

## MISCELLANEOUS.

Written for this Paper.

## JENSON'S TRAVELS.

LETTER NO. XXVII.

Friday, August 23rd. I continued my labors at the mission house at Mua, and was also introduced to several natives who came to visit us. I also began to feel reconciled to the Tongan vegetable diet, which at first did not seem to have just the right flavor. The chief article of vegetable diet raised and eaten by the Tongans is the yam, or native ufi (*Dioscorea alata* is its Latin name.) This, in fact, is the most valuable of the edible roots of the tropics; and it is perhaps not cultivated in any other part of the world to such high perfection or in such quantity as in Tonga. The Tongans do not believe at all in the Fijian practice of putting yam settings into hard and unprepared soil. The plan adopted in Tonga involves great care and labor, but is rewarded by large crops of the most valuable esculent root to be found in the world. After the surface of the ground has been thoroughly cleared of bush and weeds, the first part of the operation is that of digging the yam-pits or bukes. These are dug at a diameter of from two to four feet, and are from three to seven feet in depth, according to the kind of yam planted. The earth is dug completely out of these pits, by the aid of small iron huos, or narrow lanceshaped spades, attached to a long wooden handle; and when the required depth has been reached, the loosened and pulverized earth is returned to the pit. This is done to permit the easy and rapid growth and expansion of the yam roots, which shoot downward like huge carrots. The pits are placed at equal distances from each other of about two or three feet, arranged in rows, and in the alternating order of the squares of a chess board. Meantime the settings have been prepared by slicing ripe old yams into pieces, varying from two to four inches in thickness. These are buried for a few weeks, until the vital portions of the yam have begun to sprout. This plan is necessary because there are no eyes, or bud-marks, on the skin of the yam, such as are found in potatoes and other edible roots. Having sprouted, the good and vigorous settings are taken to be placed in the top of the yam pits, at a depth of about three or four inches. When the vine has sprung up and begins to spread, it must be very carefully and constantly cleared of weeds, and must also be protected, as much as possible, from the effects of high winds. If the vine be damaged, the yam-root suffers in proportion; and should it be destroyed, by being choked with weeds, withered by the sun, or torn by the wind, the root beneath speedily perishes. The operation of ututu (the Tonga harvest), or raising the yams when fully ripe, is even more laborious and difficult than that of the first preparation of the pits. To get them out of the ground, these must be carefully opened, and the earth removed from around each individual root. Thus, when these have shot down to a depth of five or six feet, as is the case with the larger sorts, the toil in lifting them safely out of the ground becomes very

considerable. Owing, also, to the fact that any cut, or abrasure of the skin of the yam, soon causes it to rot, all the more care and skill become necessary, in removing the roots from the soil. The setting very rarely produces more than three roots in each pit. Therefore, in order to raise the large quantity of yams necessary for the consumption of the people, as well as the supply of foreign vessels, very extensive tracts of country are put under cultivation. The visitor, in passing through the country will observe on every hand the fruits in native industry in the well kept and large yam plantations, of which they are justly proud. There are many varieties of yam, but the Tongans are remarkably clever in rejecting inferior sorts. Single yams vary greatly in size and in weight, ranging from seven to eight pounds, according to species. Yams of from sixty to eighty pounds' weight are by no means uncommon. Elder Durham has seen them as long as six feet.

Other edible roots, that are greatly like the yam, and cultivated in the Society Islands, and elsewhere in the Pacific, are but slightly regarded by the Tongans. Among these may be reckoned the kumala or sweet potato, and the talo or kalo, as it is called on the Hawaiian Islands. Both are grown in Tonga; but the former is considered to be a very poor substitute for the yam; while the latter requires such marshy land for its perfect success, that only a very few spots are found suitable for it in the Tongan Islands.

