

COCONUT PALM (COCOS NUCIFERA), LINNAEUS

(From 'Origin of Cultivated Plants',

By ALPHONSE DE CANDOLLE—1885)

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The coconut palm is perhaps, of all tropical trees, the one which yields the greatest variety of products. Its wood and fibres are utilized in various ways. The sap extracted from the inner part of the inflorescence yields a much prized alcoholic drink. The shell of the nut forms a vessel, the milk of the half-ripe fruit is a pleasant drink, and the nut itself contains a great deal of oil. It is not surprising that so valuable a tree has been a good deal planted and transported. Besides, its dispersion is aided by natural causes. The woody shell and fibrous envelope of the nut enable it to float in salt water without injury to the germ. Hence the possibility of its transportation to great distances by currents and its naturalization on coasts where the temperature is favourable. Unfortunately, this tree requires a warm, damp climate, such as exists only in the tropics, or in exceptional localities just without them. Nor does it thrive at a distance from the sea. The coconut abounds on the littoral of the warm regions of Asia, of the islands to the south of this continent, and in analogous regions of Africa and America; but it may be asserted that it dates in Brazil, the West Indies, and the west coast of Africa from an introduction which took place about three centuries ago. Piso and Marcgraf (*a*) seem to admit that the species is foreign to Brazil without saying so positively. De Martius, (*b*) who has published a very important work on the Palmaceae, and has travelled through the provinces of Bahia, Pernambuco, and others, where the coconut abounds, does not say that it is wild. It was introduced into Guiana by missionaries; (*c*) Sloane (*d*) says it is an exotic in the West Indies. An old author of the sixteenth century, Martyr, whom he quotes, speaks of its introduction. This probably took place a few years after the discovery of America, for José Acosta (*e*) saw the coconut palm at Porto Rico in the sixteenth century. De Martius says that the Portuguese introduced it on the coast of Guinea. Many travellers do not even mention it in this region, where it is apparently of no great importance. More common in Madagascar and on the east coast, it is not, however, named in several works on the plants of Zanzibar, Seychelles, Mauritius, etc., perhaps because it is considered as cultivated in these parts.

Evidently the species is not of African origin, nor of the eastern part of tropical America. Eliminating these countries, there remain western tropical America, the islands of the Pacific, the Indian Archipelago, and the south of Asia, where the tree abounds with every appearance of being more or less wild and long established.

The Navigators Dampier and Vancouver (*f*) found it at the beginning of the seventeenth century, forming woods in the islands near Panama, not on the mainland, and in the isle of Co

situated at three hundred miles from the continent in the Pacific. At that time these islands were uninhabited. Later, the coconut palm was found on the western coast from Mexico to Peru, but usually authors do not say that it was wild, excepting Seemann, (*g*) however, who say this palm both wild and cultivated on the Isthmus of Panama. According to Hernandez, (*h*) in the sixteenth century, the Mexicans called it coyolli, a word which does not seem to be native.

Oviedo, (*i*) writing in 1526, in the first years of the conquest of Mexico says that the coconut palm was abundant on the coast of the Pacific in the province of the Cacique Chiman, and he clearly describes the species. This does not prove the tree to be wild. In southern Asia, especially in the islands, the coconut is both wild and cultivated. The smaller the islands, and the lower and the more subject to the influence of the sea air, the more the coconut predominates and attracts the attention of travellers. Some take their name from the tree, among others two islands close to the Andamans and one near Sumatra.

The coconut occurring with every appearance of an ancient wild condition at once in Asia and western America, the question of origin is obscure. Excellent authors have solved it differently. De Martius believes it to have been transported by currents from the islands situated to the west of Central America, into those of the Asiatic Archipelago. I formerly inclined to the same hypothesis, (*j*) since admitted without question by Grisebach; (*k*) but the botanists of the seventeenth century often regarded the species as Asiatic, and Seemann, (*l*) after a careful examination, says he cannot come to a decision. I will give the reasons for and against each hypothesis.

In favour of an American origin, it may be said—

1. The eleven other species of the genus *Cocos* are American, and all those which de Martius knew well are Brazilian. (*m*) Drude (*n*), who has studied the Palmaceae, has written a paper to show that each genus of this family is proper to the ancient or to the new world, excepting the genus *Elaeis*, and even here he suspects a transport of the *E. Guineensis* from America into Africa, which is not at all probable. The force of this argument is somewhat diminished by the circumstance that *Cocos nucifera* is a tree which grows on the littoral and in damp places, while the other species live under different conditions, frequently far from the sea and from rivers. Maritime plants, and those which grow in marshes or damp places, have commonly a more vast habitation than others of the same genus.

2. The trade winds of the Pacific, to the south and yet more to the north of the equator, drive floating bodies from America to Asia, a direction contrary to that of the general currents; (*o*) it is known, moreover, from the unexpected arrival of bottles containing papers on different coasts, that chance has much to do with these transports.

The arguments in favour of an Asiatic, or contrary to an American origin, are the following :

1. A current between the third and fifth parallels, north latitude, flows from the islands of the Indian Archipelago to Panama; (*p*) to the north and south of this are currents which take the opposite direction, but they start from regions too cold for the coconut, and do not touch Central America, where it is supposed to have been long indigenous.

