



NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post-Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason, that course seems desirable. 3. Do not expect anonymous communications to be noticed. 4. Mark letters "Printers' Manuscript," leave open, and postage will be only 1c. per 1/2 ounce.

### Making Superphosphate from Apatite

SIR,—In the March number of your valuable paper "Enquirer" asks for information about making superphosphate of lime from "apatite." As the term apatite may not be so well understood by our farmers as it should be, we may explain that it is a mineral phosphate of lime, and is chemically composed of the same elements as bones, and answers the purpose as a manure. It is largely found in the vicinity of Ottawa, in Kentucky and other Southern States.

In its natural state apatite is no more available for plant food than other stone, but by chemical action it becomes a valuable manure; and it is about this action that Enquirer desires information. But before giving this information it will be necessary to state that this phosphate of lime exists in three different combinations with phosphoric acid, and is known as the mono-calcic, bi-calcic and tri-calcic. This last, the tri-calcic, is apatite and not soluble. The value of any one of these applied in agriculture depends upon the quantity and condition of the phosphoric acid it contains. The apatite contains three atoms of lime and one of acid; the bi-calcic two atoms of lime, one of water and one of phosphoric acid; the mono-calcic, or the superphosphate Enquirer wants to make, is one atom of lime, one of water and one of phosphoric acid. Enquirer will see there is the same amount of phosphoric acid in each but in different combinations. The two latter are available as plant food, however, and the former is not. It will be noticed that water has taken a prominent place in the change. Now the change from the tri-calcic or apatite state to the bi-calcic and mono-calcic forms may be brought about by the action of sulphuric acid. But this may produce, according to its application, the bi-calcic form or the soluble, or mono-calcic or superphosphate Enquirer wants.

The production of one or the other will depend upon the strength of the acid and the length of time it is allowed to remain in solution. For 100 pounds of apatite 50 pounds of sulphuric acid, of 96.8 per cent. purity, is plenty and a little over, but plan in trying your first experiment to have enough, put this on your ground apatite and apply water sufficient to cover the material completely, and keep adding afterward as absorption takes place. In a couple of days the apatite will be reverted phosphate or bi-calcic, and in an available shape; but it will take four or five days to make it soluble and a proper superphosphate, or in the mono-calcic state. Mixing this with about its own weight of gypsum would get it into a better shape for handling, and also greatly enhances its value as a manure.

A READER.

### Manitoba.

SIR,—Up to the present time we have had a beautiful winter. Sleighing commenced about the middle of November, and since then we have had the most delightful sleighing where there was enough traffic to beat the snow. We have an average of 12 to 14 inches of snow on the level.

As we had a large immigration into this part of the country last season, there are a great number of improvements going on this winter.

We have a fine settlement here, principally Canadians. Nelsonville is a flourishing little village of scarcely a year's growth, and contains a post-office, two general stores, a grist and saw mill combined, blacksmith shop, shoe shop, parsonage, land office, carpenter shop, a number of dwelling-houses, and we have a doctor.

J. G., Nelsonville, Belmont, Man.

### Raising Geese.

SIR,—I would like to know if you could tell me how to raise geese. I have been trying for many years, but to no effect. When they are about half grown, or when they begin to shoot their quill-feathers, they seem to take some disease and wander from the flock one after another, sit in some secluded place for perhaps a day, and then die. In the course of ten days I have lost my whole flock of perhaps nearly a score; their dung is slimy and bloody. I have tried to raise them where there was a fresh stream of water, and at other times where there was none only what I gave them. I have tried them on green, wet food and also on grain of different kinds, but all to no purpose.

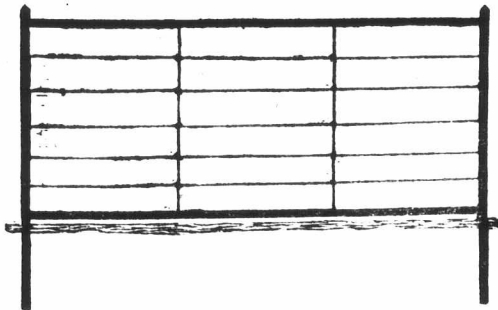
So my last resort is to call upon you for a remedy, as I see you have a cure for almost every disease. Please answer in your next issue, and oblige a subscriber. J. D., Napier, Ont.

[We think that the fault must be in breeding in-and-in too much, and would recommend a change or cross of stock.]

### Fencing.

SIR,—I send you a few lines on the Stock Law, Wire Fences and Shade Trees. It is a fact admitted by almost all farmers that there should be something done to prevent stock-running at large. However, until farmers are willing to start the soiling system I don't see how they can do without a fence along the road, to keep their own stock in and also to guard against droves driven along the road.

