

in assuming that varieties never acquire a slight degree of mutual sterility, as we shall more fully see in a future chapter when certain facts are given on the high authority of Gärtner and Kölreuter.<sup>138</sup>

The forms of *C. pepo* are classed by Naudin under seven sections, each including subordinate varieties. He considers this plant as probably the most variable in the world. The fruit of one variety (pp. 33, 46) exceeds in value that of another by more than two thousand fold! When the fruit is of very large size, the number produced is few (p. 45); when of small size, many are produced. No less astonishing (p. 33) is the variation in the shape of the fruit, the typical form apparently is egg-like, but this becomes either drawn out into a cylinder, or shortened into a flat disc. We have also an almost infinite diversity in the colour and state of surface of the fruit, in the hardness both of the shell and of the flesh, and in the taste of the flesh, which is either extremely sweet, farinaceous, or slightly bitter. The seeds also differ in a slight degree in shape, and wonderfully in size (p. 34), namely, from six or seven to more than twenty-five millimètres in length.

In the varieties which grow upright or do not run and climb, the tendrils, though useless (p. 31), are either present or are represented by various semi-monstrous organs, or are quite absent. The tendrils are even absent in some running varieties in which the stems are much elongated. It is a singular fact that (p. 31) in all the varieties with dwarfed stems, the leaves closely resemble each other in shape.

Those naturalists who believe in the immutability of species often maintain that, even in the most variable forms, the characters which they consider of specific value are unchangeable. To give an example from a conscientious writer,<sup>139</sup> who, relying on the labours of M. Naudin, and referring to the species of *Cucurbita*, says, "au milieu de toutes les variations du fruit, les tiges, les feuilles, les calices, les corolles, les étamines restent invariables dans chacune d'elles." Yet M. Naudin, in describing *Cucurbita pepo* (p. 30), says, "Ici, d'ailleurs, ce ne sont pas seulement les fruits qui varient, c'est aussi le feuillage et tout le port de la plante. Néanmoins, je crois qu'on la distinguera toujours facilement des deux autres espèces, si l'on veut ne pas perdre de vue les caractères

<sup>138</sup> Gärtner, 'Bastarderzeugung,' 1849, s. 87, and s. 169 with respect to Maize; on *Verbascum*, *ibid.*, ss. 92 and 181; also his 'Kenntniss der Befruchtung,' s. 137. With respect to

*Nicotiana*, see Kölreuter, 'Zweite Forts.,' 1764, s. 53; though this is a somewhat different case.

<sup>139</sup> 'De l'Espèce,' par M. Godron, tom. ii. p. 64.