

Miscellaneous.

EFFECTS OF CLIMATE UPON TREES.

Horticulture has contributed more than any other branch of natural science to our knowledge of the effects of climate upon life. It is natural that it should have done so. For every animal that has been removed from its native home, and subjected to a new climate and phase of life, thousands of plants have been so treated, and as plants are more manageable and more easily observed than animals, it was inevitable that more facts bearing on the influence of climate on life should be accumulated by the observers of the vegetable kingdom, provided only that they were as competent, as diligent, and as numerous as the observers of the animal kingdom,—qualifications which, we presume, no one, at any rate no reader of our journal, will dispute that they possess.

It is not therefore as depreciating the merits of what has been done, nor as complaining that more has not been done, that we invite our workers to additional exertion in this branch of scientific labour. It is that their very diligence in the past, and the magnitude of the material which they have accumulated, has rendered the acquisition of more information necessary to enable us to understand that which we have. The special point to which we at present desire to direct the attention of our readers, and more particularly those in foreign lands, relates to what we may call reciprocity in climate. At first sight one might think it safe to assume that wherever plants of one country thrive in another, those of the latter will also thrive in the former. Generally speaking they do. But it is not a rule. Sometimes the reciprocity fails—and it is especially where it does so that information regarding the circumstances attending the condition of the plant, both in its old and its new country, is wanted. For it is plain that there must be identity, or close similarity, in the apparent conditions of life, before we can look for reciprocity in result. It is no want of reciprocity on the part of America to England for example, if in return for supplying her with English plants which thrive, we find that some desert plant from her sandy, waterless wastes, does not thrive here when planted in a bog, or that a sea-side plant does not thrive on the top of a highland mountain. But what we want to know is, why, when the conditions are apparently the same in both countries, the plants do not equally thrive? Of course we know that there must be some important difference in condition—the very fact of non-thriving implies as much; but although it implies as much, it does

not tell us what the difference of condition is, and it is from a study of these exceptional cases that we look to learn not only the cause which has prevented reciprocity, but also indirectly to learn something of the nature of the subtle influences which go to make up “condition of life,” and of the still more mysterious element of life on which the individual “constitution” of organic beings depends.

If, for instance, we compare the north and middle of the United States with England, we find some of these anomalies. Although the climate is so nearly the same that most of the plants of the one country thrive in the other, a certain number do not. The American Lime thrives in England, but the English Lime does not in the United States. The Canada Poplar is common and thriving in this country, but the Lombardy Poplar, although long established in America, is now dying out. There are plenty of large old trees, but they are all going back; at their best, and in their most leafy season of the year, they are no better clothed than ours are in the month of November, when half their leaves are withered and gone. On the converse side, we may instance our Scotch Fir and Spruce, which do well in America, but the American *Pinus resinosa* and Balm of Gilead are unsatisfactory in England; the former never makes much way, and the latter, although healthy and thriving when young, never lives longer than about 30 years.

Of course for these and all other unusual cases we have an explanation ready. Who ever caught a horticulturist without his answer? As the old saying has it—for every hole we have a pin.

As regards the Lime its failure is accounted for by a beetle, *Saperda candida*, which attacks its roots; and which, after the tree had been well established, has nearly exterminated it. It is true that beetles do not generally attack healthy trees. Their mission is rather to remove those which are moribund, and likely soon to decay, and it is rarely that they leave native plants for exotic species. The latter have very generally an immunity from insect attacks. The Lombardy Poplar, again, is going, because only one sex of the tree was originally introduced; and all the trees in the country are from cuttings of that stock, and they are now all dying because the stock is worn out. But this ingenious explanation is open to the answer that the truth of the theory that all the cuttings, buddings, or other reproduction of a tree (other than by seed), die about the same time, is not yet proved or admitted; and if it were, it seems strange that, knowing or believing it, and with plenty of nurserymen in every town of America, and fortnightly communication with Europe, plenty of seeds of the Lombardy Poplar should not

long since have been imported into that country. The short life of the Balm of Gilead in Europe again is disposed of by the assertion that the tree is naturally shortlived, and that it is not more so in England than America.

All these explanations may be true, but it would be satisfactory not to have to take them on trust and *ex cathedra*, but to have them dealt with, as all statements on matters of science should be—held to be wrong until proved to be right.—Every statement, assertion, explanation, or theory, ought to be treated as disputed, and all imaginable objections started to it, and fairly met and discussed. Most of them must be capable of instant solution by those on the spot. In Nova Scotia every one must know whether the Balm of Gilead is shortlived or not. At New York every botanist can tell whether all the Lombardy Poplars are of the same sex, and every nurseryman can say whether the young plants of it are raised from seed from Europe, or from cuttings from the old ones. At Philadelphia, anyone who sees a dying English Lime (if any remain to die), should be able to say whether the tree is sound at heart or not.

We invite observation to such facts. If horticulturists, and more especially the nurserymen in Canada, the United States, both east and west of the Rocky Mountains, Chili, Australia, New Zealand, and any other country which has supplied England with hardy introductions, would only give us a list of the English plants they have introduced, or tried to introduce, in their respective countries, with the amount of success which has attended their efforts, we should at once have a great amount of valuable information. Nay, if they would only note their failures, which would not take much time to do, even that would be of importance. We trust some may be induced to do so; and we are sure none who do will repent the trouble.—*Gardeners' Chronicle*.

In reference to *AQUILEGIA TRUNCATA*, of Fischer and Meyer, referred to in Dr. Lawson's paper on Ranunculaceæ, as figured in the Russian publication, *Sertum Petropolitanum*, 2nd decade, 1852 (not 1846), the following communication from Prof. Asa Gray, of Harvard, is published by the *Gardeners' Chronicle*, London, 1st January, 1870:—

An *Aquilegia* from California is in the gardens, or was so a year or two ago, under the name of *A. eximia*, Van Houtte (“*Flore des Serres*,” Jan., 1857, with a coloured figure). Mr. Thompson, of Ipswich, who knows so well most herbaceous cultivated plants, ascertained that the same species had been published by Lindley in the *Gardeners' Chronicle*, in 1854, as *A. californica*. Accordingly, I called attention to it under that name in