

to south Florida to establish the first U. S. Plant Introduction Garden in Miami and they became permanent residents of Coconut Grove, it was her taste and hospitality which made their wonderful estate "The Kampong" among his fine grove of tropic trees overlooking the Bay a focus of hospitality to distinguished plantsmen and botanists from all over the world. And a place of stimulus and inspiration to every person hoping to perpetuate the beauty of tropic growth and living in this changing world.

The Fairchild Tropical Garden, to which Dr. Fairchild contributed so much and which was established to honor him, was also a result of her own deep feeling for nature and her warm and outgoing spirit. With the magnetism of her great father and the total integration of her enthusiasms with those of her husband, her delight in nature and in life itself, with her un-failing kindness and warm understanding of people, she will remain with us still, a living and abiding presence.

A Special Message to Members of The Palm Society

In this issue Dr. P. B. Tomlinson, Research Scientist, of the Fairchild Tropical Garden, asks help in his important project of the study of the rate of growth of palms. If he should receive substantial support from our membership, the Society plans to signalize our joining of hands in this study by proclaiming an INTERNATIONAL PALM YEAR.

During this significant period several activities would be launched. Among those under consideration are:

1. The initiation of a fund to finance a competent collector to secure palm material from little explored places, such as New Guinea, Madagascar, and the Solomon Islands.
2. An intensification of the world-wide distribution of palm seeds. This project would be assisted by a new seed bank distribution list to include the offerings of newly established sources, and would be international in scope.
3. A special issue of PRINCIPES. A special and expanded issue of PRINCIPES would be published and devoted entirely to the horticultural aspects of palm culture. This issue would have especial value to the many members of our Society who are nurserymen or private growers. Certain qualified members would be asked for subjects for this issue.
4. The measurement of the growth rate of palms might be extended to a study of the periodical phenomena of flowering and fruiting in palms throughout the world.

Sincerely,

DAVID BARRY, JR. *President*

A Proposed International Palm Year

P. B. TOMLINSON

Fairchild Tropical Garden, Miami 56, Florida

International co-operation is a familiar procedure to all scientists. By its means information from diverse and widely-scattered sources can be assembled far more easily than by a single

individual or organization. The International Geophysical Year is a familiar, recent and well-publicized example. Similar ventures are frequently being put into operation since science knows no

geographical frontiers and scientists are necessarily unbiased observers.

Recently I have been considering how members of The Palm Society individually might provide information which, when collected together, would be of fundamental value to both science and horticulture. Many members of The Palm Society either grow palms in their own gardens and have them under constant observation, or may make frequent and regular visits to regions in which native palms grow. Altogether, these closely scrutinized palms must survive in a great variety of situations, both natural and artificial, in many parts of the world, either within their normal range, or far outside it as exotic ornaments. Members of The Palm Society must be watching palms grow under all sorts of circumstances. They are in a favourable position to look at growing palms over long periods of time and so to watch the rate at which they grow. In just this way records are being kept of the rate of growth of selected palms at Fairchild Garden.

But the information that a single individual or organization can supply is very small compared with that which needs to be assembled before any sound generalizations can be made about growth rates in palms.

Therefore it would seem a reasonable proposal to enlist the aid of members of The Palm Society. They could supply a great deal of information, simply and with little effort, over a suitable period of time, such as a year. This project might be an attractive proposition to other individuals and organizations not members of the Society. The project might then be referred to as an "International Palm Year." This may sound rather ambitious or even pretentious, but the actual procedure would be very simple. Before going any further with

the proposal, it will be necessary first to consider why there is lack of information and what benefits might be derived from a large scale increase in factual knowledge which such a co-operative scheme might produce.

Growth increases in many living organisms may be easy to measure. Thus it may be necessary only to determine the increase in overall length or the gain in weight. In hardwood trees the increase in girth of the trunk is a measure of the addition of successive new layers of tissue. Palms, however, do not grow like hardwood trees and the way in which their growth rate could be measured is not obvious. Apart from this difficulty, scientists who might make the proper observations are mainly centered in temperate countries and do not have unlimited access to large numbers of palms. In proposing the International Palm Year I would like to point out how these, and other, obstacles could be surmounted.

It might be thought that an accurate measure of the age of a palm would be given by its overall height. But this would be true only if all palms grew at exactly the same rate and maintained this rate constantly throughout their lives. In his accompanying article, however, Dent Smith shows that this is not true. We know only in very general terms that the palm initially grows very rapidly without increase in overall height and that subsequently it grows in height but at a decreasing or variable rate. This then would be one of the first benefits of an accurate knowledge of growth rates in palms—to give information about changes in the rate of growth of palms with age. Subsequently it might be possible to make a reasonable estimate of the age of a palm from its height. We are quite certain, as Dent Smith also points out, that all palms do

not grow at the same rate. Thus a short palm which grows slowly may be much older than a tall palm which grows rapidly. Some palms never produce an aerial stem. Precise measurements to show these differences in different species of palm are quite lacking. We shall see a little later, however, that there are precise criteria for estimating growth rates in palms. We could be in a position to say a great deal about the age and history of a particular palm if we had information about growth rates of its species from a large enough number of examples.

