Miscellaneous.

Finding Water—A Simple Well Auger.

The continued prevalence of empty cisterns and dry wells prompts me to give your readers my experience in water finding, which, not being patented, costs them nothing but the perusal.

About fifteen years ago I came to Chatsworth, Ill., then a railroad station with but one house. The country was thinly settled, and the season had been unusually dry. We had but one well at the station, and that scarcely supplied sufficient water for drinking. Water must be had, and I had not the remotest idea how deep I would have to go to find it. All the methods of boring I had ever witnessed were decidedly too expensive to suit the condition of my finances, and digging without knowing how deep I would have to go was risking more than I cared to invest in such a lottery. In this dilemma, I concluded to try a plan of my own. I accordingly made a pod auger that would bore a hole about two inches in diameter. On the upper end of the shank of this auger I made an eye that would receive a half inch hook, then taking several rods of half inch round iron, I shrank hexigon nuts on them at intervals of about two feet, to prevent my hands from slipping, while pulling the auger up. I then made a handle about two feet long, that could readily be fastened anywhere on the rods, and with an eye turned on one end of each rod, and a hook on the other, I was prepared to go to boring.

With this apparatus I bored to a depth of sixty-four feet in one day, when I found a good vein of water. The last three or four feet, however, consumed nearly one-half of this time, as I found a kind of hard pan directly over the water, which would not slip on the auger, but adhered to it so tenaciously that I could only bring up an inch or two of it at a time.

I subsequently tried in other places, but failed to find water any nearer the surface of the ground, but I was prepared to go to digging with some degree of assurance that my labor would not be thrown away.

Since then I have always kept an augur of this kind, and as hundreds of farmers can testify, it is a water witch that can always be relied upon. Any blacksmith who knows how to make a pod auger can get up a rig of this kind at a trifling expense, and it will be the most profitable investment, for a small one, that he can possibly make, as it costs but little to keep it in order, and almost any farmer would be willing to pay fifty cents or a dollar for the use of it to find water, before commencing to dig a well.

When boring with an auger of this kind, a man should never stop until he gets as deep as he intends to go, as surface water may come in and interfere with his work. And when he strikes a vein of water he should be particular to notice how quickly it rises, as a good vein will rise almost instantly, while water that comes up slowly is not worth digging to. While boring, there should always be about six inches of water kept in the hole, but if too much water is used, it will create slush, and render the auger hard to pull out. If, while unhooking the rods, one should be accidentally dropped in the hole, it can be recovered by bending one of the hooks to one side, which will enable it to catch on a corner of the lost rod, and bring it up, or, what is better, a short rod, with the hook bent in this manner, might always accompany the auger, to be used in case of necessity, and thus save bending the rods. Such an accident, however, can only occur through carelessness, as the rods cannot possibly unhook while in the hole.—*Cor. Western Rural.*

Vegetable Philosophy.

Each seed, bud or young plant is an individual living being. As it passes through its periods of youth, maturity and reproduction, it must be fed and nourished to sustain its development. Some of the essential conditions of perfect development are beyond our control, such as the composition of the air and life, the history and physiology of the plants which are subject to the fixed and immutable laws of the Creator. Others can be modified and controlled by it, such as the porosity, wetness, dryness or composition of the soil; also the seed, and the season, and the manner of cultivation and harvesting. It is to these latter only that the agriculturist can, with advantage, devote his attention. All plants receive their nourishment of food through two channels: First, through their leaves from the atmosphere; second, through their roots from the soil in which they grow. In general terms the leaves absorb all the carbon (in the form of carbonic acid gas) that is found in the plant, also part of the ammonia, but very little, if any, water. On the other hand, the roots absorb all other elements, of which are lime, magnesia, potash, soda, chlorine, sulphur, (sulphuric acid), phosphorus (phosphoric acid), silicic acid (sand), oxide of iron, alumina, nitric acid of ammonia, and few others in minute quantities. It is evident from the conditions of the case that we cannot modify or improve on nature, by attempting to feed the plant through its leaves. For this nature has abundantly provided. But the channel or medium of the roots is entirely under our control. From 9-10ths to 99-100ths of the bulk and weight of plants come originally from the carbonic acid of the air, and from the water of the soil. Both these go off as gasses when the plant is burned. The ash or mineral matter left came only from the soil. The ash of wheat (grain) is only two per cent. of the original, perfectly dry.

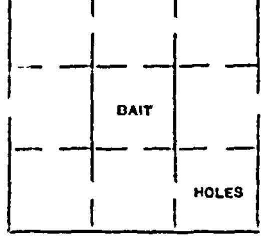
	Per cent.
Of wheat straw	5
Of clover hay	6
Of rice	½ of 1
Of corn (grain)	1½

And this very small proportion of mineral matter is absolutely essential to the growth of the plant. You may sprout grain floating on the surface of pure water in a glass or in a bed of pure sand, but it cannot thrive or grow. But if you add to the water (or sand) all the elements of the ash, as given above, it will rapidly revive, flourish and arrive at maturity in the usual season. If a single important element, however, is omitted, such as magnesia, potash, sulphuric or phosphoric acid, the plant is unable to mature and re-produce itself. This has been proved. In general terms, then, any application made to the soil, with a view of increasing the yield of the crop, may be considered a fertilizer.—*Dr. A. N. Pratt, before Washington University.*

A Vermin Trap.