2. The inhabitants of the islands of Asia were far bolder navigators than the American Indians. It is very possible that canoes from the Asiatic Islands, containing a provision of coconuts, were thrown by tempests or false manoeuvres on to the islands or the west coast of America. The conveyance is highly improbable.

3. The area for three centuries has been much vaster in Asia than in America, and the difference was yet more considerable before that epoch, for we know that the coconut has not long existed in the east of tropical America.

4. The inhabitants of the islands of Asia possess an immense number of varieties of this tree, which points to a very ancient cultivation. Blume, in his *Rumphia*, enumerates eighteen varieties in Java and the adjacent islands, and thirty-nine in the Philippines. Nothing similar has been observed in America.

5. The uses of the coconut are more varied and more habitual in Asia. The natives of America hardly utilize it except for the contents of the nut, from which they do not extract the oil.

6. The common names, very numerous and original in Asia, as we shall presently see, are rare, and often of European origin in America.

7. It is not probable that the ancient Mexicans and inhabitants of Central America would have neglected to spread the coconut in several directions, had it existed among them from a very remote epoch. The trifling breadth of the Isthmus of Panama would have facilitated the transport from one coast to the other, and the species would soon have been established in the West Indies, at Guiana, etc., as it has become naturalized in Jamaica, Antigua,—(g) and elsewhere, since the discovery of America.

8. If the coconut in America dated from a geological epoch more ancient than the pleiocene or even eocene deposits in Europe, it would probably have been found on both coasts, and the islands to the east and west equally.

9. We cannot find any ancient day of the existence of the coconut in America, but its presence in Asia three or four thousand years ago is proved by several Sanskrit names. Piddington in his index only quotes one, *narikela*. It is the most certain, since it recurs in modern Indian languages. Scholars count ten of these, which, according to their meaning seem to apply to the species or its fruit; (r) *Narikela* has passed with modifications into Arabic and Persian; (s) it is even found at Otahiti in the form *ari* or *haari* (t) together with a Malay name.

10. The Malays have a name widely diffused in the Archipelago—*kalapa*, *kapa*, *klopo*. In Sumatra and Nichbar we find the name *njior*, *nieor*; in the Philippines, *niog*; at Bali, *niuh*, *nj* at Tahiti, *niuh*; and in other islands, *nu*, *nidju*, *ni*; even at Madagascar, *wua-niu*; (u) Chinese have *ye*, or *ye-tsu* (the tree is *ye*). With the principal Sanskrit name this constitutes four different roots, which show an ancient existence in Asia. However, the uniformity of nomenclature in the archipelago as far as Tahiti and Madagascar indicates a transport by human agency since the existence of known languages.

The Chinese name means head of the king of Yue, referring to an absurd legend of which Dr. Bretschneider speaks; (v) this savant tells us that the first mention of the coconut occurs in a poem of the second century before Christ, but the most unmistakable descriptions are works later than the ninth century of our era. It is true that the ancient writers scarcely knew the south of China, the only part of the empire where the coconut palm can live.

In spite of the Sanskrit names, the existence of the coconut in Ceylon, where it is well established on the coast, dates from an almost historical epoch. Near Point-de-Galle, Seema

As we may be seen carved upon a rock the figure of a native prince, Kotah Raya, to whom is attributed the discovery of the uses of the coconut, unknown before him; and the earliest chronicle of Ceylon, the *Mahawansa*, does not mention this tree, although it carefully reports the fruits imported by different princes. It is also noteworthy that the ancient Greeks and Egyptians only knew the coconut at a late epoch as an Indian curiosity. Apollonius of Tyana saw this palm in Hindustan, at the beginning of the Christian era (*w*).

From these facts the most ancient habitation in Asia would be in the Archipelago rather than on the continent or in Ceylon; and in America in the islands west of Panama. What are we to think on this varied and contradictory evidence? I formerly thought that the arguments in favour of eastern America were the strongest. Now, with more information and greater experience in similar questions, I incline to the idea of an origin in the Indian Archipelago. The extension towards China, Ceylon and India dates from not more than three thousand or four thousand years ago, but the transport by sea to the coasts of America and Africa took place perhaps in a more remote epoch, although posterior to those epochs when the geographical and physical conditions were different to those of our day.

SELF-COLONIZATION OF THE COCONUT PALM

WITH REFERENCE TO MR. HEMSLEY'S NOTE ON THIS SUBJECT TO *NATURE* (p. 537), I REGRET TO HAVE TO INFORM HIM THAT THE TWO YOUNG PALMS FOUND ON FALCON ISLAND WERE PLACED THERE BY A TONGAN CHIEF OF NAMUKA, WHO, IN 1887, HAD THE CURIOSITY TO VISIT THE NEWLY-BORN ISLAND, AND TOOK SOME COCONUTS WITH HIM. THIS INFORMATION I RECEIVED FROM COMMANDER OLDHAM, WHO HAD BEEN MUCH INTERESTED AT FINDING THESE SPROUTING NUTS AT SOME 12 FEET ABOVE SEA-LEVEL AND WELL IN FROM THE SHORE OF THE ISLAND, BUT WHO FOUND OUT THE UNEXPECTED FACTS IN TIME TO SAVE ME FROM MAKING A SPECULATION SOMEWHAT SIMILAR TO MR. HEMSLEY'S.

W. J. L. WHARTON.

... Nature, April 24th.

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