on us." An Arctic blast may chill the life out of kinds that we now deem invulnerable. But "sufficient for the day is the evil thereof." We do raise good fruit, and that is more than our faint-hearted neighbors can boast of.

If our people could be induced to take and read more Agricultural and Horticultural books, and in addition to home journals, papers like the Western Farmer, Prairie Farmer and kindred publications, there would be a great change for the better among the masses. There is nothing like the independent, practical, honest press to educate the people, and Brother Plumb and his co-laborers are doing a good work. May they be encouraged, for they earn all they get.

Our local and state horticultural societies are a power in the good work, and should receive liberal aid from the state, and no bill in the legislature last winter received a heartier "aye" from me than the one giving the state society the pittance asked for. It ought to have been doubled. So with the state agricultural societies, and the grant ought not to have been rendered worthless by being loaded down with inconvenient, if not insulting conditions.

There is an increasing desire on the part of our own people to obtain the publications of our state society, and greater facilities should be afforded for their more general dissemination. Also, lecturers are needed, and a moiety of the funds now appropriated to enable a few gentlemen to occasionally parade the streets of our cities and exhibit their ball coats and brass buttons, to the great wonder and delight of the small gamins and envy of the bigger ones, could be profitably expended in paying such lecturers. While the cities could be no worse off, the country would certainly gain by the economy.

CLIMATIC CONDITIONS OF THE YEAR 1883, IN THEIR RELATION TO THE APPLE.

By J. C. PLUMB, Milton, Wisconsin, Green Bay, December, 1883.

One of the most interesting phenomena of the past year from a pomological stand-point, is the general failure of the apple crop, within a wide area, known as the most natural apple region of our country.
This area may be roughly outlined, as that between latitude 40 on the south, and 44 on the north, or a width of four degrees, about 280 miles, extending from the Missouri river to the Atlantic sea board.

This limit in our meridian may be stated as reaching from Champaign, Illinois, to Oshkosh or Menasha, Wisconsin, on the north. The width of this belt is often variable, but marked enough to call for special investigation as to the cause of this general and remarkable failure of the apple crop within this area the past season of 1883.

I say remarkable, because in the last thirty years of my experience in the west, as my memory now serves me, no such wide spread and general failure has before occurred, and all the more remarkable, because within the last twenty years there has been great advance in the art and practice of growing this fruit. New varieties have been introduced, having largely increased adaptation; better locations have been chosen for orchard sites; more intelligent ideas of, and increased facilities for destroying insects prejudicial to this fruit, are now well known.

And yet we have this great dearth of apples, while to the north of this belt we find a full average crop was produced, and south of it we find the same, and in some cases much more, and that following the excessive yield of the previous year, 1882.

So far, my extensive reading goes to show that this remarkable phenomenon is yet unaccounted for by any writer since the fact became known.

In my investigations of this subject I have brought up in turn the ordinary influences which are known to affect the apple in the following order:

First, spring frosts; second, insects; third, want of vitality in the tree; fourth, infertilization; fifth, mis-nutrition.

First. Was it spring frosts affecting the embryo fruit at or soon after blooming? If so, then we might reasonably expect the hill tops and water slopes, which are always least affected by untimely frosts, to have have produced the most fruit. On the contrary, sheltered locations gave the most, and that most perfect.
Second. Were destructive insects uncommonly plenty? It is well known that the year following an abundant crop of apples, is the time to expect an overflow of insects which prey upon that fruit, for the reason, that in the fruitful year they breed with comparative security and with great rapidity, and so come forth the next year in corresponding numbers and vigor. But as 1882 was not a year of great abundance of apples in this belt, we saw no great destruction by them, until other causes intervened to shorten the crop this year. So while insects were “in at the death,” as usual, the general failure cannot be laid to their charge this year.

Third. Were our trees weakened by the very severe winter of 1882-3? Undoubtedly they were; many of them, unusually so, but not this even can account for the barrenness of the Siberians and hybrids, which are among the hardiest of the apple species, while the Golden Russett, not even an ironclad, bore almost its usual crop throughout all this region. The winter of 1881-2 was not in any sense a very severe one on fruit trees in our state, and yet the Siberians, as a class, failed to perfect their fruit, giving us even less than the half hardy apples. In 1882, both Michigan and New York had less than a full average crop of apples, and in both states there was, this past season, the most entire failure ever known in that crop. I have not heard a word from any fruit grower in either of those states indicating a debilitated condition of the tree, as the cause of barrenness.

If weakness from the effects of winter were a cause, then why do we find such a show of fruit at this meeting from Minnesota, and why the grand display which that state made at the meeting of the American Society, at Philadelphia last fall, which was nearly all produced north of this barren belt which I have described to you. There were, no doubt, cases, in which overbearing last year was a good and sufficient reason for the short crop this year, such being the case with the orchard of friend Phillips, in La Crosse county, and which lies just on the border of this belt, but not so the great mass of the barren orchards within this belt.
Fourth. Three common causes of barrenness, either separate or combined, failing to account for the short crop of apples the past season, we turn to the most potent and yet more subtle and often least suspected of any.

