

morphology and mechanical biology. J. Arnold Arbor. 43: 23-50.

———. 1964. The vascular skeleton of the coconut leaf base. Phytomorphology 14: 218-230.

——— AND H. E. MOORE, JR. 1966. Dichotomous branching in palms? Principes 10: 21-29.

WICHT, H. 1967. Our indigenous palms. African Wild Life 12: 39-51.

———. 1969. The indigenous palms of Southern Africa. Howard Timmins, Cape Town.

PALM BRIEFS

Date Breeding in Thailand

Some seedlings of *Phoenix dactylifera*, the date palm, produce completely sweet fruit in various localities in Thailand. This is considered to be a clear indication of success in growing dates in Thailand. Such fruit can be eaten fresh, preserved in syrup, or variously processed. There is no competition from imported dates because imported dates are taxed more than one dollar U.S. per kilogram.

Phoenix species have 18 gametic chromosomes and cross with each other. Species from the humid hot climates such as *P. reclinata*, *P. pusilla*, *P. zeylanica*, *P. paludosa*, *P. hanceana*, *P. acaulis*, *P. loureirii*, and *P. sylvestris* will be crossed with *P. dactylifera* in a breeding program sponsored by the Ministry of Agriculture and Cooperative of Thailand through a *Phoenix* development group, which includes two members of The Palm Society, Mr. Pittha Bunnag and myself. The Institut Français de Recherches Fruitières Outre-Mer (I.F.A.C.) is also interested. It will send viable seeds of *Phoenix reclinata* and *P. dactylifera* and will provide technical and genetic information.

Phoenix reclinata, which grows wild in humid hot regions of Africa, should have the greatest potential for variability and adaptability and should be the most important species for crossing with *P. dactylifera*. It produces soft, sweet, and agreeable-tasting fruit 20 mm in length, and it ranges through the largest number of bioclimatic conditions in the wild state. The resulting hybrid seedlings

should produce maximum variation in fruit characters in the F₂ and later generations. Selections of better adapted hybrids that produce good quality fruit can be made for further breeding.

Other date cultivars that should be valuable for date breeding in Thailand are some from Kolokani, Mali, where the annual rainfall is 1,074 mm and excellent fruit ripens in April, the dry month there. A similar potential may be found in dates from Salala on the Oman coast of the Arabian Sea, where the monsoon dumps heavy rains so that coconut palms are now cultivated in great numbers and nearly supplant the date palms. Dry dates such as 'Karut' from Iran, 'Barakawi' from Sudan, and 'Thoori' from Algeria should be useful. 'Tadala' from Algeria is thought by P. Munier to be a false date, a hybrid between *P. dactylifera* and certain other species. It is more rain resistant than 'Halawy,' 'Medjool,' 'Thoori,' and 'Khadrawy.'

It is hoped that there will occur a parallel in the quality of dates in humid regions comparable to the high quality from arid desert regions, though in a new form of fruit character. Any further interesting progress will be reported in PRINCIPES. Viable seed or offshoots of interesting *Phoenix* hybrids developed in the program will be available to members of The Palm Society and to those who contribute seeds or any assistance.

Members who are interested may forward seeds to Dr. Siribongse Boon-Long, Inspector General, Ministry of Agriculture and Cooperative, Rajadamnern Avenue, Bangkok, Thailand. Viable seeds of *Phoenix reclinata* are now urgently needed and will be greatly

appreciated. We hope that members will assist in this program of fruit development.

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LETTERS

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The Editor, Principles

Dear Sir:

Palm Climbing

In the October, 1976, issue of PRINCIPES, Anthony B. Anderson described how you and he overcame the problem of climbing tall palms that have smooth and slippery trunks (In Search of Wax Palms, *Principes* 20: 127-135, 1976). This is a recurrent problem for anyone working with palms and even when a skilled local climber can be found it is galling to the scientist, who may have travelled thousands of miles, to have the last fifty feet of the journey left to a willing, but technically untrained, assistant. Resort to pole-spikes or an axe are unacceptable when a palm has to be climbed repeatedly. Members of The Palm Society and readers of PRINCIPES who have experienced this problem may wish to consider the following method, worked out for coconut breeding, which should be of general application.

At first glance the problem appears to be one of getting a toe-hold on a stem devoid of branches and which, with the exception of palms that retain their leaf bases, has a smooth or only slightly ridged trunk. Professor Corner, in his *Natural History of Palms*, gives an entertaining account of a variety of original methods and mentions a palm bicycle. Unfortunately, the development of that never got off the ground. Another type of tree bicycle, manufactured by H.

Schneebeli, Zurich, Switzerland and known as the 'Baumvelo,' has been available to forestry workers for many years. This consists of two metal stirrups each having an adjustable, stainless-steel band which encircles the trunk. The climber has a safety belt and can climb up, down or around with confidence. The 'Baumvelo' weighs about 20 lbs and can be readily carried from palm to palm by one man and from site to site in a car (or even on a bicycle).

However, the problem of palm climbing is not solved simply by being able to ascend the trunk. Unlike the forestry cone-collector, who can "park" the tree bicycle at the first convenient branch and, releasing the feet from the stirrups, continue to climb freely, the palm climber may meet the inflorescences at some distance below the crown or, worse still, be confronted with bunch upon bunch of fruit. With coconut the fruit can be a formidable barrier and it is as well to be prepared before reaching the top of the trunk. The first step in preparation is to exchange the leather safety belt for a complete body harness, such as the 'Savall' made by Barrow/Hepburn, London, England. This is not only lighter and more comfortable to wear but it gives better support in the event of a fall and it provides extra D-rings on the chest and on the back. The second step before climbing is to attach a "sky-hook" to one of these D-rings.

The hook is not a piece of manufactured equipment and the Mark I version was made from a 5-foot length of ½ inch (i.d.) galvanized water pipe bent to shape. (If anyone reading this letter is experienced in designing or working with the kind of light but strong metals from which safety equipment is made their advice or assistance in making an improved Mark II would be welcomed.) The hook is permanently attached to the harness with a short length of safety line and on reaching the top of the trunk it is