I send you a rough draft of a fence we put up two years ago, which I think far better than any



wire fence I have seen recommended in the papers. The posts are flattened on two sides (except three feet that goes into the ground), and are 12 feet apart. A straight rail is morticed in at the top and bottom, and the space between is filled up with number six wire. Four feet from each post is a hole bored through the bottom rail and number nine wire fastened in it and wound around each strand of the wire in the fence, also through the top rail and fastened. This makes a splendid stock fence, and also a complete preventive of snowdrifts, which have proven so troublesome all over the country this winter.

If farmers could be induced to build such fences in front of their farms, and set out shade-trees every twelve or fifteen feet, they would be enhancing the value of their own property, facilitating travel and beautifying the country; besides, when the trees grew up they would have live posts.

R. McL., Blythwood.

### Soaking Seed in Pickle.

SIR,—I read an account in your Jan'y number of soaking wheat in pickle and warning others not to do the same. Now I think the writer is wrong. I soak my wheat every season and my father did the same in pickle that would float a potato, and left it over night in the same, and our wheat never missed. We always dried it in lime or ashes. They do the same in England and Ireland; they also float their seed oats.

On another occasion I noticed a paragraph advising us to keep cows in the barn until the dew is off the grass. This is all right in frosty weather.

D. D., Dartmouth, N. S.

[The item in regard to pickling seed-wheat here referred to was a report from "N. B." St. Croix, of the result of his using the pickle. He offers no explanation. The pickle might have been too strong, or the seed might have been unfertile from the germ having been killed or not matured. In referring to an article in the ADVOCATE the number and page should be given.]

### The Orchard.

SIR,—As regards the question of the bearing years of apple-trees I can only say I have no faith in odd or even years. As a general rule, when fruit-trees come into bearing they are allowed to bear at will, so that after bearing one year they require to rest the next year to recover their strength.

All the standard and many of the dwarf trees, both apple and pear, in my orchard were procured at the same time from the same nursery, in the fall, and planted out the following spring. They did not all come into bearing the same year, but when they began to bear they have borne every other year since. I do not expect so large a crop this year as I had last year, because the greater number of the trees bore well last year, and consequently I do not expect them to bear well the present one, however favorable the weather may be. Those that did not bear well last year did so the year before, and will again this year, provided the blossoms are not nipped by the late spring frosts.

My orchard is planted on nearly level ground, above a hill fronting the east, and exposed to the full sweep of the north and north-east winds from the Georgian Bay, yet I have never had a single tree of any description winter-killed, nor have I had any blight on my dwarf pear-trees, of which I have several varieties, and amongst others the Sertel, which appears the most unsuitable of any variety for this section of the country.

Whether or not a liberal top-dressing of stable manure every fall would enable the trees to bear every year I cannot say, as I have not tried it. All the manure I can make is required for the farm crops. I have had the orchard in cultivation ever since I planted the trees in 1865, but last year I laid it down in orchard grass and clover.

Black-knot among the plum-trees is not unknown in this part of the country, but the curculio is yet unknown and I trust will long remain so. The early snow, which froze as it fell in October, has inflicted some injury to the fruit-trees in nearly every orchard in this township, and the high winds in the fall shook down a large quantity of fruit and bruised a great deal of what was left before it was gathered. Some complained of their apples rotting on the trees, and also of their decaying some after they were gathered. I am inclined to attribute this to the excessive heat which ripened them prematurely; and the dry keeping apples such as Russets appear to have suffered most; but it does not necessarily follow that we shall have early falls of snow and heavy gales of wind early in the fall every year.

I notice that the M. P. P. for North Grey has introduced a bill in the Ontario Legislature to prevent the black-knot in plum-trees; he might as well have included the tent caterpillar and codling moth, which infect the apple-trees, at the same time, as I do not see how an Act of Parliament can prevent one more than the other. From all I have learned about the black-knot, the only way to eradicate the evil is to destroy the infected trees root and branch, and to plant only those varieties which are not liable to be affected by it; but how is such an act to be enforced? We have an act to prevent the destruction of insectivorous birds, but those who wish to have it enforced content themselves with writing to the newspapers and calling on the authorities to enforce it. Such persons ought to consider that no magistrate can act except on information laid before him. So it is with respect to Canada thistles and shoddy peddlers who sell without license—and yet farmers prefer to be imposed on rather than summon the offenders before the nearest magistrate. In fact, if people cannot be induced—even by considerations of self-interest—to protect themselves, it is their own fault alone, and Acts of Parliament, however stringent, cannot help them.

SARAWAK.

### The Pea-Bug.

SIR,—You will oblige me and your readers in general if you can give some remedy for the pea-bug in the next number. Is there any kind of powder I can apply which will kill the bug and not hurt the pea?

F. B., Mitchell, Ont.

[Scald the peas for three minutes by dropping them into scalding-hot water. The bugs will be killed, but the peas will not be injured, unless allowed to remain in the water longer than the three minutes.]