Hoi, one may surmise came to the Tahitians from Hawaii, but *ufi* belongs to their language absolutely, being their form of *ubi* or yam in Malay, and certainly represents a very old root in the language as it is in Madagascar as *ofi*.

The last species, *Dioscorea pentaphylla*, Linn., is No. 6 and 8 on the plate. The Tahitians call it *ufi patara* a name to be found in Nadeaud’s *Plantes usuelles des Tahitiens*, and possibly a more sought food with those people fifty years ago, which is when Nadeaud was in Tahiti, than now. It grows wild, and does not even in cultivation return more than 1 kilo by weight of tubers.

I. H. Burkill.

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**YAMS AT THE MALAYA-BORNEO EXHIBITION.**

The Malaya-Borneo Exhibition (Singapore, April, 1922) with its agricultural and horticultural objects collected from all parts of the Malay Peninsula, from Sarawak and from Brunei offered an unequalled opportunity of collecting information regarding native crops and was so used. Then at its winding up, through the Committee for the Agri-Horticultural Section exhibitors were persuaded to give many of their exhibits to the Botanic Gardens, notably roots, and from among them a set of yams went into cultivation in the Economic Garden for better study. This is a report upon them.

Of their genus,—the genus *Dioscorea,—* four species were exhibited in abundance in the following order:

- *Dioscorea alata*, Linn.—the Greater Yam,
- *Dioscorea esculenta*, Burk.—the Lesser Yam,
- *Dioscorea hispida*, Dennst.—the Gadong,
- *Dioscorea bulbifera*, Linn.:  

of all four species there were exhibits from the Malay Peninsula; of the first two from Brunei; and of the first from Sarawak.

Incidentally it was observed that Yam-scale exists in Malacca, Klang, Pahang and Brunei.

The tubers after a preliminary disinfection, were planted on April 21st. They were dug again on January 6th., 1923.

**The Greater Yam.**

Two races of the Greater yam from Singapore have already been figured in the Gardens Bulletin (vide Plate III in the issue of March 31st, 1917, Vol. 1, part 11-12) being what are called in the markets of the town Ubi nasi (rice yam) and Ubi merah (red yam). It was known before the Exhibition occurred that both these races are cultivated also near Klang, and that Ubi merah comes freely into Malacca town from the country behind it. It was therefore not surprising to find the race commonly sold in
Singapore as “Ubi nasi” on exhibition from Klang. It is a heavy-yielder, and three hills cultivated in the Botanic Gardens from the Klang specimen returned 13 lbs., 8 lbs. 2 oz., and 6 lbs. respectively.

This Ubi nasi grows to 18 inches or more in length, and for most of the Peninsula seems to be the deepest going yam that is cultivated. But in the Exhibition from Sungai Terap, Kinta district, a Chinese cultivator exhibited a single root of one of those races which go still deeper, and which do not seem to be in favour for the soil and with the cultivator in this country, though they usually have a greater delicacy. It was interesting to learn thus that deep-going yams, though scarce, exist.

Judging by the Exhibition, the yams which find favour in the Peninsula are such as are represented on the upper block of the attached plate. They may be circular in section as those upon the upper line, or flattened as those in the lower: when they are flattened, they are also lobulate as the illustrations show. Races characterised by producing tubers that are circular in section were exhibited from Klang, Malacca, and Pekan: races with their tubers flattened and lobed were received from Krian, Kuala Kangsar, Temerloh, Klang and Alor-Gajah. Two of these, one circular from Klang, and one flattened from Temerloh, both without any magenta sap, carried the name ubi nasi, which indeed in general does not signify any particular race, but indicates a tuber of the ordinary downwardly-growing habit which boils white, like rice, as it has no magenta sap in it: the name indeed contrasts with ubi merah. One of the tubers circular in section, but with magenta sap was labelled at Klang ubi java (Java yam), and one of the flattened tubers with magenta sap was labelled at Alor-Gajah ubi paha kerbau (buffalo thigh yam).

It is easily realised that, from a condition in which there is one yam deeply lobed, it is a step to one in which the plant produces more than one tuber. A race producing many neatly rounded small tubers was received from Malacca, which when grown in the Economic Garden returned 24 tubers from three plants.

Ubi sekok from Raub, Pahang, which is the race figured on the upper line of the lower block on the plate, proved to be one of which the exact counterpart had not been seen before: it is without magenta sap, and much branched, but not in one plane only, as is usual.

Of conspicuously flattened and branched yams the Peninsula supplied a single example, namely that figured on the lower line of the lower block on the plate. It came from Klang. As such yams travel badly and are not suitable for sending to a distance, it may be that they are more common in the Peninsula than the Exhibition showed.

