that it will crack if left to get a little over ripe.

All things considered, I believe it to be the most valuable gooseberry that has been fully tested, for this country, either for home use or market.

Downing, fruit large very good, light green, a strong grower, not as productive as Smith's Improved, nor as hardy, mildews with me on sandy loam, but not on clay loam. Not easy to propagate from cuttings, requires to be layered.

Houghton has been more largely grown than all other varieties; it is small, red, very productive, and when grown on young healthy bushes, on good strong soil, and good cultivation, it is of quite good size.

It is so hardy and productive that it is still a very valuable sort for market.

W. W. HILBORN.

Arkona, Jan. 30th, 1886.

WINTER-KILLING OF THE ROOT.

MR. EDITOR,—Allow me to add something to the practical and sound advice of our old and esteemed friend, Mr. A. M. Smith, of St. Catharines, given in November number of the *Horticulturist*, on the subject of prevention of root killing of fruit trees and vines by exposure to extreme cold during winter. It appears to me that if Mr. Smith had first explained the reason of the injury more definitely before giving the preventive, his already able article would have been still more effective in moving our fruit growers to action in making use of his advice in the matter. In our experience and observation in the matter of grape root killing, we have noticed that those varieties, the roots of which are most fleshy and less fibrous and wiry, are more susceptible to injury in cases of exposure to sudden freezing and thawing, from the very fact that the cell structure is more easily broken. Just as we find the potato more easily destroyed than the apple by freezing and thawing on account of the lack of tissue or fibre in its cell structure, so we find some varieties of fruits of all kinds more subject to injury from the above mentioned cause than others on account of the difference in the cell structure of the root. Of course the varied conditions and situations and exposure, all go to give different results and degrees of damage. For instance, in grapes we find the Niagara root very fleshy and with very little fibre, so much so that when we were ploughing to our vines last fall great bundles of Niagara roots would gather on the plough coulter, and when taken and bent between the fingers would snap off in pieces half inch in length without any sign of fibre, while some other varieties with tougher and more wiry roots could scarce be broken at all. Now it is quite generally known that when apples, potatoes, or any other vegetable with such lack of tissue or fibre are frozen, that if the process of such freezing and thawing is allowed to occur rapidly, then the cell structure is sure to be much worse injured than if allowed to freeze and thaw more slowly. If this be true theory, then our friend's advice is just the remedy, or rather preventive, of the injury such roots are subject to. And according to the old adage, an ounce of prevention is worth a pound of cure. So fruit growers generally will find it much to their advantage to protect such tender rooted varieties by covering the roots to a distance of two or three feet around the base or trunk of such trees or vines with coarse manure, or by sowing rye thickly about the first of September, after first ploughing to them (as our friend, Mr. Smith, has advised) and thus prevent injury by retarding the process of freezing and thawing. For if the cell structure once becomes broken, then the passage of the sap