

FARMER'S ADVOCATE.

"PERSEVERE AND SUCCEED."

VOL. X. { WILLIAM WELD,
Editor & Proprietor. }

LONDON, ONT., AUGUST, 1875.

{ \$1 Per Annum, Postage Prepaid.
Office—Dundas-St., West } NO. 8

Selection and Preparation of Seed Grain.

As certainly as "like begets like," so must we expect our grain to be of inferior grade if we sow seed without bestowing sufficient care on the selection and preparation of the seed; and to this want of care as much as to the system, or, rather, want of system in its culture, may in a great measure be attributed the low produce, as well as the inferior quality, of our crops. We do not now refer to a comparison between several varieties of wheat or of any of the cereals, but to selecting the best and purest of the variety we decide on sowing.

All grain has a natural tendency to degenerate, and this degenerating may be retarded, if not prevented, by due care, while this tendency may be accelerated by the carelessness of the husbandman. It is also apt to become mixed with other and inferior grains and seeds of weeds. We know, also, that we can, by carefully selecting the best grain, improve the standard of our seed and crop.

None other than the very best and cleanest grain should be used for seed. Every inferior or foul sample should be rejected. If we take our seed from grain threshed by the ordinary method, the winnowing or fanning should be thorough, separating the grain for seed from inferior grain as well as seeds of weeds. If purchasing seed, be sure that your purchase is from a reliable person. You must rely greatly on the character of the seller, as you can in few instances examine the growing crops. If you have grown your own seed, be careful in its harvesting and threshing. This is too important a matter to be overlooked. Grain threshed by the machine is sometimes injured for seed in the process, and from this cause many grains never vegetate. Some farmers we have known so exact in this matter that the threshers were provided with slippers to be worn in the barn instead of their heavy shoes, that they might not bruise and injure the grain intended for seed, by treading on it, and this when the threshing was by the flail. How much greater need is there of care when a threshing machine is used!

In selecting seed wheat, it is necessary, above all, to see that it is free from the spores of smut. Farmers should, as far as possible, guard against the introduction of this pest into the crop. It is of the fungus tribe—a tribe too well known to farmers in some of its many forms. The smut hardly needs description. Few farmers do not know its appearance, resembling brown powder. It is most deleterious in its effects, rendering the diseased ear utterly valueless. Seed wheat should never be sown from a crop where smut has been, as the spores of smut are almost invariably sure to affect the crop raised from it; they are so minute as to escape observation, being invisible to the naked eye. In a work of high authority on the subject, the *Microscopic Fungi*, it is stated that the spores are so minute that nearly eight millions of them could be contained on one square inch of surface. And each of these spores possesses a germinating power. This proves the necessity of guarding against the introduction of smut by sowing seed in which it has been.

We are not without remedial agents for the prevention of smut. We know that the vitality of the spores may be killed, but the remedy may sometimes fail in having the desired effect, and

the spore may still retain enough vital force to vegetate and render the infested wheat almost valueless. Nothing of vegetable origin is free from their ravages when exposed to influences favorable to their growth. Knowing them to be of true vegetable growth, we are better able to contend with their subtle power. The only method to prevent their ravages is to destroy the spores. They may exist in our seed, adhering to every kernel, and we unable to detect their presence. Hence it is well to prepare all seed wheat as if it were known to be infested with smut. This was with us an invariable rule. We made a strong brine, so strong that it would float an egg. In this we steeped the seed for twenty-four hours, and then took it out of the brine, spread it on the barn floor and mixed with it quicklime to dry it, and as soon after as possible we sowed it. The brine killed every spore of smut, if any were in it, we never knew this remedy to fail.

Blue stone has been used for the same purpose, and we believe generally with good effect. A Pennsylvanian writes to an agricultural paper, saying that for upwards of sixty years he raised wheat, and for at least fifty years he never had any smut. Blue stone is also known by the names of sulphate of copper or blue vitriol. It is a preparation of copper, and used by many for this purpose. We give his prescription: "Have some vessel that will hold your seed, and take four ounces of vitriol to each bushel of wheat; dissolve in hot water; then fill into your vessel as much cold water as you think will float your quantity of seed; add your dissolved vitriol, then put your wheat in by small handfuls and skim off any refuse; when done, allow the whole to stand for two hours, and then drain off the water by a faucet at the bottom. Do this in the evening, and your seed is perfectly dry and ready to sow in the morning."

