest in Brazil until the accession of King John III in 1521.

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West African Exploration

Some of the earlier explorations of West Africa are not well documented, and there are a number of early maps, such as the Laurentian Portolano of ca. 1351, which show features which could only have been known by early voyages about which there is no written evidence available at the present day. The account in Herodotus Bk. IV, Ch. 42 suggests a voyage of the Phoenicians of the Pharoah Nechao (600 B. C.) reaching West Africa, and separate evidence for Hanno the Carthaginian's visit to West Africa, ibid. IV, 196; these are possible, but not certain (Mauny, 1956b). There is also a French claim that trade was established in 1383 at Elmina by a group of Norman merchants (Villault, 1669). It is now conceded that this claim is incapable of proof, Beazley (1906), although it is known that King Francois of France was greatly annoyed at the Treaty of Tordesillas which apportioned the newly discovered lands to Spain and Portugal by reason of prior discovery.

The relevant documented history of West African exploration is outlined briefly below:

1434 Start of Portuguese exploration when Cape Bojador was successfully doubled by Joao Diaz (Mauny, 1956b).

1441 First gold dust and slaves arrived at Lisbon.

1446 Discovery of Sierra Leone.

1461 Discovery of the Grain, Ivory and the Gold Coasts as far as Elmina.

1472 First authenticated European visitor to Nigeria. Ruy de Sequeira visited Lagos and the Kingdom of Benin.

1481 A British expedition to the Guinea coast was prevented by request of the King of Portugal John II (1481-1495) to Edward IV of England.

1481-2 Diogo d'Azambuja with Bartholomeu Diaz and possibly Christopher Columbus founded Elmina and laid claim to the whole country.

1484 Diego Cao reached the mouth of the R. Congo.

1485 Joao (John) Affonso (Alfonso) d'Aveiro established trade with Benin.

1488 Cape of Good Hope rounded by Bartholomeu Diaz.

1493 Papal Bulls of Demarcation.

1494 Treaty of Tordesillas.

1503 Visits to Benin by Duarte Pacheco Pereira.

1530 William Hawkins called at Sestos River (in Liberia) for trade.

1553 First English ships to reach Nigeria under Captain Windham (Wyndham), piloted by the Portuguese Antonio Pinteado, anchored at mouth of Benin River and traded with Benin after a journey by boat and overland.

1562 First cargo of 300 slaves carried by an Englishman (Sir John Hawkins) to Hayti [sic] from Sierra Leone.

1588 James Welsh took two ships to Benin river, and by boat to Gwato (or Ugwato, the river port of Benin) and stayed two months for trading.

1589-90 Second visit of James Welsh to Benin River in the "Richard of Arundel" (100 tons).

1642 Portuguese retired from the coast.

1650 First accurate description of oil palm by Bauhin.

Historical Records of the Oil Palm

The best unequivocal descriptions of the oil palm, palm oil and wine appear

late in the history of discovery of West Africa. Barbot (1732) describes the fruit and oil as follows,

"The oil is made of the nuts [fruit] of this tree which grow in a cluster of two or three hundred nuts together, the cluster growing out of the trunk of the tree about a man's height from the ground. The nut is of the bigness of a pigeon's egg, and the stone as big and as hard as that of a peach; and each tree commonly produces 5 or 6 clusters. The oil drawn from the nuts is of the saffron-colour smelling strong; at first extracting it looks like oil of olives, as to its consistence, which growing old, turns thick and lumpy like butter and may be transported every where . . ."

Undoubtedly this refers to the oil palm. In addition, he describes and gives illustrations of the coconut, and refers briefly to four other species of palm.

In the "Observations of William Finch, Merchant . . ." (1607) in Purchas (1905), there is a description of the palmito tree which has "boughes" . . . rather Reeds than boughes, being all pithie within . . . the leaf long and slender . . . the boughes are beset on both sides with sharp and strong prickles . . ." There is also a description of the nuts and of wine, and an account of the method of climbing palm trees for wine with a "withe," as there are "no boughes nor branches save only at the top."

There are numerous references to palms, palm oil and palm wine in "A Description of Guinea . . ." dated 1600, in Purchas (1905) (translated from the Dutch).

"They have a strong complexion or savour of their bodies, much like Oyle of Palme, wherewith they often anoint themselves."

". . . Palme trees whereof some are female which yield no wine, but bear Grapes as big as Plummes of an orange colour, at the one end being somewhat blackish: those grapes they peele to the stones and thereof they make Oile, which they call palme oile, which is verie delicate and good, which they use to dress their meate withall, and make good sawce thereof for their fish, the thickest of this Oile they use to anoint their bodies withall, to make them cleane, and the women use it to frizell their haire the veins [sic] are as great as acorns, and as hard as stone, at the end thereof having three round holes, they beate them in pieces, and within them find certaine Nuts, like little earthen pellets, much like hazell-nuts, but when you eate them they taste of the wood, and are verie drie."