The cocoa nut tree deserves special mention, as this tree and its fruit are very unquestionably the most abundant and characteristic of the country. Whole forests of these beautiful palms flourish in nearly all the islands of the Tongan Archipelago. In those islands that are of moderately high elevation they crown the hill tops and sides, while in every quarter to which the eye may be turned the land appears clad with their graceful foliage, down even to within a few feet of the sea itself. Proximity to the ocean, and a sandy soil, appear rather to favor than to hinder the rapid and healthy growth of the tree. Some of the finest and tallest specimens are met with on the shores of the lowest islands. In such situations they attain an elevation of eighty and even ninety feet. Hence, an approaching voyager often discovers the tufted heads of the palms in the distance, long before the land itself, upon which they grow, becomes visible. This was also my experience in nearing some of the islands, and on one or two occasions I was led to ask my fellow travelers if the trees grew out of the bottom of the ocean, as there appeared to be no land where trees were plainly seen. The natives of Tonga reckon at least nine different kinds of cocoa-nut trees, for all of which they have distinctive names. All these are known and included under the generic name of Niu. In addition to the multifarious uses to which every portion of this tree has been devoted from time immemorial, the natives have for many years past derived from it large revenues of wealth by the exportation of the cobra (the dried cocoa-nut meat) to the markets of the world, to be manufac-

tured into oil, soap, etc. The exports of cobra in 1889 alone was 7,957 tons, valued at \$366,676. The other principal exports from the islands are green fruit (mostly oranges, bananas and pine apples), fungus, kava and whale oil. The estimated produce of a full-bearing cocoa nut tree is from ninety to one hundred nut per annum. Nearly every part of the tree can be utilized. The natives eat its meat, drink its milk, make ropes of the fibres of the husks, use the leaves to thatch their houses with, the stems of the leaves for brooms or sweeping purposes the timber for building their houses, and those parts of the husks of the nut which they do not use for making rope and strings, they utilize for fuel. It only takes a few cocoa-nut trees to sustain a family. The natives use the bark of the so-called Chinese mulberry (called hiapo in native) for the manufacture of cloth.

The bread fruit grows on a tree of about the size of a common oak, which towards the top, divides into large and spreading branches. The leaves are of a very deep green. The bread-fruit springs from twigs to the size of a five-cent loaf. It has a thick rind, and before becoming ripe, it is gathered and baked in an oven. The inner part is like the crumb of wheat bread, and found to be very nutritive. It has neither seed nor stone in the inside, but all is of pure substance like bread. It must be eaten new; for if it is kept above twenty-four hours it grows harsh and choky. The fruit lasts in season from five to eight months in the year according to the locality. There are said to be at least fifty varieties of the bread fruit tree. Those common to Tonga are known by the generic name of mei with distinctive appellatives attached to the word descriptive of the different kinds. The brethren, and the Europeans generally, simply pick the fruit when it is ripe, and then either boil or bake it, and eat it with sauce or after seasoning the same as they do potatoes or the ufi. But the natives in addition to preparing and eating it in a somewhat similar way, also make it into so-called ma or bread. In that instance the fruit is beaten up and incorporated with the sweet banana and scraped cocoa nut. It is then divided into small balls, or portions, which are buried in a large mass underground, there to undergo fermentation. The ma is left buried for several months, after which it is fit for food, and will keep if not exposed to the air, for a long time. When the ma pit is opened, a very strong and disagreeable odor gives intimation of the fact to a considerable distance, while the bread itself, to a British or American palate, is even less acceptable than the black bread of Russia. In taste it is said to resemble what a mixture of barley bread and rotten cheese might be supposed to be. It is nevertheless very nutritive, and it would be a good resource in seasons of famine.

One of the most distinctive tropical sights is perhaps an extensive banana plantation. In the Tongan Islands all the varieties of the trees flourish in highest perfection. The fruit hangs in single bunches upon a strong stem issuing from among the leaves. Each bunch will weigh from thirty to even eighty pounds. The fruit is of various colors, and of great diversity of form, according to the description of tree planted.