This remedy, though we have long been acquainted with it, we never put into practice, as we know lime, as we have said, to be an effectual preventative. It is an old remedy, and, though we have no idea of depreciating the benefits derived from the investigations of modern science, when any remedy has stood the test of at least a century's trial, we desire no change. The blue vitriol is not without its failures. The *Agricultural Gazette*, in Farm Notes, says of Kent:—"There is an unusual degree of smut upon the ears of the wheat in many parts of the county, in some places more than has been noticed for years. Wheat whose seed was thoroughly well blue-stoned has by no means escaped the visitation of this smut, and, in fact, in many cases is quite as bad as where no sulphate of copper was used."

We give in connection with this subject a brief note of experiments made with salt as a preventative:

REMEDY FOR SMUT IN WHEAT.

A farmer in Ireland whose wheat was much affected by smut, succeeded in remedying this evil by adopting a simple preventative, which he learned had been practised successfully in Flanders for many years. The remedy is a steep composed of sixty pounds of quicklime and thirty pounds of salt made into a solution sufficient to cover 600 pounds of wheat.

In order to test this remedy he procured the worst smutted wheat he could find, and after steeping for different periods, he sowed 112 pounds

divided into four equal parts on equal portions of land.

- No. 1, merely steeped so as to cleanse it.
- No. 2, steeped in the solution 12 hours.
- No. 3, steeped 24 hours.
- No. 4, steeped 48 hours.

At reaping time, No. 1 was dreadfully black; No. 2 had a good deal of black in it; No. 3 none at all; No's 3 and 4 swelled very much, but did not burst; No. 2 swelled also, but not so much. Seeing that No. 3, which was steeped for 24 hours, succeeded as well as No. 4, he has practised steeping for 24 hours, and has continued to do so with perfect success for 32 years. He has not had the slightest appearance of smut in his wheat since he commenced using this remedy. After taking the wheat out of the steep, he lets it lie in a heap to drain. In broken weather he has kept it after being steeped for ten days, turning it every day, without any bad results.

This remedy, it will be seen, differs little from that given by me from my own experience. An old farmer whom we first knew to use brine for the purpose, had used it for half a century and always with success. In fact, in that part of the country it was used invariably.

Crop Prospects.

When we wrote our report for last month, the prospects were very bad on account of the drouth, but the rain descended ere the paper was issued. The alteration in the appearance of the country in a few hours was such as to astonish us all. Since that time the weather has been most favorable for the growth of crops, and the prospects have changed as if by magic from apparent scarcity to indications of an abundant harvest. The winter wheat and hay crops are deficient, but the present appearance of spring crops in general is such that we may expect over an average. A few pieces in some parts of the country may be light, but throughout most of Canada, as far as we are able to judge from personal observation and reports, we have every reason to expect a bountiful return from spring wheat, barley, peas and oats.

Corn will be a fair crop. Potatoes promise an unusual return. Root crops in general will be good, although some early sown pieces may not yield well; those who sowed a second time will be well repaid for their labor. Hops are also promising well. Apples will not be as heavy a crop as they were last year. Plums appear much less affected by the *Curculio* than for some years past. Peaches will not be a large crop, although much better than was anticipated.

Not only are we cheered with the prospect of a good harvest, but prices of wheat have very materially advanced. When wheat advances in price, generally all other cereals advance also. We do not advise farmers to hold their wheat at the present prices; run out your old wheat as soon as you can, and thresh and sell your new wheat as soon as possible, if prices remain as good as they are now. In fact, as a general rule, it pays farmers better to sell wheat as soon as they can before navigation closes. Leave the speculation in the hands of those who can command any amount of money and good storage. The losses from waste and risks generally more than balance any profits made by farmers holding wheat; more especially is this the case when a fair paying price can be obtained.