These observations on growth rates will be of great value to horticulturists and agriculturists. If one can estimate the size which a palm might achieve after a given period and in a given climate and soil it would be a useful guide to planting and landscaping. At present many nurserymen must be aware of our inability to do this. The guide to palm planting which Dent Smith mentions as being so desirable will only come from a much more thorough and detailed knowledge of rates of growth of palms. The value to the plantation owner is quite obvious, since his livelihood results from a knowledge of whether his crop is growing well or not. For this economic reason there is a good deal of information already available on the growth rates of crop or plantation palms like the oil-, date-, and coconut-palm. It is largely to extend these observations to palms of less immediate commercial value that international co-operation is called for.

From our knowledge of the mechanism of growth of the palm (itself only understood in a very superficial way) it seems that the rate of leaf production can be used to estimate growth rates in palms. Thus the number of leaves matured by a single stem over a given

period gives an estimate of the pace of growth of that palm. This is a relatively easy standard to adopt since each palm stem bears a single crown of leaves and produces only one leaf at a time. All that is necessary to measure this leaf productivity is to mark a young leaf and observe by how many new leaves it is followed in a given period. In a future note in PRINCIPES simple methods will be described for marking such a leaf and recording the observations. These methods are not time-consuming and do not require specialized knowledge or apparatus. They do not harm the growing palm in any way. They do, however, provide fundamental information.

The tentative scheme therefore proposes that members of The Palm Society, together with other interested individuals or organizations such as Botanic Gardens or Research Institutes, should keep simple records of growth rates in as great a variety of palms as is possible for a period of not less than a year. These results would be analyzed by me, together with as much information as is already available in print, and ultimately published.

First, however, it must be known that there is sufficient interest in the project to make it worthwhile. For members of The Palm Society this can be done simply by indicating on a postcard their willingness to participate. These will be acknowledged collectively in a future issue of PRINCIPES. In addition the proposed scheme will be drawn to the attention of individuals and organizations who are not members of The Palm Society, but who may wish to participate. Botanical Gardens, particularly those in the tropics with large palm collections, would be in a good position to provide facilities for these simple observations.

If interest is sufficiently great the In-

ternational Palm Year would be brought into being. A tentative date for the initiation of this project would be July 1st, 1963. More details would appear in the next issue of *PRINCIPES* (April). These would consist largely of detailed descriptions of the simple procedures to be employed in making measurements, together with examples of how additional information which will be needed (largely facts about the age and the condition of the palms under observation) is to be recorded, as well as the observations on leaf production in the palms themselves.

Mr. R. W. Read, Botanist at Fairchild Garden, has been kind enough to offer his services as taxonomic consultant in instances where the identity of a palm under observation is in doubt.

I began by emphasizing how scientific theory is frequently based on masses of facts gained by international co-operative efforts involving many individuals. In the physical sciences these people

are usually trained scientists and need quite elaborate apparatus. But it is not so in biology. In the history and development of biological science the keen, intelligent amateur is a prominent and important figure. In keeping with this tradition the untrained but enthusiastic and careful observer participating in an International Palm Year can assemble valuable information without the need of special equipment. These facts about growth rates in palms are a fundamental necessity and cannot be assembled in any other way.

The directors of The Palm Society have cast their blessing on my proposal. It is to be hoped that enthusiastic individuals will now be forthcoming in sufficient numbers that this idea of an International Palm Year will become a reality. It would offer a chance which so rarely presents itself in this era of elaborate and costly technology, a chance for the non-specialist to make a significant contribution to scientific research.

Growth Rates of Certain Palms

DENT SMITH

In this article the observations on the growth rate of a few palms, largely supported by photographic illustrations, are of course quite distinct from the scientific studies planned by Dr. P. B. Tomlinson for the proposed International Palm Year. His studies would be based at least in part, nevertheless, on the records and observations of non-technicians, who are any of us engaged in growing palms for pleasure or profit. This article, though but fragmentary, would conform with the objective if it proves to contain even a very minor fraction of the collective information to be sought.

Studies leading to fuller knowledge of the growth rate of palms must be of

some importance to botanical science, as otherwise it is unlikely that Dr. Tomlinson would undertake them. How important they would be to gardening more nearly concerns all of us who garden, and most of us do. Greater knowledge of the growth rate of palms would be of the very first importance to anyone attempting to grow them. This may be readily seen from the fact that the placement of them is so often wrong in the sense that the misplaced plant shoots up years sooner than expected or the reverse, remaining almost stationary though rapid growth had been envisioned. Frightful mistakes in planting palms are not due only to lack of feeling for landscape design; they are