

member of the order, which presents its highest development in tree-like puyas of the cordilleras of Chili.

The Agave and Yucca type.

Plants of this type, belonging to the orders Amaryllideæ and Liliaceæ, are so numerous and so specially characteristic of Mexico and the countries immediately to the north as to demand separate consideration. The genera are *Beschorneria*, *Agave*, and *Furcræa* belonging to the former order, and *Yucca*, *Nolina*, and *Dasyllirion* belonging to the latter order. These genera are all peculiar to America, and a careful examination of their present distribution seems to indicate that the outlying species have spread from the Texano-Mexican region, taken in a wide sense, that is, including New Mexico and Arizona. Of course it does not necessarily follow that because the species of a genus are now most numerous in a certain region the genus originated there; but the majority of the outlying species of the genera under consideration are also natives of the Texano-Mexican region, thus strongly favouring the presumption that such was the case in this instance. Moreover, these plants, though belonging to distinct natural orders, have the same general habit of growth, and long, rigid, fleshy or dry leaves, crowded on usually very short stems, and relatively large inflorescences. They differ greatly in stature, from two or three feet to sixty or occasionally taller. The trunk of *Furcræa gigantea* attains a height of three or four feet, while the flower-scape is twenty-five to thirty feet. The tallest, however, is *Furcræa longæva*, which forms an unbranched trunk forty to fifty feet high, surmounted by a large dense crown of leaves; and its inflorescence is thirty to forty feet high, making altogether a height of nearly 100 feet. These and some of the larger species of *Agave* are next to palms in size among monocotyledonous plants. The species of *Furcræa* and many of *Agave*, although attaining a great age, flower only once (are monocarpic) and then die. In this they resemble some of the palms; the talipot (*Corypha umbraculifera*) and the wine-palm (*Caryota urens*) for examples. On the authority of Karwinski*, who discovered the gigantic *Furcræa longæva* in the mountains of Oaxaca among stunted oaks and arbutuses at altitudes of 9000 to 10,000 feet, this species requires a very long period before it can put forth flowers—about 400 years, according to the traditions of the natives. This is probably a greatly exaggerated period; yet several instances are on record of plants of this class having been cultivated in Europe for eighty to a hundred years before producing flowers. But the flowering of these perennial monocarpic plants is a most interesting and phenomenal event. It has been observed that all the individuals of certain monocarpic species of palm and bamboo flower the same season throughout very extensive districts. How far this is influenced by recurring stimulating climatal conditions, or how far it is an inherent constitutional action, limited in its fulfilment, is uncertain; but, as bearing directly on the subject, it may be mentioned that plants

* Nova Acta Nat. Cur. xvi. (1833) p. 665.