Agricultural.

Weeds and Cultivated Plants.

What are they? Any plant growing where it is not wanted. All plants, then, in certain situations may be weeds? Yes, and all weeds—in their places—are valuable. So, however valuable a plant may be intrinsically, if it grows in a crop of other plants, and where it is not wanted, it is a weed.

Mustard and rape are plants of great economical value, and yet they are among the vilest and most noxious weeds when growing among other crops. We were forcibly reminded of this a short time since, during a trip down the Chicago branch of the Illinois Central railroad. From Kankakee to Mattoon, a stretch of over 100 miles, one-half of the oat fields were yellow with this pest, and in some of the fields there was more mustard than oats.

Every good farmer who sees such unthrift, either from the cars or the public wagon road, carries away—and very justly—with him the impression of bad farming. There is really no need that the farms should be thus overrun with these evidences of slack farming. The ground once made free of weeds, a little care in the cleaning of the seed grain would do the business.

Rye growing in wheat is, then, nothing more or less than a weed, and yet it is not unusual to find rye in the winter wheat crop, and oats in the crop of spring wheat is almost the rule rather than the exception.

Wheat, before it is ground into flour, is not only freed from every other seed, but in the better class of mills it is also rubbed clean from other foreign matter. Indeed, the best mills take from it also a good part of the bran before it is ground. Now, if wheat goes to the buyer foul, he must necessarily deduct not only the discount for the trash so held, but also the cost of cleaning. In doing this, to save himself from loss, he must estimate the trash at fully ten to fifteen per cent. greater than it really is. Few persons have a just appreciation of this loss. It often amounts to ten per cent. of the grain harvested, and sometimes to fifteen per cent.

Who pays for this dirty grain? The buyer? Not by a good deal. He is too good a business man for that. The seller is the man who foots the bill.

The cleaner grain goes from the farmer to the buyer, or miller, the more money it brings per bushel. The seeds that are separated from the grain at the mill is just so much lost to the farmer, for the shrunken grains blown out, and the oats, rye, barley, etc., would be available to the farm as rough feed for stock of many kinds.

We have before spoken of the loss from trash in grain. If proper care were taken, instead of amounting to five, ten or fifteen per cent. of the whole, it would not amount to more than one or two per cent., and this could be easily cleaned out. Of course untoward seasons would give shrunken or light grain, but even this, if perfectly clean, will bring more money in the market than plump grain mixed with dirt and the seeds of weeds.

Another thing that we are all of us apt to be careless about, is in the saving of seed. The practice of Mr. Hallet, of England, is to be commended, who made so marked a difference with his seed wheat in a few years, by careful selection, that his seed acquired the name of pedigree wheat, and sold for excessive prices. Why do we not take more pains in the selection of our seed grains? There is an almost uncultivated field in this direction in the West, and indeed in all parts of the country. If we were as careful in the saving of our seed grain as are the owners of fine stock in breeding, there would be less heard than there is of that myth, "seed running out."

One man by careful cultivation, and perhaps selection, brings a given variety to a high standard of excellence and productiveness, sells it—very properly—at high prices. Being bought by farmers, and—because it has cost so much—carefully cared for, the cultivator is surprised at its productiveness. Soon he acquires a full stock of seed, the care slackens, the product deteriorates, and finally "runs out." No. The owner has run it out by his carelessness and want of care.

If every farmer would be as careful in the saving of seed as he is of his cash, we should get rid of not only the superstition that varieties run out—as baseless a one as "planting in the moon"—

but there would no longer be any place for that class of swindlers who each year have something wonderful in the shape of "branching corn," "wonderful oats," etc., that upon a critical view prove only to be very old varieties rechristened. There would be no longer chance for swindlers to get rich, selling trash under the name of improved seeds.

Let us commence then this year to improve our grains; at the same time let us agree each with the other to do something more than we have heretofore done for the eradication of weeds. Do not let these grow and seed in every fence corner and other uncultivated places. Keep them killed in some way, even if there is no crop on the ground. Plow them under if there is no easier means of destroying them; not that we consider it economical to let land grow up to weeds for the sake of plowing them under. A crop of weeds plowed under does not constitute a fallow by any means, as some persons whom we have met have supposed.

