President—It is the general statement through Wisconsin that it is the biggest and best berry grown.

M. Pierce—You will find, gentlemen, that the soil has much to do with it.

Geo. J. Kellogg—With my first planting of the Marlboro I found it small, and I plowed it up, but after hearing so much about it from the big growers in this state, I tried it again and my experience is about the same as Mr. Harden's and I have neither sand nor clay soil.

E. J. Schofield—My experience is the same as that of Mr. Kellogg and Mr. Harden; on my soil the Cuthbert will discount it every time.

Fred Hanchett—We lost lots of money on the Marlboro; we lost it by not increasing our plantation by planting out Cuthbert and Turner. We tried the Marlboro on all kinds of soil:

J. D. Searles—When you meet in Sparta, as I hope you will some time, we will be able to show you that the Marlboro is the biggest and best berry grown.

M. A. Thayer—The question of plant distribution I have considered, for a number of years, to be the greatest thing for the advancement of this society. I have been informed that there are gentlemen here who are trying to discourage that distribution. I am anxious to have the committee who has that matter in charge, report favorably on it. I wish the society would do as I recommended last year, let other growers contribute.

The Thayer fruit farm will donate ten, fifteen or twenty thousand plants if other growers will donate. Let them be placed in the hands of Mr. Herbst, our corresponding secretary, to be sent out. I believe if this society votes to discontinue the distribution it will take a back step.

HORTICULTURE IS PROGRESSING.

D. E. Bingham, Ithaca.

True progress is shown by better results.

There is no doubt but that there are now in existence better
varieties of fruits than ever before known, while we still have as many of the old kinds as we choose to retain. In the matter of cultivation and management the selection of suitable sites and soils, we have the accumulated experience of all those who have gone before. And yet a great deal of what has been published as experience and advice is more or less puzzling to the amateur fruit grower. Let us consider some of it and see if it does not seem to be more like individual notions and hobbies than true progress.

Let us go to the strawberry bed. Some say, "keep off all runners from newly set plants until July 20th or August 1st, after which date all runners are let grow so that all new plants are grown for the next year's crop of fruit after those dates." Others say, "let all first runners grow." On the first plan I would be puzzled to know how to get a good bed of plants where the latter part of the season is very dry, as has been the case for the last two years; and if we should have a favorable season for late growth it is a question if many such plants would not be too immature to ripen their fruit buds, and too weak rooted to grow their fruit well the following season. On the other plan, allowing all first runners to grow, I am not sure but that, in a favorable season, the plants would be so thick when the growing season was over that they would crowd each other and less fruit would be the result.

Some say, "leave winter mulching on to keep berries clean and weeds from growing." No fertilizing or cultivating is done until after fruiting. In case of a cold, wet spring, there is a loss or damage of fruit by the retained mulching. So while we are progressing in strawberry culture we are not quite sure which way we are going, whether it is up hill or down.

Now let us go to the blackberry patch and see if we fare any better. It is generally advocated to pinch back the young sprouts to increase fruiting surface and to make the bushes self-supporting. The question arises, can we grow the same amount of fruit on three bushes pinched back, that we can on five grown on nature's plan? It is considered more difficult to protect stocky branched canes than those not branched.
When bushes are protected, wire supports are always used, and I am sure I would rather handle and wire up five slim, unpinned canes than three pinched, stocky ones. Horticulture is progressing somewhere along these lines of practice, but which is the best one, I will leave for the experimental station to work out.

As I haven't time to dwell any longer on blackberries, let us plant a tree. Here is a lately published plan. "The great secret is to guard against leaving air spaces in the soil around the roots; pound the dirt down tightly, pounding as hard as you would to set a post. When filled nearly level, pour in one or two pails of water, then finish filling, but do not pound as hard as before." Here we might pause and note the rate that horticulture must be progressing where such practice prevails. I might state, however, that this is not the advice of one of our Wisconsin horticulturists.

Before we leave the tree we are told to tip it over to the southwest about forty-five degrees, and if exposed to a southwest wind, tip it more, perhaps fifty or sixty degrees. I should think an orchard planted like that would look tired, and as if it wanted to lie down and rest. But we are told that by the time the trees begin to bear they will be standing up straight or leaning the other way.

There is another thing about planting trees that shows how horticulture is progressing. Two or three years ago, Mr. A. D. Barnes advocated the planting of a white cedar to the south of each apple tree to protect it from sunscald. Last spring at the closing farmers' institute, he seems to have progressed so far as to leave his white cedar and take cedar slabs, which he nails to the southwest side of each tree, with two six-penny wire nails. This must be done when the tree gets large enough to attract the rays of the sun. At what particular size and age this attraction begins, I can hardly guess. I am glad that the exact kind of nails to use was stated, though we would be at a loss to know what to do if the slab was too thick for the nails to reach through.

I suppose we ought to be thankful to find out that borers don't work in the shade, and perhaps we should be glad to
know that lath tree protectors scare the beetle away so that they won't get to the tree to do their injurious work. Such positive assertions as are made in regard to the merits of tree protectors must show that horticulture is progressing.

