

Some Hyphaene Species from the Botanic Gardens, Calcutta

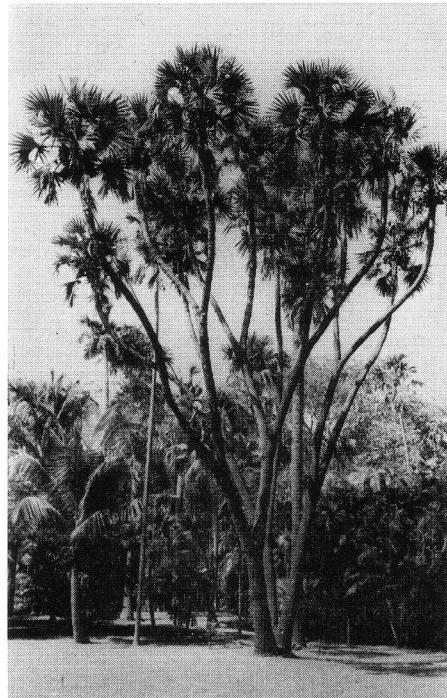
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From time to time *Hyphaene thebaica* is mentioned as a palm that has been successfully grown in India. The only Indian species that was commonly mistaken for *H. thebaica* was distinguished by Beccari (1908) under the name of *H. indica* Becc. Nevertheless, Blatter, who in his monographic work *The Palms of British India and Ceylon* (1926) admitted *H. indica* as a good species and re-described it with photographic illus-

trations to show its habit, stated that *H. thebaica* was "to be seen in many a garden of India and Ceylon," (p. 165), an opinion found reiterated several times by other writers.

Nevertheless, I was unable to receive a fruit from India or Ceylon of a genuine *H. thebaica* as typified by Martius (1838). However in the region of Thebes there seems to occur also a



1. *Hyphaene Bussei* growing at the Calcutta Botanic Garden under the name *H. thebaica*.
Photo by T. A. Davis.



1a. *Hyphaene Bussei*. Portion of rachilla, part of petiole, hastula and base of leaf, fruit in section. Photo by Juraimi.



2. *Hyphaene Bussei* at Calcutta. Photo by T. A. Davis.

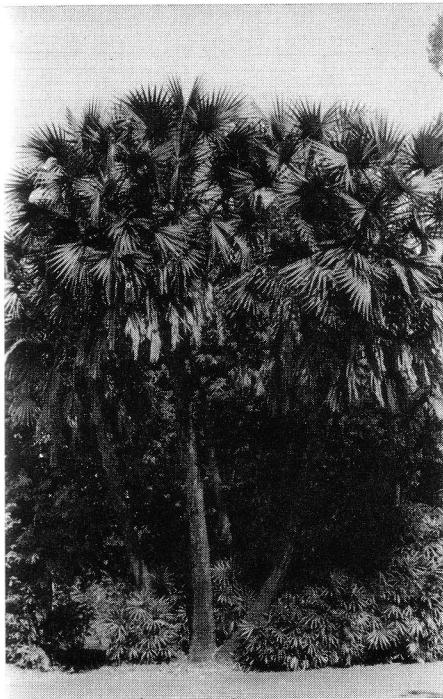


species that is referable to the group named by Beccari (1924, p. 32) as "*H. multifloris*" and Beccari's *H. thebaica* (1924, Pl. 20) seems to be referable also to the latter group, many forms of which are known from Kenya. Apparently, Blatter followed Beccari in identifying *H. thebaica* with a form of "*H. multifloris*" and not with *H. thebaica* (L.) Martius; for while he noted that "the young plants are of slow and precarious growth" in India and Ceylon, older plants were "much better developed" there than the trees in Egypt (p. 165). Recently S. K. Basu (1969) reported the species as occurring cultivated in the Botanic Gardens, Calcutta, but the illustration given in the article shows that it has been misidentified.

As it is not easy to receive good speci-

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2a. *Hyphaene Bussei*. portion of leaf and fruit of plant in Fig. 2. Photo by Juraimi.



3. *Hyphaene Bussei*, a third specimen at Calcutta. Photo by T. A. Davis.

mens even of *Hyphaene* species cultivated in gardens, I requested Prof. T. A. Davis of the Indian Statistical Institute, Calcutta, to procure for me fruiting specimens and photographs of the species of *Hyphaene* cultivated in the Botanic Gardens, Calcutta; and as a result of his generous cooperation, I venture to write this note as a supplement to the nomenclature of the *Hyphaene* spp. discussed by Basu in the above-mentioned article.