It is true, however, that weeds are a part of the rotation in natural crops. They have their uses in the economy of nature, and there they are not weeds. If they were not valuable they would not have been created. Man has taken for his use such as were best adapted thereto. These values differ in different countries. A plant valuable in our climate, becoming perhaps of no economical value in another, and so should be treated as weeds when found growing among those which are then valuable.

So, if there were no "weeds" there would be no valuable plants, and if nothing grew in the ground but the clean seed sown, there would be no incitement to cultivation, and crops would deteriorate. Therefore weeds have value as an incitement to cultivation. Because nature uses weeds and grass to cover waste places, it is no reason why they should be allowed to grow among cultivated crops. They are incitements to cultivation; they are found in their places; but that place is not among plants cultivated for their money value in the great markets of the country.

Hungarian Way of Preserving Corn Fodder.

A Hungarian farmer communicates to the *Agriculturist* a way of preserving corn fodder without curing, in a sour, succulent state, for winter use.

The curing of various kinds of green fodder into sour hay, is, perhaps, not commonly practised in this country, especially the souring of green corn, which should be practised with more effect on the farms of the Continent of America. The making of dry hay of green corn is an injurious manner of curing it. Although the writer of this is not acquainted with American farms, except by reading, nevertheless I communicate a method for the preservation of juicy fodder particularly important for corn-producing America.

The corn is sown broadcast or drilled in rows nine to eighteen inches apart, nearly three and one-half bushels to the acre. The field must be kept free from weeds. At blossom time the corn is mown, loaded into wagons and hauled in. The home-brought corn is put in large ditches, ten or twenty rods long, and is here pressed in by a few men walking upon it. The ditch is twelve feet deep, twelve feet wide at the top, and six feet at the bottom. The length will need to be sufficient to contain the fodder to be preserved. The ditch might be dug in dry ground. When the ditch is filled, the green corn is built upwards like a stack about ten feet above the level of the ground. The finished stack is then covered with earth about two feet thick on every side. It is best to cover the top of the stack first, because the weight of the earth presses down the green corn, and as much earth is not needed for covering, as is the case when the sides are covered first.

The sour hay making enables us to store a large quantity of juicy fodder for the winter, and, if well covered with earth, it may be stored for a few years without injury. The most important of all is, the beasts, being once acquainted with this sour hay, like it very much. With us (in Hungary) the sour hay is cut and mixed with corn meal, or some other ground grain, and given to the cattle; but the sour hay may be fed uncut also.

In sections where stones and brick are to be obtained cheaply, the sides of the ditch may be walled, but it is not necessary.

I should be very glad if these lines would encourage the sour hay making of corn by American farmers.

A Talk About Farming, Including Composts.

By Professor Binklard—At a Meeting of Markham Farmer's Club.

The Markham Farmers' Club met at the Victoria Hall, Unionville—about one hundred members present. H. P. Crosby, Esq., Vice-President, occupying the chair, and introduced Professor Buckland.

