
'Palm-trees of the Amazon, and their Uses. By ALFRED RUSSEL WALLACE.' London: Van Voorst. 1853. Post 8vo. 138 pp. Text, 48 Plates. Price 10s. 6d.

This is an admirable little book, creditable alike to the author and the artist. Mr. Fitch, long and favourably known as a botanical artist, has here excelled himself; his designs of the palms are really beautiful, and show how much may be done in a small compass. There is here an unusual combination of botanical accuracy with artistic and picturesque effect. Mr. Wallace is comparatively unknown as an author, but not as a naturalist. His sufferings and losses on board the unfortunate 'Helen,' having been detailed by himself, in a recent number of the 'Zoologist,'* have become familiar to all who take an interest in the well-being of those adventurous and energetic men who, as Natural-History collectors, have, during the last few years, added so enormously to our knowledge of the productions of distant countries. The object of the work before us is fairly and lucidly explained in the author's Preface, as below:—

"The materials for this work were collected during my travels on the Amazon and its tributaries from 1848 to 1852. Though principally occupied with the varied and interesting animal productions of the country, I yet found time to examine and admire the wonders of vegetable life which everywhere abounded. In the vast forests of the Amazon valley, tropical vegetation is to be seen in all its luxuriance. Huge trees with buttressed stems, tangled climbers of fantastic forms, and strange parasitical plants everywhere meet the admiring gaze of the naturalist fresh from the meadows and heaths of Europe. Everywhere too rise the graceful palms, true denizens of the tropics, of which they are the most striking and characteristic feature. In the districts which I visited they were everywhere abundant, and I soon became interested in them, from their great variety and beauty of form,

* Zool. 3641, No. CXIX.

and the many uses to which they are applied. I first endeavoured to familiarize myself with the aspect of each species, and to learn to know it by its native name; but even this was not a very easy matter, for I was often unable to see any difference between trees which the Indians assured me were quite distinct, and had widely different properties and uses. More close examination, however, convinced me that external characters did exist by which every species could be separated from those most nearly allied to it, and I was soon pleased to find that I could distinguish one palm from another, though barely visible above the surrounding forest, almost as certainly as the natives themselves. I then endeavoured to define the peculiarities of form or structure which gave to each its individual character, and made accurate sketches and descriptions to impress them on my memory. These peculiarities are often very slight though permanent:—in the roots, the extent to which they appear above the ground;—in the stem, the thickness, which in each species varies within very definite limits,—the swelling of the base, the middle or the summit,—its generally erect or curving position,—the nature of the rings with which it is marked,—the number, direction and form of the spines or tubercles with which it is armed;—in the leaves, the erect or drooping position, the size and form of the leaflets, the angles which they form with the midrib, and the proportionate size of the terminal pair, are all important characters. The fruit-spike or spadix is either erect or drooping, either simple, forked, or many-branched; and the fruits in closely allied species vary in size, in shape, and in colour, as well as in the bloom, down, hair or tubercles with which they are clothed.

“In this little work careful engravings from my original drawings are given, with a general description of each species, and a history from personal observation of the various uses to which it is applied, and of any other interesting particulars connected with it. Several of the species here figured are new, among them is the palm which produces the ‘piassaba,’ the coarse fibrous material of which brooms for street-sweeping are generally made.”—P. iii.

The following extract will show the universal use of palms by the Indian tribes, and their unspeakable importance to these primitive children of the forest.

“Suppose then we visit an Indian cottage on the banks of the Rio Negro, a great tributary of the river Amazon in South America. The main supports of the building are trunks of some forest tree of heavy and durable wood, but the light rafters overhead are formed by the straight cylindrical and uniform stems of the Jará palm. The