At the end of the 16th century, there is a description, translated by Ravenstein, of Andrew Battell in Guinea. This worthy, captured by the Portuguese, was commanded to sail to the Congo river in a pinnace called Zaire to trade for elephant's teeth, and oil of the palm tree. He describes palms in Kisama (Quicama, South of Coanza) producing edible fruit and wine. The palms are described as 6 to 7 fathoms high with leaves only at the top. The people of Nbundu in Angolia have a device for climbing these palms without using their hands, and draw wine in bottles. In the ". . . Gasas countrie (Kisama) . . . there is a great store of Palmares or Groves of Palms. For they delight greatly in the Wine, and in the fruit of the Palme, which serveth to eate and to make Oyle: and they draw this Wine contrary to the Imbondos . . ." The Gagas cut down the tree and let it lie 10 days before they draw wine after cutting a hole in the top and heart of the tree and remove one quart morning and night.

James Welsh made two voyages to Benin, the first in 1588 and the second in 1590 (Hakluyt, 1904). The cargo on the return journey of the second voyage consisted of ". . . 589 sacks Pepper, 150 Elephants teeth and 32 barrels of oile of Palme trees." The account of the first voyage refers to "pepper and Elephant's teeth, oyle of palme . . . and cloth made of the barke of palme trees." The following references to palms and palm products are made in the account of the first voyage:- "There are great store of palme trees." "They have good store of sope, and it smelleth like beaten violets."

Richard Eden's account of the voyage of John Lok to Mina in 1554-5 (Blake, 1942) describes palm wine tapping:

"Their drinke is either water or the juise that droppeth from the cut branches of the barren date trees, called palmitos. For either they hang great gourds at the said branches every evening and let them so hang all night, or else they set them on the ground under the trees that the droppes may fall therein."

There is a reference in the account of Windham's visit to the Benin river to the drinking of "the wine of the Palme trees that droppeth in the night from the cut of the branches of the same" (Blake, 1942).

An anonymous Portuguese pilot writing ca. 1540 (Blake, 1942) describes soap made of ashes and palm oil which is said to be very effective in whitening the hands.

Ryder (1959) has recently described an early Portuguese trading voyage to the Forcados river in 1522 from a book of the voyage in the Arquivo Nacional in Lisbon. Two items of accounts are of interest,

T the pilot spent 50 manillas on one pipe of oil for the cargo L x m as

T the pilot spent 106 manillas in the occasional purchase of oil for the cargo C. bj.m as

One pipe is 105 gals. as measured by the standard wine cask.

There is evidence in Duarte Pacheco Pereira's *Esmeraldo de Situ Orbis* in the recent translation by Mauny (1956) and that of Kimble (1937) of trade in palm oil before 1503, and of the existence of palm groves.

A promontory north of present-day Liberia was thickly covered with palms (grande palmar) extending two leagues or more, whilst the Isle of Palms, three leagues from the river Cestos (in present-day Liberia) was so named because of the abundance of palms. Benin is described as a city about a league wide with houses made of mud walls covered with palm leaves. In a description of the Forcados river, a trading post up the left arm of the river (probably Warri or some nearby place according to Kimble) is described with reference to slaves, cotton-stuff, leopard skins, palm oil and blue beads (palm oil = azeite de palma in the original).

The Voyages of Cadamosto . . . (Alouise de Ca'Da Mosto) in the period 1435-1460 (Crone, 1938) contain reference to ". . . a marvellous oil . . . In this country they use a certain oil in their food (the making of which I do not know). It has three properties, the scent of violets, the taste of our olive oil, and a colour which tinges the food like saffron, but is more attractive . . ."

In the same translation there is an account of "The Voyages of Diogo Gomes in 1456 or 1457 which is treated more fully in the newer translation from the Latin by Monod, Mauny and Duval (1958).

"We came to a land where, near the shore, were many palm trees, with their branches broken and such great height

that from a distance we thought they were masts or spars of negro vessels."

This cape, about one day's sailing south of C. Verde was marked on contemporary maps as Cabo de Mastos (Cabo Roxo).

Discussion

There is quite an extensive body of information on the oil palm in West Africa during the 15th and 16th centuries.

Before examining these references it is necessary to consider the negative evidence about the oil palm in South America. In "A Treatise of Brasill . . ." in Purchas (1905) it is stated: "In this Brasill there are many coco-nuts . . . more than twentie kindes of Palme trees . . ." yet there is no mention of palm wine or palm oil.

A second piece of negative evidence concerns the status of other known introductions, which are recognized as such. In "A Description of Guinea . . ." (1600) in Purchas (1905) there is a description of the pineapple: "The Annanas is also a delicate and pleasant fruit for smell . . . the Canarians called it Ananasa; the Brasilians, Nana; those of Hispaniola, Jaiana and the Spaniards in Brasilia, Pinas, because one of them found . . . the Pinas first in Brasilia . . ." There is also a mention, ca. 1540, of coconuts (Blake, 1942) "Palm trees have been brought from the coast of Ethiopia and they bear the fruit which is called cocoa-nut." The oil palm is always considered to be indigenous.

