

of land well adapted to the cranberry, I believe there is no danger of overstocking the market.

Very respectfully,
S. H. COMINGS.

Also the following essay on the Phylloxera and grape rot was read by the Secretary, in the absence of the writer, Prof. A. J. Cook, of Lansing. He says:

It is well known that the subject of black rot in grapes, for years the cause of some anxiety, has of late become a matter of the most serious consideration in some parts of our own and contiguous States. Since 1864 this evil has been rapidly increasing, not only reaching out to blight new vineyards, but also clutching in its withering grasp many new varieties. It is a question of no small moment, whether there is any relation between this fatal rot and the insect known, at least in some regions, to be the arch destroyer of the vine.

As I shall show in the sequel, there is some reason to believe that these hold the relation of cause and effect. The Phylloxera, by its withering presence, so destroys the vigour of the vines that they fail to ripen the fruit, and as a result we find black rot among the grapes. Without doubt the Phylloxera, so destructive in Europe, is an American insect of quite recent importation into Europe. That it has been sucking the vitality from our grape-vines during the past is a fact beyond question. The insect is polymorphous, or exists in several forms.

In every form each louse is exceedingly small, appearing to the unaided vision as a mere speck of matter whose vitality would hardly be surmised except as it is seen to move. One form is smooth, oblong and yellow and only works—at least this is probable—in galls on the leaves. These galls are very noticeable, sorely marring the appearance of the leaves, and are caused by the presence of the lice. Within the galls the eggs are laid, and the young lice brought forth. These gall Phylloxera are agamic, that is produce without males, and apterous.

Another form—the root form—are greenish yellow, oval in form, and not smooth but covered with wartlike projections. These too are agamic and apterous. These by their punctures and sucking proclivities cause the root to appear knotted and to die, the plants to decline, and when the lice are very numerous, to wither away, and I have reason to believe they may at least cause the black rot.

In summer another form appears, the progeny of these agamic root-lice with wings. These come forth, and by flying to other vineyards to deposit eggs, spread this terrible evil with a rapidity not otherwise possible.

Hence we see that the presence of these pests in our vineyards need not be a matter of conjecture only, for while the insects are mere specks, either the galls on the leaves or the knots on the roots give quick indication of the dreaded foe.

I have come to the conclusion that the Phylloxera causes the rot by obstructing the sap, and so lessening the vigour of the vines that they are unable to ripen all their fruit, and thus many grapes wither. This sapping of the vines, too, very likely induces excessive fruiting. As in all organic nature, the weak and the feeble are more prolific, as if expecting their near demise, thus the Phylloxera not only sows the seeds of destruction but induces a condition in the very habit of the vine. That the lice are the first cause in some, if not in all cases of black rot, seems evident from the fact that their presence or absence is sure evidence of the presence or absence of rot.

Of course I would not say that black rot never occurs except as a sequence of the enervating attack of the Phylloxera, as they indirectly cause it, by depleting the vitality of the vines. Yet we have good reason, I think, to prefer strong charges against this minute, but powerful destroyer.

J. C. Holmes, of Detroit, sent a letter to the Secretary, relative to this same subject, and in it he says:

"You know that the grapes in some of the vineyards at Grosse Isle were, in some way, the last summer, destroyed before coming to maturity. I see by the papers that Prof. Cook thinks the state of the atmosphere, want of drainage, etc., had something to do with the destruction of the grapes. Perhaps it is so, but I think the Phylloxera is a