

ed in this country the past and the present years, we do not suppose it has newly arrived upon this Continent. It has no doubt been present in our grain fields heretofore; but in such limited numbers, and so scattered about upon the growing grain, that it failed to be observed. It is seventeen years ago that I began to examine the wheat midge, and in looking at that and other insects upon the wheat. I recollect I have occasionally seen this aphid. But as only two or three individuals of this kind were to be found at a time, I supposed it to be of no importance, and thus gave no attention to it, until it began to appear in such abundance the past year.

Although it is a common habit of plant lice to become extremely numerous, at times, upon the particular kinds of vegetation which they respectively infest, we meet with no recorded instance in which one of these insects has been known to become so suddenly and excessively multiplied over such a vast extent of territory as has happened in our country with this grain aphid the past and present years.

I suppose almost every person in this audience has seen these insects, crowded together upon the heads of wheat, oats, barley or rye, and has observed that they are a kind of plant-louse, similar to what we frequently see upon the leaves of cabbages in our gardens, and on the apple, the cherry, and other trees. As it resembles these common and well-known insects so closely in its form, its motions, and habits, it will not be necessary for me to give any particular description of it.

With regard to the mode in which it injures the grain, I would observe that it has a slender, sharp-pointed bill or trunk, which it holds under its breast when this implement is not in use. With this it punctures the leaves and stalks of the grain and sucks their juices. It therefore has no occasion to leave the particular plant on which it is born, as it always has an ample store of nourishment directly under its feet. Hence, it has no use for wings to carry it, like other insects, from place to place in search of food. It needs wings for only one purpose, namely, to enable it to emigrate to fields of grain which are unoccupied, in order to start colonies in them. Only a small portion of these insects, therefore, acquire wings; and these fly away from the winter grain to plant their race upon the spring-sown wheat and oats.

The latter part of June, when the grain has advanced so that the heads or ears begin to put forth, two most remarkable changes occur in this insect, whereby it appears to become another creature, a different species, in the middle of summer from that which is seen in the spring and autumn.

One of these changes is in its habits. Be-

fore the heads appear, it lives singly, scattered about upon the leaves and stalks of the grain, and the young lice, as fast as they are born, leave their parents and wander away. But no sooner are the heads protruded from their sheaths preparatory to blooming and growing the kernels of the grain, than this aphid wholly forsakes all the other parts of the plant and becomes congregated upon the heads—evidently because the juices which the plant elaborates for the growth of its flowers and seeds are much more nutritious, more dainty and palatable to these insects, than are the juices which circulate in the leaves and stalks. They here fix themselves upon the base of the chaffs which envelope the kernels, and inserting their beaks, they suck out the juices which should go, first, to grow the flowers, and after that to fill and perfect the kernels. And now, the young lice which are born, instead of scattering themselves and travelling away, settle down closely around their parent, crowding as compactly together as they can stow themselves. Thus it comes to pass, that when these insects are numerous, as we have recently had them, in many of our grain fields, scarcely an ear can be found which has not a cluster of these lice around the base of almost every kernel, all with their tiny bills inserted therein, pumping out the juices which should go to swell and perfect the seed. Thus, this grain aphid from being a solitary insect, wandering about singly upon the leaves and stalks, becomes a gregarious insect, clustered together in flocks, and remaining fixed and stationary upon the lower or butt ends of the kernels.

At the same time, another change, equally remarkable, takes place in the color of these insects. So long as they nourish themselves on the course juices of the stalks and leaves, their bodies are all of a grass-green color. But when they come to feed on the more delicate juices of the flowers, they begin to bear young of an orange color. One of the grass-green insects having stationed herself at the base of a kernel, the next day, in the group of little ones around her, a yellow one will occur, all the others being green like their parent. A day or two later, as the nourishment she derived from the leaves becomes more dissipated from her body and replaced by that now obtained from the kernels, half the young she produces will be of this yellow color. And still later, all the young are yellow, no green ones being any longer born. And the older ones after a time dying and disappearing, all these insects some weeks before harvest time, become changed to a yellow color, their hue inclining more to red in some and to yellow in others.

It is truly curious that this green insect, thus, on coming to feed on the juices which