

species having a very wide range; but how much of that is due to human agency, and how much to other agencies, such as oceanic currents, is not easy to determine. Of the American genera of palms only two, excluding *Cocos*, are represented elsewhere; these are *Elæis* and *Raphia*, both otherwise only African. Drude\*, however, treats *Raphia vinifera* as an African type, introduced by some means in America, though ranging on the sea-shore from the mouth of the Amazon to Nicaragua; and he further suggests that the African *Elæis*, though specifically distinct from the American, is, in like manner, of American origin, of very remote introduction in Africa, may be "thousands of years." He bases his argument on the fact that all the *Cocoinæ*, with this exception, and the now widely-spread *Cocos nucifera*, are exclusively American†. Of course, admitting an unlimited period to elapse since migration or conveyance took place, the origin of many outliers might be explained in this way. But to return to palms generally; it is not only species and genera that are comparatively restricted in their range; the same law applies more largely to the tribes than is the case in most large orders. Drude‡ shows that of ten natural tribes of palms only three are common to America and the Old World, and only two of them belt the world.

Palms are spread over about half the surface of the land, and are essentially plants of the tropical zone, where they are generally spread, rapidly thinning-out both in species and individuals outside of the tropics. At present about 1100 species of palm are known, and these have been divided into 140 genera—numbers low in relation to the prominent and proportional position they occupy in tropical scenery. Nearly a score of orders are more numerous in species, but not one forms so large a part of the vegetation. Some palms grow intermixed with other trees, whilst others grow in groves of countless individuals; and they certainly constitute the most striking feature in tropical vegetation. America is, perhaps, the richest country in palms, which culminate in numbers in the Amazon region; but they are also very numerous in the Malay Archipelago. The highest latitudinal limits of palms in the Old World are about 44° in New Zealand (where there is one species), 35° in Japan, and 43° in Europe; in each case represented by solitary outliers. In South America one endemic species inhabits Chili up to about 38° latitude, and one Juan Fernandez in 34°. In western North America the limit is about 34°, and in eastern about 36°. Nearly all these outlying palms belong to monotypic genera peculiar to each region.

The enumeration of Mexican and Central-American palms (iii. pp. 400–415) contains 118 species, belonging to twenty-four genera; but so little is known of the palms of the purely tropical parts that further investigations may considerably augment these

\* "Geographische Verbreitung der Palmen," Petermann's Mittheilungen, 1878, p. 103.

† *Raphia vinifera*, Beauv., var. *tadigera*, syn. *R. nicaraguensis*, Erst., was accidentally omitted from our distribution table, and *Cocos nucifera* was intentionally excluded, like many other cultivated plants. Nevertheless, the latter is almost certainly indigenous in America (and most likely in Central America), to which country all the other species of *Cocos* are peculiar.

‡ Botanische Zeitung, 1876, p. 801.