An easily made and efficient vermin trap will be appreciated by every farmer. A correspondent of the *Country Gentleman* gives the accompanying figure, and explains it thus:—

I make a box two feet square, four inches deep, and divide it into nine equal parts, as shown in the illustration. I put a cover on it with hinges, and make holes as marked;



then put in some chaff and something to entice the rats or mice into the box. Anyone using it will soon have the whole of the mice visiting the establishment. I have taken from one to thirty-three at a time in this way. It will be seen that the mice have to pass through three boxes before reaching the centre one, where the bait is placed. It is by far the most effectual way of exterminating mice that I have ever seen tried. When the box is made on a larger scale it is good for a rat trap. Mice and rats will often run into the box when disturbed in other places. When one wishes to kill the mice in the box, he has only to plug the two holes and carry the box to a clear open place. It is fun for boys with a dog.

Driving Fence Posts.

A neighbor told me how to make a board fence rapidly and cheaply last year. He and his hired man went to the field where the fence posts, with ends slightly sharpened, were lying along the line of the proposed fence. One man stood on a platform two and a half feet high, and with heavy mallet drove the posts as the other held them in position. Eighty posts were thus put down three feet deep in one afternoon. The ground was free from large stones, and the time selected was just after frost had left the ground in the spring. The posts were white oak, and did not split by being driven. The ground was so soft that severe pounding was not necessary, and doubtless softer wood might have been used. The fence stood firmer than where holes had been dug and the posts regularly set.

It is possible this method could be adopted on soils where there is some stone by working a crow bar down through the soft earth to the required depth, shoving aside the stones before the post is driven down. Two stakes driven down side by side, with room for rails between, and wired at top, make an excellent and cheap temporary fence; and a post driven or set three feet, with a stake beside and wired to it to hold the rails, make a fence both cheap and durable; by driving the stake into the ground twelve to fifteen inches, only one wire will be needed, and that at or near the top. Such a fence takes little room, and by using old rails and pieces of rails need cost but little money. It is less liable to sag than the ordinary board fence made in the usual way.—*Cor. New York Times.*

How Malt is Made.

The grain is first taken up by an elevator run by steam, and is poured into a weighing bin, from which it passes through an automatic arrangement, where the chaff, light heads, dust, etc., are carried off by the air, after which the good grain passes over a sieve, which separates any other foreign matter which may remain. It is then carried to the storage room by a conveyancer. The grain is now ready for the steeping or soaking tubs in the basement, where it remains from twenty-four to forty-eight hours, according to the grain and temperature.

After being sufficiently steeped the grain is removed to the different floors by an elevator, and spread out so as to give it time to sprout before being placed in the kilns. It is necessary in the manufacture of malt to have the grain sprout in order that the sugar may be extracted, from which the alcoholic properties are derived. After the sprouting process the grain is placed in the kilns, which have to be kept at a certain temperature, and the malt stirred up or turned over several times to prevent its being overheated. It requires from fifteen to sixteen days to convert the barley into malt ready for the manufacture of beer.—*Baltimore Sun.*

Fish-Culture.

Last month, the American Fishculturist's Association held a meeting, at New York. Many interesting and valuable facts were elicited during the discussions which took place. The progress of the art was shown to be most satisfactory.

Mr. Wilmot, of Newcastle, Ont., who was appointed Canadian delegate to the meeting, read an interesting collated statement from reports which he had submitted to the Canadian Legislature on the subject of fish culture. He divided his statement into three parts. First, he insisted on the enactment of judicious protective laws; then he answered the question which he said was frequently asked by the sceptical, as to why fish should be produced by artificial means instead of allowing them to breed in the natural way; and lastly he pointed out the way in which the artificial process obviated the numerous difficulties which beset the natural breeding of fish.

After referring to the general importance of pisciculture, he strongly urged the necessity of Legislatures making laws for their protection during certain seasons of the year, especially during the close or spawning season. The sea fisheries, he said, did not require the same protection as those inland. On the subject of artificial and natural breeding of fish, he took the salmon as an example, pointed out the way in which the spawn was deposited in the natural process, shewed the various ways in which the eggs were destroyed, such as failure in impregnation, attacks by fish insects, aquatic birds, &c., and contended that not more than one per cent ever came to be mature fish. On the other hand, he shewed that from the care taken in the artificial process, and the way in which the eggs were protected from danger of all kinds, the percentage was more than seventy-five or eighty per cent.

A Boy Historian says:—"Toads is like frogs, but more dignity, and wen you come to think of it, frogs is wetter."

It is stated by those who say they know, that one pair of rats with their progeny, will produce in three years no less a number than 646,848. At this rate of multiplication it would seem strange that we do not see more of them; but they hide and work in the dark. Brick drains are their chosen haunts. Skirting boards, bricks of fire-places, under the flooring, and between the rafters, are their places for breeding.

Manufacture of Superphosphates.—The Baltimore *Trade Review* gives a description of the manufacture of superphosphates by Lorents & Rittler, in that city. They make from 15,000 to 16,000 tons per annum, using bones from South America, and from the Charleston, S. C., Bone Deposits, mixed with sulphuric acid, sulphate and muriate of potash, Stassfurt salts and kainit. These are mixed and dried by machinery, pulverized and put up in bags for shipment. In the manufacture of their ammoniated superphosphate, they use large quantities of dried and finely pulverized flesh, obtained in the large abattoirs of Baltimore and the neighboring cities.

The Eucalyptus in California.—The city trustees of Sacramento, California, have ordered an expenditure of three hundred dollars in the purchase and setting out of Eucalyptus trees on Tenth and R streets in that city. The order was made upon the recommendation of the Board of Health as an experiment to test the power of the tree as a preventive against chills and fever. If successful, the trees are to be introduced into Sacramento on a larger scale. If the result be as anticipated there are other sections of the State which will doubtless follow the example of Sacramento. Much has been said about the rapidity of growth of these trees, but the most extraordinary statement yet made is by a writer in the *New Age*, who avers that there are Eucalyptus trees in Orange, Los Angeles county, set out only a year ago last March, which now measure twenty-three inches in diameter at the base.