NOTES OF THE YEAR.

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Mutation and variation are palpably stamped upon all things terrestrial. There is nothing of and from the earth that is not more or less subject to action and reaction, to removal and change. This statement is true also of the seasons of the year; one season differs from another, comes on earlier, is more distinctly marked, or lasts longer or later than those preceding. The distinctive features of this year have been, first, a short and mild winter, and the early activity of vegetable and insect life, and consequent early maturity. So early as the 6th day of March (when in past seasons at this date all was firmly shut up in the iron grasp of winter), a beautiful balmy spring time burst upon us, which had the effect of immediately awakening into activity both vegetable and insect life to a most surprising extent. The mission work of insects, and their beneficial services to vegetation, is now very generally admitted by the ablest and best authorities on natural history, in the fertilization of plant germs, involving the useful and advantageous work of crossing and improving varieties. It would thus appear that all are necessary in their time and place; none are created uselessly or without a distinctive purpose. The seasons of spring and summer seemed throughout a month earlier than usual. Another characteristic of this year was its intense heat in July, followed by its prevalent dampness in August and September. This dampness caused the putrefaction and destruction of very large quantities of fruit and vegetable matter, and such insects as live on these decaying substances were generated in abundance, which laboured in the removal of these noxious substances from the earth.

But it is not of these useful creatures we are disposed to complain and wage war on; it is on those who trespass on our rights and privileges, by destroying the fruits and cereals we cultivate, and on which our prosperity and wealth largely depend. The abundance of some forms of insect life are largely due to the altered conditions which settlement and the clearing of the forests have brought about. By this means the equilibrium of nature in this respect has been disturbed, while the few varieties of plants and fruits we cultivate are grown in such quantities as to supply food to an unlimited extent to the insect hordes which feed upon them, and since the abundance of insect life is usually largely dependent on the supply of food, a constant warfare is necessary to keep such as are injurious within due bounds.

In this we are helped by birds, and also by friendly parasitic and carnivorous insects. In this connection the advantages of the study of Entomology are clearly manifest, since by this means we obtain an insight into the life-history of the various species, learn their habits, and, after some observation and study, are enabled to distinguish our friends from our foes among the insect tribes, and while we wage war on those which injure us, throw the shield of our protection about our tiny helpers.

1. The Hessian Fly (*Cecidomyia destructor*), and American Wheat Midge (*C. Tritici*).

In the fall of the year 1877, throughout this country and some of the States of the American Union, there was a grievous and general outcry occasioned by the ravages of the first of these wheat insects. The small dipterous insect known by this name lays its eggs quite early, and the young larva, developed therefrom in the months of October and November, feeds upon the young growing wheat plant, and robs it of nourishment and causes it to look sickly and wither away. When these insects are present in great numbers, whole acres, and even fields of wheat, will assume this disheartening appearance. It is a great and general evil, and is clearly on the increase; but the farmers this season have taken precautionary measures, and forebore to sow their wheat as early as usual, this being considered one of the remedial measures. Many other precautionary and helpful remedies are likely to be adopted. The prevalence of the second wheat fly was not very general, and was only noticed in some specimens of spring wheat. This insect, unlike the other, feeds only upon the young and tender grains. It is to be hoped for the safety of our crops that these insects may be speedily checked in their destructive work.