

has been necessary, indeed, to acknowledge the existence of a science whose purpose it is to explain the phenomena, developmental and taxological, of those organisms which form the subject of the farmer's daily care; but Botany is by no means practically regarded as a science having peculiar claims upon the farmer's attention. It is believed, however, that this branch of knowledge merits attentive study on the part of scientific agriculturists, and that every advance in botanical science will exert an important influence on the processes of agriculture. Botany has a most extensive application to the industrial arts, and we have daily new evidence of its value in developing the riches of temperate, as well as of tropical lands.

So long as Botany existed, not as a science, but merely as a taxological art, whose only aim was to form an empirically arranged catalogue of Latin names, agriculturists might well be excused the profitless labour of committing these to memory; but Botany, as it is now pursued, presents the vegetable kingdom in a different aspect. Botanists no longer calculate their standing in science (as in days of yore) by the numerical strength of their Herbaria. Their great aim now is the development of a real philosophy of plants, in the pursuit of which they have identified their science with some of the great philosophical questions of the day. The plant is regarded as a living being; its anatomy is examined, its development throughout the various stages of its life carefully traced, its modes of nutrition, increase, secretion, and reproduction, are minutely investigated; its properties—useful or injurious—are noted—its geographical distribution, its local haunts, its migrations, and its susceptibility to domestication.

While Botany has thus extended its objects of inquiry, it has gained the sympathies of the public by greatly elevating the tone of its literature, and bringing it into a more attractive and intelligible form; so much so, that this is now generally recognized as one of the most attractive departments of natural science. By means of the MICROSCOPE (yesterday the toy of idle curiosity, to-day the noblest instrument of philosophy), a knowledge of all the leading phenomena of vegetable life may now be obtained by the careful investigation of the structure and development of a few individual plants, without wading through the interminable lists of names which have in times past deterred from the study those whose occupations limit the time available for such purposes. This change has brought to Botany a great accession of students of late years, and has secured its increased recognition as an important subject of general education. It may indeed be confidently recommended to the farmer (as to other

busy men) as a pleasant philosophical pursuit for the occupation of leisure hours, and as affording relief to the mind amid the cares of business. But as already indicated, it has important practical relations to the art of farming, whether we regard that part of the subject which relates to the nomenclature, classification and distribution of plants, or that which explains their ultimate structure and those physiological phenomena which form essential preliminaries to the acquisition of correct views respecting the chemical changes of vegetation; it is therefore well deserving of a high place in the education of the farmer. The purely chemical studies of our agriculturists have resulted in too strong a tendency to regard the plant as a mere machine, to which certain materials are given in the crude state of soil and manure, to be manufactured into a desired form. The delicate structure of the plant by which such processes are accomplished, as well as the whole vital phenomena attending them, are not sufficiently considered; it is essential that these be studied if our object be to facilitate their action (which is the great object of farming). The improvement and extension of our processes of cultivation must, in a rational system of farming, proceed under a general recognition of physiological laws, and must rest upon a knowledge of the nature of the action of these processes upon the vital organism. In like manner the systematic improvement of plants already in cultivation must proceed upon a knowledge of the physiological peculiarities of these; while all efforts to domesticate new agricultural plants must be made under a certain amount of botanical knowledge. To the agricultural aversion to botanical studies is no doubt attributable the neglect of those means of improving our farm plants which have in the gardener's hands borne fruit so bountiful; while it is equally certain that the repeated failures to add to our lists of known crops, arises on the one hand, from an absence of practical knowledge of the real wants of the farm on the part of botanists and horticulturists (with whom the farmer is often contented to leave the introduction of new crops), and on the other hand, from the want of a sufficient amount of botanical knowledge on the part of farmers to give them trust in novelties and the means of ascertaining those peculiarities necessary for their successful culture. Those numerous blights that prove so destructive to our crops can only be explained by the vegetable pathologist, while in like manner, the habits of those weeds that infest the soil, in some instances effecting the entire destruction of valuable crops, in others poisoning pastures, can only be properly understood by reference to the botanist, who is often able to prescribe a remedy, and save the expenditure of time

and money in needless experiments. In short, Botany and Agriculture require to be linked more intimately together, and mutual benefits will flow from the union. It must be kept in view, however, that it is more the general advancement of Agriculture that increased attention to farm Botany is likely to effect, than those less important, but more immediate results which affect the individual farmer. It is in fact national more than individual wealth that may be hoped to increase under the influence of this science.

It is proposed to illustrate from time to time, some of the views briefly indicated in the preceding remarks.

[To be continued.]

THE BEAVER

At a meeting of the Canadian Institute held some years ago, Professor Wilson read an elaborate paper on some ancient notices of the Beaver in Europe. He noticed the fact that the Beaver was at one time indigenous to the British Islands, and read some ancient notices of the Beaver. In Scotland, Frederick William, father of the Great, attempted to encourage Beavers in his dominions; and in Norway the animal was still indigenous. The large beaver traffic formerly carried on on this continent, was also alluded to. In 1788 upwards of 170,000 beaver skins were exported from Canada. But the beaver had of late been gradually disappearing. Traces of beaver villages had been found as far south as Louisiana.—Dr. Richardson describes them on the banks of the Mackenzie River—the largest and best wooded river falling into the Polar Sea. But now, throughout the whole of Canada and far beyond its boundaries, these animals are rarely found. Beavers now linger only in the least accessible waters of the North-west, and seem destined speedily to pass away from the records of living nature.

Professor Hincks made some remarks to the effect that it seemed probable that the one species of beaver existed over the whole of Europe and America in modern times.

The Chairman stated that in many parts of Canada proper, the beaver was still found. Of late years the beavers had become very numerous to the north of Peterborough; and it was likely they would become still more numerous there and elsewhere in the county. Beaver skin was now at too low a figure to induce many parties to go hunting. Skins which were formerly worth \$8 per lb. now sell for \$4; and, owing to this decline, hunters did not think it worth while to go after the animal.

Hon. G. W. Allan, in corroboration of the Chairman's statement, alluded to the circumstance of his having been sent two