The chief difficulty in dealing with the records of early exploration is the strict identification of the product in which one is interested. In this context, reference to a palm or to palm wine is clearly too ambiguous to be applicable to one species. It is doubtful whether this ambiguity applies to "palm oil;" it is possible that *Raphia* oil may have been used for food, soap-making or cosmetic purposes, but the term 'palm oil' is used from very early days until the time of the start of large scale trade in true (*Elaeis*) palm oil, with no indication of a second source. It is most likely, therefore, that an unqualified reference to 'palm oil' refers to true *Elaeis* oil. In many cases, however, there is sufficient description of the oil or its extraction for it to be identified unmistakably. This is true in "A Description of Guinea . . ." of 1600 where the seed is also described fully enough for identification as *Elaeis*, and in Cadamosto's (ca. 1450) description of saffron-coloured oil with a scent of violets. The scent of soap made from palm oil is also described as "like beaten violets" in the account of the voyage of Welsh in 1588.

References to palm wine are in some instances referable to *Elaeis*, particularly when descriptions of wine and fruit (or oil) occur together, or when descriptions of tapping for wine are made. *Raphia* palms are never cut down for wine-making; there is no equivalent to *Elaeis* "down-wine." Because of the tangled fibrous strands of the old leaf sheaths on the stem, the *Raphia* palm cannot be climbed by the methods used for the oil palm, and a bamboo (*Oxytenanthera*) "ladder" is used to reach the apex. The palms referred to by Finch in 1607, in "A Description of Guinea . . ." (1600), by Battel in his description of tapping for "up-wine" and "down-wine", and in John Lok's voyage (1554-5) are true oil palms.

In some cases there is sufficient description of the palms themselves as opposed to wine or oil to make identification fairly certain. The observations in "A Description of Guinea . . ." (1600) of fruit, seed and kernels certainly refer

to oil palms, whilst Battell's description of the height of the palms occurs with a description of wine production that must refer to the true oil palm. The "cabo de mastos" of Gomes in 1456 or 1457 were most probably oil palms. There is a possibility that these refer to *Borassus* palms, but these palms are too ventricose to be truly mast-like, and the coconut palm had not been introduced at that time. The palms of Isle of Palms are almost certainly oil palms, as its position precludes *Borassus* palms, and the abundance of palms mitigates against the coconut.

Within the limitations of identification the evidence is conclusive for the presence of the oil palm in West Africa at the time of the early Portuguese voyages of discovery, and by inference, before Europeans arrived on the coast. If we consider only the descriptions made before 1550, the quantity of palm oil purchased in 1522 suggests that oil palms were abundant then. The Esmeraldo, referring to a period pre-1503, describes dense groves of palms and trade in palm oil, neither of which could have been produced from seed introduced from Brazil or any other part of the Americas. This conclusion is confirmed by the clear description of palm oil by Cadamosto before the discovery of the New World.

In contrast to the evidence above, the reasoning used by Cook (1942) in his thesis of an American origin for the oil palm is most unconvincing. His claim is based upon the following:

(a) the oil palm grows spontaneously on the Brazil coast,

(b) although scattered through the West Indies, the oil palm is seldom used; this forms the basis for the statement that the oil in the rancid state was met with by slaves who were therefore very averse to its use,

(c) the first unequivocal mention of the oil palm was from the Gold Coast by Bauhin (1650) after the Portuguese had been on the coast for 160 years, and

(d) palm oil is eaten largely with cassava which was introduced from Brazil.

Cook's suggestion that oil from *Raphia* palms was in extensive use is unlikely in the light of evidence for abundant oil palms. At present, although *Raphia* fruits are eaten, no oil is extracted from them, except on a very small scale, and the fruit is mentioned only in the "Plants supplying Carbohydrates" section (not fats and oils) of a recent survey of indigenous foods in Nigeria by Okiy (1960). Dalziel (1937) does refer to "raffia butter" and "piassava oil," but these are of only very local and restricted use, and do not enter trade.

The recent suggestion, Raymond (1961), that the large jar of fat found in a tomb at Abydos may have been palm oil suggests very early trade in palm oil.

Summary

The early voyages of exploration of the West African coast and of South America have been examined in relation to the fifteenth and sixteenth centuries descriptions of palm oil trade. It is concluded that the oil palm could not have been introduced from America by the Portuguese, as claimed by some authorities, but is indigenous to West Africa.

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Further Evidence on the Origin of the African Oil Palm

In the interim between the receipt of Mr. Rees' manuscript and its publication in this issue, a reprint of an article by A. C. Zeven has been received in which evidence is given for the continued presence of the oil palm in Africa for several million years (*). Pollen grains found in Niger Delta deposits believed to be of Miocene age (and thus probably over 13 million years old) have been recognized as very similar to those of the present day oil palm. Their frequency is about 0.1 per cent of the total number of spores and pollen grains, while in later Tertiary sediments and in contemporary sediments, the frequency increases to as much as 10 and 30 per cent respectively.

EDITOR

*Zeven, A. C. On the origin of the oil palm (*Elaeis guineensis Jacq.*). Grana Palynologica 5: 121-123. 1964.