INFERTILIZATION.

The principles involved in the pollination of plants are well understood and defined, and the laws which govern it are taught in all our higher schools. But the processes are so quiet, and dependent upon so many conditions that few can trace them to their success or failure. When all other conditions fail to prove a sufficient cause for the absence of fruit, we may well inquire as to the efficiency of this process in the case in hand.

So we turn to this as the first great cause of the barrenness of our apple trees the past summer within the belt described.

The atmospheric conditions of successful pollination of the apple are warm sunshine and gentle showers, which favor both the proper secretions of the organs of the flower and its distribution mid-air, or by the help of insect life.

We are told that the apple blossom is especially dependent upon insects for its proper fertilization; some varieties being so weak in staminate action as to require the help of other and stronger flowers, which they get mainly through the help of insects which flit from flower to flower.

Now, were the atmospheric conditions favorable to these processes last spring at blooming time? I find on referring to my record, that we had from the 16th to the 28th of May but one day in which pollen of the apple would develop, or in which bees would carry it from flower to flower, which was the 24th. This was my judgment at the time, from frequent observations. There were in that time stated seven days in which a cold rain fell, or of cold, cloudy weather, and similar conditions doubtless prevailed over the entire north.

As the result of this want of fertilization, the young fruit did not set as profusely as usual, and that which did form seemed lacking in some essential of success, and most of it fell to the ground before the apple worm had made any serious inroads upon it.
Now, you may ask, why did not the apple north of or south of that belt suffer from the same cause? In answer to which we reply, simply because the bloom was not out during the period of unfavorable weather north of the belt, and south of it the blooming was passed. In other words, both sides of this barren belt had more genial skies during the critical period of fertilization.

From the 24th to the 30th of May inclusive, we had five days out of the seven, most favorable for pollenization, and we found that the section where the apple would be in bloom during those days produced an abundant crop of fruit. On the other hand, from the 7th to the 16th of that month there were five days or more of favorable weather for the apple bloom; hence, the usual crop of fruit in southern Illinois.

Unfavorable general conditions of weather seemed to continue at spells through all the early summer, and consequently nearly all varieties of apples were checked in their leaf growth, failing to make well developed foliage, and here we have the fifth cause—want of nutrition. Such half-formed, imperfect foliage could not assimilate plant food, neither for the tree nor its fruit, and consequently, those varieties which did set young fruit well could not hold it, and a common remark was, "our apples don't grow any." This was truly the case until the hot, dry weather of August came on, which soon gave a better foliage and enlarging of the fruit rapidly.

This was the case with our St. Lawrence and Golden Russet, but the former, with most of the earlier varieties, lost its fruit when less than one-fourth size, while the latter held its fruit as before stated. This effect of too much cold, wet weather in early summer, was seen more plainly in the nursery, where some of our most vigorous varieties of both apple and crab, under high culture, failed to make more than one-half the growth usual to them, while other varieties seemed at home and threw whatever the weather might be. Such was the Duchess and Hyslop, but the same varieties failed to fruit generally in this belt.

So we have this last cause of failure, closely allied to that
of infertilization, as nutrition follows germination in the
natural order of progress in life.

I know that most of our observers will ascribe this fruit
failure to the "blight," and showing its presence at that time
will rest their case there, against the universal bacteria. But,
believing as I do, that blight is not a primary, but a second-
ary cause, which is dependent upon peculiar conditions of
climate and soil, and vital force in the plant for its exten-
sion, and its power to injure the plant, I look upon its ap-
pearance as the result of, or the concomitant of these various
unfavorable natural conditions which weaken the plant, and
load it with morbid matter, when it becomes an easy prey to
this universal scavenger, blight.

It would be an interesting study to follow next year, the
same line of observations, and also to note the effect on the
health of the tree, and its fruit bearing next year, both as a
result of this year's affection and the next year's causes. As
horticulturists we need to know all the conditions of success
or failure if it be possible, that we may overcome them,
evade them, or bear more patiently what we cannot help.

This paper was designed to be more suggestive than dis-
coursive, therefore we trust you will give the subject your
most careful attention.

THE NORTHERN AND THE SOUTHERN HOME.

By Mrs. Ida E. Tilson, West Salem, Wis.

The chances are that a northern visitor's first impressions
of any part of the south will be disappointing, though, of
course, each person will see with somewhat different eyes.
Oranges, palms, magnolias, camellias, and even wild flowers,
do not grow in such profusion as expected. One need not
go far beyond New Orleans to find dismal marshes, nor much
further to sandy barrens. The streets of Jacksonville, at no
great distance, end in palmetto scrub or pine woods.
Log huts and primitive looking premises are not unknown
round about Nashville. Yet quaint New Orleans recalls
oriental tales and pictures, lovely Jacksonville is the Florida