1. "Hyphaene thebaica"

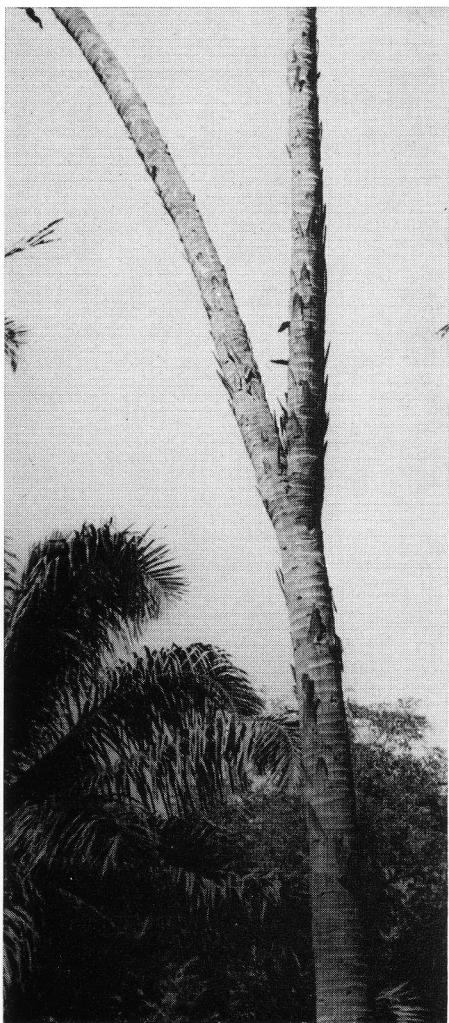
The stem of *H. thebaica* dichotomizes above the ground, but so far only one species is known to dichotomize below the ground—usually dichotomizing twice, rarely once below the ground. The stems that emerge from one seed in the ground are thus four or three (the fourth one is generally suppressed), but



3a. *Hyphaene Bussei*. Portion of leaf and fruit of specimen in Fig. 3. Photo by Juraimi.

rarely two. The species is known as *Hyphaene Bussei* Dammer ex Busse. The type was collected at Bubu in the Ugogo district of Kenya. Busse who collected it stated that it does not branch above ground.

However there is no apparent reason why a palm that has a strong tendency to dichotomize underground should cease to do so above ground unless conditions are not favourable. This might happen in areas which are subject to long dry season alternating with periodic floods, so that after the seed has germinated during a flood its subsequent growth would receive periodic setbacks during droughts or prolonged dry weather. Busse seems to have seen newly established colonies of *Hyphaene* species



4. A *Hyphaene*, perhaps true *H. thebaica*, at the Calcutta Botanic Garden. The only branching is 25 ft. above ground. Photo by T. A. Davis.

in localities subject to such periodic floods and droughts. In the photograph taken by Busse and printed by Beccari (1924, *Pl. 45, Fig. 8*), the three stems arising from the ground are young, having all persistent leaf-bases, and the fourth seems to have arisen by bifurcation aboveground of one of the stems.

Busse reported that the stems are

sometimes ventricose in the uppermost portion; apparently because of this character Beccari placed the species in the *Ventricosae*, reducing it as a subspecies of *H. ventricosa* (1924, 46, *Pl. 40, Figs. 3 & 4 & Pl. 45, Fig. 8*). But the species certainly belongs to the group "*H. multiiformis*" of Beccari. True dichotomy does not occur in the *Ventricosae*, while its leaf hastula is one-sided and the lamina is waxy not lepidote; whereas the Calcutta specimen shows an obliquely bilateral hastula and a very lepidote lamina. In Calcutta the specimens grow under very favourable conditions and both male and female plants have bifurcated several times above ground. But there are two forms in Calcutta: the one that produces ovate oblong fruits with entire, chestnut coloured skin (Figs. 1 & 1a, 2 & 2a, and Basu's Fig. 1); in the other the fruits are oblong, hardly narrowed above, with the skin dark coffee coloured, suffused with yellow and green, bearing reticulate markings and irregular cracks (Figs. 3 & 3a). The latter character is often found in species that grow in moist conditions near seashores. Figure 3 shows that the ground is moist and therefore covered with many *Rhipis* and other plants around; whereas the ground around other palms (Figs. 1 & 2) is clean.

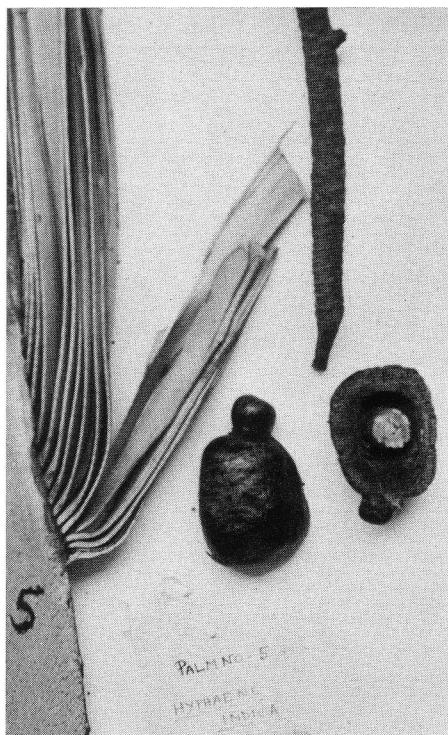
There is another *Hyphaene* (Fig. 4) which in Calcutta has not flowered. It has bifurcated about 25 ft. above ground. This might be true *H. thebaica*, but grows only vegetatively perhaps because the climate is too moist for it.