Very interesting it was to find from the Peninsula examples of those up-growing yams which require earthing-up in cultivation.
(X) Half-length races of the Greater Yam: on the upper line (left), a race with a tuber circular in section such as seems to find favour in the Malay Peninsula: upper line (right), three tubers of a race from Sarawak with the habit of producing one supplementary horizontal tuber: on the lower line (left) two tubers of a flattened and lobed yam from Klang which finds favour in the Peninsula, and (right) three tubers of a still more lobed race received from Krian.

(Y) Upper line, a peculiarly branched race of the Greater Yam sent from Raub with the name of Ubi sekok; and below (left) two tubers a flattened very smooth race from Brunei, and (right) a much flattened and branched race from Klang.

SOME YAMS OF THE MALAY PENINSULA AND BORNEO.
They came from Kuala Lipis, from Krian and from Klang. The exhibitor at Kuala Lipis attached the name Ubi junjong to his exhibit. Junjong is among other things, the stake that a climber is grown up, and the name may be translated pole yam, the word “pole” being used exactly as in Pole bean. The exhibitor at Klang attached the name ubi ular (or snake yam) to what he sent. This name— ubi ular— is the name which Rumpf between 1628 and 1702, obtained in Amboina for the same type of yam, and is so appropriate that it would persist anywhere where the malay language is spoken. The Klang ubi ular differed slightly from the others in possessing a diminished tendency in the snake-like roots to curve upwards and extrude from the ground, and had no magenta sap.

These snake yams yield well; and ten hills of the Krian and Kuala Lipis race returned nearly fifty lbs. of tubers, one reaching 7 lbs., while nine hills of the Klang race yielded 64 lbs., one attaining 13½ lbs.

Malacca sent a race producing several tubers to each hill, and these subglobose. Upon the average there were eight to each hill.

From Sarawak came a yam which agrees in character with the commoner lobed yams of the Malay Peninsula, and another much flattened and branched like an open hand which has nothing precisely in common with any of the hitherto known Peninsular races.

From Brunei came another race with the flattened lobed tuber, the lobes widely divergent, figured on the lowest line of the plate. All these three carried magenta sap.

**The Lesser Yam.**

The Lesser Yam was exhibited in two races from Machap in the Alor-Gajah division of Malacca, and also from Klang. Both of these carry thorns upon the specially defensive roots and therefore belong to that group of races which have been called collectively “spinosa.” They both produced 6-12 tubers rather closely bunched together, much as in that race which is figured in the Gardens Bulletin for March 1917, volume I, part 11-12 upon the top row in plate IX. But they differed markedly in flavour, and differed somewhat in the colour and smoothness of the skin. The one race when cooked gave a mealy or starchy tuber, and its yellow skin was very smooth; the other when cooked gave a harder sweeter tuber, and its light umber skin carried a fair sprinkling of small rootlets. The Klang exhibitor attached the name “ubi torak” to the second.

This second sweeter race was sent also from Brunei.

**Gadong.**

The tubers of *Dioscorea hispida* are not edible, but can be made to furnish a large quantity of starch, and this under proper preparation is a good food. Consequently they appeared in the
Exhibition among other roots that are eaten, and some of those shown were of great size.

**Dioscorea Bulbifera.**

This unimportant yam was exhibited from Klang and from Seremban in the variety "sativa," which produces large and numerous edible bulbils at the expense of the root-tuber. The plants raised from the tubers obtained at the Exhibition proved identical, and appear to be not different from the "Otaheiti potato" which has been grown for some forty years in India, reaching India via the Andaman islands, and is known in various islands and shores towards the Pacific. The name Ubi Kastela (Castile yam) found applied to it in Singapore suggests that the Portuguese or the Spaniards had once something to do with its dispersal.

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**THE AS-YET BOTANICALLY UNEXPLORED PARTS OF THE MALAY PENINSULA.**

The object of this note with its two maps is to indicate the parts of the Malay Peninsula which are at present botanically unexplored, and to ask for collections of dried plants from them. One of the maps is of the localities where determined species of the genus *Dipterocarpus* are known to occur; the other is of the localities where determined species of the genus *Dioscorea* are known to occur. The genus *Dipterocarpus* consists of important forest trees and their economic value has led the Forest Department to pay much attention to them; the genus *Dioscorea* consists of herbaceous climbers which do not demand attention in the same way: and for that reason the two maps are unlike although there is reason to believe that no wide stretches of the Peninsula are without representatives of either genus. As the maps show, neither genus is known from many parts, and only the one or the other from other parts.

The three Settlements, Penang, Malacca and Singapore, are demonstrated the best studied; after them the parts of Perak about Taiping and north and south of Ipoh; and the parts of Selangor adjacent to Kuala Lumpur; for *Dipterocarpus* Negri-Sembilan and the middle part of the Pahang river have been studied, but not for *Dioscorea*. Large areas of Kedah, the whole of Kelantan and the whole of Trengganu, large areas of Pahang, and also of Johore are without any of the dots that indicate the occurrence of a determined species of either genus:

What is demonstrated in these two maps for the two genera is true of plants of all kinds: Collections of dried plants are wanted from all the blank parts of the maps.

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