roof is thatched with large triangular leaves, neatly arranged in regular alternate rows, and bound to the rafters with sipós or forest creepers; the leaves are those of the Caraná palm. The door of the house is a framework of thin hard strips of wood neatly thatched over; it is made of the split stems of the Pashiúba palm. In one corner stands a heavy harpoon for catching the cow-fish; it is formed of the black wood of the Pashiúba barriguda. By its side is a blowpipe ten or twelve feet long, and a little quiver full of small poisoned arrows hangs up near it; with these the Indian procures birds for food, or for their gay feathers, or even brings down the wild hog or the tapir, and it is from the stem and spines of two species of palms that they are made. His great bassoon-like musical instruments are made of palm stems; the cloth in which he wraps his most valued feather ornaments is a fibrous palm spathe, and the rude chest in which he keeps his treasures is woven from palm leaves. His hammock, his bow-string and his fishing-line are from the fibres of leaves which he obtains from different palm trees, according to the qualities he requires in them,—the hammock from the Mirití, and the bow-string and fishing-line from the Tucúm. The comb which he wears on his head is ingeniously constructed of the hard bark of a palm, and he makes fish-hooks of the spines, or uses them to puncture on his skin the peculiar markings of his tribe. His children are eating the agreeable red and yellow fruit of the Pupunha or peach palm, and from that of the Assaí he has prepared a favourite drink which he offers you to taste. That carefully suspended gourd contains oil, which he has extracted from the fruit of another species; and that long elastic plaited cylinder used for squeezing dry the mandioca pulp to make his bread, is made of the bark of one of the singular climbing palms, which alone can resist for a considerable time the action of the poisoncus juice. In each of these cases a species is selected better adapted than the rest for the peculiar purpose to which it is applied, and often having several different uses which no other plant can serve as well, so that some little idea may be formed of how important to the South American Indian must be these noble trees, which supply so many daily wants, giving him his house, his food, and his weapons.”—P. 9.

If we turn from this comprehensive picture to either individual palm-portrait, whether of pen or pencil, we shall find it sketched with the same freedom of hand, and finished with the same painstaking care. Take, for instance, the following:—

Assaí (*Euterpe oleracea*).—“This species is very abundant in the neighbourhood of Pará, and even in the city itself. It grows in

swamps flooded by the high tides,—never on dry land. Its straight cylindrical stem is sometimes used for poles and rafters; but the tree is generally considered too valuable to be cut down for such purposes. A very favorite drink is made from the ripe fruit, and daily vended in the streets of Pará. Indian and negro girls may be constantly seen walking about with small earthen pots on their heads, uttering at intervals a shrill cry of Assaí-í. If you call one of these dusky maidens, she will set down her pot, and you will see it filled with a thick creamy liquid, of a fine plum-colour. A pennyworth of this will fill a tumbler, and you may then add a little sugar to your taste, and you will find a peculiar nut-flavored liquid, which you may not perhaps think a great deal of at first; but, if you repeat your experience a few times, you will inevitably become so fond of it as to consider 'Assaí' one of the greatest luxuries the place produces. It is generally taken with farinha, the substitute for bread prepared from the mandioca root, and with or without sugar according to the taste of the consumer.

“During our walks in the suburbs of Pará we had frequently opportunities of seeing the preparation of this favorite beverage. Two or three large bunches of fruit are brought in from the forest. The women of the house seize upon them, shake and strip them into a large earthen vessel, and pour on them warm water, not too hot to bear the hand in. The water soon becomes tinged with purple, and in about an hour the outer pulp has become soft enough to rub off. The water is now most of it poured away, a little cold added, and a damsel, with no sleeves to turn up, plunges both hands into the vessel, and rubs and kneads with great perseverance, adding fresh water as it is required, till the whole of the purple covering has been rubbed off and the greenish stones left bare. The liquid is now poured through a wicker sieve into another vessel, and is then ready for use. The smiling hostess will then fill a calabash, and give you another with farinha to mix to your taste; and nothing will delight her more than your emptying your rustic basin, and asking her to refill it.”—P. 23.

Pashiúba miri (*Iriarteia setigera*). — “This species is of great importance to the Indian of the Rio Negro. With its stem he constructs his ‘gravatána’ or blowing tube, which, with the little arrows before described as made from the spines of the Patawá, forms a most valuable weapon, enabling him to bring down monkeys, parrots and curassow birds from their favorite stations on the summits of the loftiest trees of the forest.

“ When he wishes to make a ‘ gravatána ’ he searches in the forest till he finds two straight and tall stems of the ‘ Pashiúba miri ’ of such proportionate thicknesses that one could be contained within the other. When he returns home he takes a long slender rod which he has prepared on purpose, generally made of the hard and elastic wood of the ‘ Pashiúba barriguda,’ and with it pushes out the pith from both the stems, and then with a little bunch of the roots of a tree fern, cleans and polishes the inside till the bore becomes as hard and as smooth as polished ebony. He then carefully inserts the slenderer tube within the larger, placing it so that any curve in the one may counteract that in the other. Should it still be not quite correct, he binds it carefully to a post in his house till it is perfectly straight and dry. He then fits a mouth-piece of wood to the smaller end of the tube, so that the arrow may go out freely at the other; and when he wishes to finish his work neatly, winds spirally round it from end to end, the shining bark of a creeper. Near the lower extremity, he forms a sight with the large curved cutting tooth of the Paca (*Cælogenus paca*), which he fixes on with pitch, and the gravatána is then fit for use.”—
P. 39.