Still I am puzzled to find what looks like sunscald on twigs of a single summer's growth before they have been exposed to the winter sun, which, it is claimed, sours the sap and produces that bad look on the southwest side of trees. And yet some good apple growers of this state say, with a splendid show of reason, that the so-called sunscald is evidence of neglect and does not occur on trees in good shape. In my opinion sunscald is the result of neglect. Perhaps you all remember the old disease of cattle called "hollow horn," we might say that it resulted from a hollow stomach, and so with sunscald, it results from sheer neglect, for I have never noticed it on trees in good condition.

This sunscald scare is a popular fad just now among nurserymen, and some very absurd notions about it seem to get into print.

One of those notions is of planting so one tree will shade another. Mr. Barnes advises planting in broken rows fourteen feet north and south, by twenty-one east and west. This quincunx planting is an old notion that possesses no merit that I can discover, and certainly not that of protection from sunscald, for examination shows that the amount of shade that one apple tree can give another can have no more effect on sunscald than a fog horn on the weather.

Now we are ready to progress to the next phase of this subject which is close planting. From the earliest recommendations of this society to the present, I find that twenty feet each way is recommended for apple trees. This is at the rate of one hundred and eight per acre; this gives each tree four hundred square feet of room. Mr. Barnes' plan reduces this to two hundred and ninety-six square feet per tree, or one hundred and forty-eight per acre. When he puts in his cedar by each tree he has only one hundred and forty-seven square feet for each tree and two hundred and ninety-six trees to the acre.
I have observed for several years, the difference in quality of fruit grown on trees crowded for room, and those standing alone, or having all the room a tree requires. The per cent. of marketable fruit was much larger on trees having room enough, than on those that were crowded. I think it is much better to pick five barrels of good, marketable apples from a tree than three barrels of poor apples, unfit for market.

In my opinion thirty feet is near enough to plant apple trees, especially for those wide-spreading varieties. If planted thirty feet apart each tree would have nine hundred square feet. This would be forty-eight trees per acre, or about one-sixth as many as Mr. Barnes recommends.

If there is any true progress in sunscald notions, tree protectors, close planting, etc., I have failed to discover it, and I patiently wait to be enlightened by your superior wisdom.

There is that old notion about some one's uncle down in Ohio who took a bud from a sour apple tree and another from a sweet apple tree, and split them, joining the sour to the sweet, and grew an apple, one side sweet and one side sour. This story is always so earnestly told and I have heard it so often that I feel sure it must be true. Of course, it could not happen in Wisconsin for our blossom buds will persist in producing a cluster of flowers. That would make it as difficult to perform this miracle as it would to split two eggs and produce a cross between a Shanghai and a Leghorn.

Then there is that old lady who knew how to grow plums. She lived down in Ohio, too. Her plan was to pound the bark off the tree next to the ground so the gum would not go up the tree and form on the fruit.

But notwithstanding all such notions and hobbies, horticulture has made great progress in some ways. It has progressed from the codling moth trap and bands to the Nixon spray pump, though I am not prepared to say that even the spray pump must necessarily exclude those old ways of protecting fruit trees from moths.

In passing by old orchards we notice that some trees are doing better than others; this is evidence of progress, for we can by this difference, decide what varieties are worthy of propagation.
This choosing by nature "the survival of the fittest," although sometimes rather severe, will enable us to make true progress if we heed the lessons so generously given by the pioneers of horticulture.

A GREENHOUSE FOR FARMERS AND FRUIT GROWERS.

Frederick Cranefield, Madison.

It is not my opinion that every farmer and fruit grower in Wisconsin should build a greenhouse; but that many of them could build one and make it a profitable investment. The name greenhouse suggests to many people an elegant and expensive structure with brick walls and iron-frame roof, with an elaborate system of steam heating, and stocked with choice flowering and ornamental plants. The greenhouse that I propose to build for you is to be built on an entirely different plan. The brick walls and steam heating plant will be conspicuous by their absence, and instead of palms and tea roses you will grow lettuce and tomatoes. Fresh vegetables in winter are an expensive luxury, but at present the demand for them greatly exceeds the supply. We, who are growers, should investigate. The first thing to be considered by one interested in the subject, is the market. In this connection it is well to remember that there are other means of locomotion than horses, and that it is not necessary to be within an hour's drive of the city, but if you are located within five or six hours, by rail, of a city of any considerable size, it will pay to consider this matter. Regarding the cost, Peter Henderson and other greenhouse men, when giving estimates of the cost of greenhouses, say that houses of average width, complete, with heating apparatus, will cost from twelve to fourteen dollars per linear foot. According to this estimate, a house ten by fifty feet would cost $600. I will give you an estimate for a house, suitable for forcing vegetables for winter market, that will cost less than $200, complete with heating apparatus and work room. I do not wish to be understood in this, as ad-