

summer here is not hot enough. Fruit-trees have also originated in Europe with different constitutions, but they are not much noticed, because nurserymen here do not supply wide areas. The Forelle pear flowers early, and when the flowers have just set, and this is the critical period, they have been observed, both in France and England, to withstand with complete impunity a frost of 18° and even 14° Fahr., which killed the flowers, whether fully expanded or in bud, of all other kinds of pears.⁵⁰ This power in the flower of resisting cold and afterwards producing fruit does not invariably depend, as we know on good authority,⁵¹ on general constitutional vigour. In proceeding northward, the number of varieties which are found capable of resisting the climate rapidly decreases, as may be seen in the list of the varieties of the cherry, apple, and pear, which can be cultivated in the neighbourhood of Stockholm.⁵² Near Moscow, Prince Troubetzkoy planted for experiment in the open ground several varieties of the pear, but one alone, the *Poire sans Pepins*, withstood the cold of winter.⁵³ We thus see that our fruit-trees, like distinct species of the same genus, certainly differ from each other in their constitutional adaptation to different climates.

With the varieties of many plants, the adaptation to climate is often very close. Thus it has been proved by repeated trials "that few if any of the English varieties of wheat are adapted for cultivation in Scotland;"⁵⁴ but the failure in this case is at first only in the quantity, though ultimately in the quality, of the grain produced. The Rev. M. J. Berkeley sowed wheat-seed from India, and got "the most meagre ears," on land which would certainly have yielded a good crop from English wheat.⁵⁵ In these cases varieties have been carried from a warmer to a cooler climate; in the reverse case, as "when wheat was imported directly from France into the West Indian Islands, it produced either wholly barren spikes or furnished with only two or three miserable seeds, while West Indian seed by its side yielded an enormous harvest."⁵⁶ Here is another case of close adaptation to a slightly cooler climate; a kind of wheat which in England may be used indifferently either as a winter or summer variety, when sown under the warmer climate of Grignan, in France, behaved exactly as if it had been a true winter wheat.⁵⁷

Botanists believe that all the varieties of maize belong to the same species; and we have seen that in North America, in proceeding northward, the varieties cultivated in each zone produce their

⁵⁰ 'Gard. Chronicle,' 1860, p. 938. Remarks by Editor and quotation from Decaisne.

⁵¹ J. de Jonghe, of Brussels, in 'Gard. Chronicle,' 1857, p. 612.

⁵² Ch. Martius, 'Voyage Bot. Côtes Sept. de la Norvège,' p. 26.

⁵³ 'Journal de l'Acad. Hort. de Gand,' quoted in 'Gard. Chron.,' 1859,

p. 7.

⁵⁴ 'Gard. Chronicle,' 1851, p. 396.

⁵⁵ Ibid., 1862, p. 235.

⁵⁶ On the authority of Labat, quoted in 'Gard. Chron.,' 1862, p. 235.

⁵⁷ MM. Edwards and Colin, 'Annal. des Sc. Nat.,' 2nd series, Bot., tom. v. p. 22.