

seem improbable that whatever change in the sap or tissues certain soils induce, whether or not called a disease, might spread from the inserted piece of bark to the stock. But a change of this kind cannot be considered to be of the nature of a graft-hybrid.

There is a variety of the hazel with dark-purple leaves, like those of the copper-beech: no one has attributed this colour to disease, and it apparently is only an exaggeration of a tint which may often be seen on the leaves of the common hazel. When this variety is grafted on the common hazel,<sup>105</sup> it sometimes colours, as has been asserted, the leaves below the graft; although negative evidence is not of much value, I may add that Mr. Rivers, who has possessed hundreds of such grafted trees, has never seen an instance.

Gärtner<sup>106</sup> quotes two separate accounts of branches of dark and white-fruited vines which had been united in various ways, such as being split longitudinally, and then joined, &c.; and these branches produced distinct bunches of grapes of the two colours, and other bunches with berries, either striped, or of an intermediate and new tint. Even the leaves in one case were variegated. These facts are the more remarkable because Andrew Knight never succeeded in raising variegated grapes by fertilising white kinds by pollen of dark kinds; though, as we have seen, he obtained seedlings with variegated fruits and leaves, by fertilising a white variety by the already variegated dark Aleppo grape. Gärtner attributes the above-quoted cases merely to bud-variation; but it is a strange coincidence that the branches which had been grafted in a peculiar manner should alone thus have varied; and H. Adorne de Tschärner positively asserts that he produced the described result more than once, and could do so at will, by splitting and uniting the branches in the manner described by him.

I should not have quoted the following case had not the author of 'Des Jacinthes'<sup>107</sup> impressed me with the belief not only of his extensive knowledge, but of his truthfulness: he says that bulbs of blue and red hyacinths may be cut in two, and that they will grow together and throw up a united stem (and this I have myself seen) with flowers of the two colours on the opposite sides. But the remarkable point is, that flowers are sometimes produced with the two colours blended together, which makes the case closely analogous with that of the blended colours of the grapes on the united vine branches.

In the case of roses it is supposed that several graft-hybrids have been formed, but there is much doubt about these cases, owing to the frequency of ordinary bud-variations. The most trustworthy instance known to me is one, recorded by Mr. Poynter,<sup>108</sup> who assures me in a letter of the entire accuracy of the statement. *Rosa devoniensis* had been budded some years previously on a white

<sup>105</sup> Loudon's 'Arboretum,' vol. iv. p. 2595.

<sup>106</sup> 'Bastarderzeugung,' s. 619.

<sup>107</sup> Amsterdam, 1768, p. 124.

<sup>108</sup> 'Gard. Chron.,' 1860, p. 672, with a woodcut.