2. "*Hyphaene indica*"

There are in Calcutta two clumps of *Hyphaene* which are cespitose not dichotomous. Neither of these could be *H. indica* which, as said above, produces dichotomous stems. Two distinct species are involved:



5. *Hyphaene Schatan* at Calcutta Botanic Garden. Photo by T. A. Davis.



(a) *Hyphaene Schatan* Bojer ex Dammer (Figs. 5 & 5a).

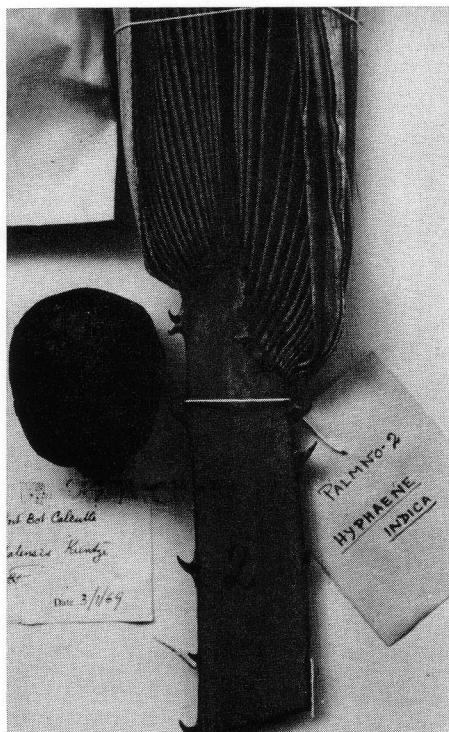
There is a cespitose palm which was first described by Dammer (1900) on a specimen collected in Mauritius by Bojer and listed in his *Hortus Mauritianus* (1837). Some of the forms from Madagascar identified with this might have to be separated as *H. Hildebrandtii* Becc. The Calcutta form certainly agrees with Beccari's *Pl. 36, Fig. 8 (op. cit.)* which being from Bojer's collection seen by Dammer, might be considered as a holotype or neototype of the species; and also with *Pl. 35, Figs. 9 & 10*, which were also from the islands in the Mauritius archipelago. A specimen in the herbarium of the British Museum (Natural History), London, collected by Ro-

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5a. *Hyphaene Schatan*. Portions of leaf, rachilla, and fruit of plant in Fig. 5. Photo by Juraimi.



6. *Hyphaene natalensis* at Calcutta Botanic Garden. Photo by T. A. Davis.



billard in 1862 on the mountains of the Reunion Island is also the same species.

(b) *Hyphaene natalensis* Kuntze (Figs. 6 & 6a)

This is also a cespitose species but found on the east coast of South Africa and Mozambique; its fruits are different and larger. In cespitose species the lateral buds generally cease to grow above ground, but occasionally one or more dormant lateral buds might become active and then gardeners usually give the species a wrong name. I have received specimens of this species labelled as "*H. thebaica*"; but one can easily distinguish such a branching, because the two "branches" are not equal and the main stem tends to be somewhat constricted below the branching, even when the branching looks dichotomous.

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6a. *Hyphaene natalensis*. Portion of leaf and fruit of plant in Fig. 6. Photo by Juraimi.

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Taxonomic Notes on Some Malayan Palms

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Palm taxonomy is bedevilled by the small and frequently inadequate fragments gathered by the early collectors, their poor descriptive notes, and the fact that the specimens are now often scattered amongst several herbaria. Malayan palm taxonomy is no exception. Prior to publication of a semi-popular account of the palms of this richly endowed peninsula (Whitmore, *Palms of Malaya*, Oxford University Press, Kuala Lumpur, *in press*), I have had to give some consideration to taxonomy, mainly in the subfamily Arecoideae which Furtado's otherwise extensive researches into Malayan palms have scarcely touched. I have been able to resolve some problems, greatly helped by the background of study in the forest, but others still remain unresolved. It is my experience in Malaya that progress in this family of princes comes after extensive full collection and observation, not least to learn the range of variation within species; I have discovered it to be a myth that palms are difficult to collect. Eventually one can hope to fit the old fragments into a firmly forest-based outline, but progress seldom comes from herbarium study alone.

I am grateful to the Directors of the Calcutta, Kew, and Singapore herbaria for permission to examine material under their care. The abbreviations CAL, K, and SING respectively are used in citations of specimens which follow.

ARENGA

Moore's arguments (*Principes* 7: 102-117, 1960) for reducing *Didymosperma* to *Arenga* are convincing. There is a lot yet to be learned about these palms in the forests where they grow, and little progress will be made until more collections and careful observations are available. Moore demurred from transferring the two Malayan species to *Arenga* because he was not sure how they differ from *Arenga caudata* (Loureiro) H. Wendland et Drude. I have no difficulty in telling the two species apart in the forest, and am sure two taxa must be recognized. Like Moore, I have had no opportunity to study *Arenga caudata* fully; I could find no good material at Kew or Singapore. In the circumstances, and in the hope it will stimulate forest botanists to collect these dainty palmunculi, I propose the following new combinations, although I realise one of these