The professor stated that he did not intend to give them a regular lecture, but rather a talk about farming, including composts. He claimed that to make farming successful, there must be system, rotation of crops, and thorough cultivation. There was little use to apply manures, unless the soil was thoroughly worked. Manures are of three kinds—animal, mineral and vegetable. A farmer of his acquaintance lost a fine steer, nearly fit for beef, by being choked with a turnip, a few days ago, and dug a hole five or six feet deep to bury it. He would recommend persons losing animals to throw the carcass on the compost heap, which made invaluable manure. To prevent the escape of ammonia apply a coating of plaster—which was also very valuable to the compost heap. Many of the farmers allowed the most valuable portion of their manure to escape by allowing their compost heap to precolate away into streams, thence to rivers and lakes. This should be prevented, as it was more valuable than expensive manures, such as guano, &c. Woolen rags were also valuable as manure. Have them reduced by being cut, and they are excellent for hops and wheat, applied in the fall. It materially improved the first crop, and the second crop still better. The waste of woollen mills was equally valuable. Bone manure was also invaluable. Britain was taxing every country for bone. Should allow no bones to lie in the fence corners. Break them up with a sledge—the finer broken the better—and treat with sulphuric acid. No offal should be allowed to waste, throw all on compost heap, and preserve the liquid. Night soil, with proper management, is one of the most valuable manures. Cover it and mix plaster or dry earth, which was also necessary for sanitary purposes; plaster fixed the ammonia and presented the unhealthy and offensive smell; it was fully as valuable as guano or any foreign manure which English farmers found necessary to have analyzed, it being so much adulterated of late. He again adverted to the wasting of farmyard manure, and claimed that \$100 worth of liquid manure was, on an average, wasted by each farmer, that fully half was allowed to waste for want of husbanding annually. He then took up the mineral manures, which include lime, plaster and salt. Lime, he claimed, was the most essential, no soil was productive unless it contained a proper proportion of lime, and had been used, to, as a fertilizer from time immemorial. It strengthens the stem, destroyed insects, and the grain was not so much in danger of rusting. Use from eighty to one hundred bushels per acre once in five years, too much put on land was only wasted, plants would only take up a certain quantity.

Plaster, under certain conditions, produced marvellous effects on crops, particularly in dry seasons, especially on clover and all broad-leaved plants, as it attracted moisture. Its great mission was in bringing other matter to act upon the plant. It should be applied in the early growth of the plant, so as to attract the moisture from the air, and thus give the growth of the plant such an impetus as to escape the ravages of insects. If the action of plaster was not always satisfactory, it should not be condemned, and one test, if a failure, was no evidence, but that under other conditions and circumstances magical effects would be produced. Salt Parkes, a chemist, created a furure in England by advocating a generous use of salt as a fertilizer. Forty years ago the celebrated chemist, Leibig, had also produced a similar excitement about mineral manure. There was a heavy duty on salt, and the English legislature was compelled to allow farmers to draw back on salt for agricultural purposes. Most plants require the two elements of which salt is composed. Its action upon the plant is varied. It absorbs moisture, most beneficial in dry, warm climates and dry seasons. Some claimed that these stimulants exhausted the soil. This was a fact imperfectly stated, as the old adage ran, "lime without manure made both farmer and land poor." But soil could not be exhausted—it had no nervous system. It might be impoverished, but by rotation of crops and proper manuring can be kept

rich. Save ever apply plaster, lime. He would advise barrels of plaster in water closets estimable in manure present, who had relate the result.

The chairman that, by its app generous and st kernal plumper sical in destroy after barley was one barrel to thr

Mr. James T plaster together, of plaster, and f ham Economist.

Enem

The present troubles to the p by the Colorado small beetle akin nip, beet and cul known by entom or flea-beetle, is eucumeris, from vines; it also inf the potato, eating until they are o veins left, in ma stroyed, the plan

For this insect medics. The against the Colo for it. This ma as for the forme green with twen (gypsum), or rye leaves while the or a heaping tab mixed in a paiff and while kept broom-corn whis may be sprinkle watering can.

Any fine gri against these fle plants they may coal ashes, dry sprinkled upon t that they will a water in which dissolved, it wil cessary to use p need arrives, les destroy the crop upon them, as w breed and inc Times.

How

Now how are The atmosphere carbonic acid w and dews furnis but not nearly large crops. N etc., are annua amount so fur the character o may not be suff a quarter of a t to the acre; or to furnish food bushels of whe is, that is what cultivation ma may procure us A meadow whi hay to the acre seeded down a acre. This is position of the the slowly dev years past. plant food.

In Mr. Law annual yield of out manure of straw all remo per acre. Th that soil, with between the d

rich. Save everything in your compost heap, and apply plaster, lime and salt through such compost. He would advise every farmer to keep four or five barrels of plaster to throw on compost heaps and in water closets—it fixes the ammonia, which is estimable in manure. He wanted those farmers present, who had tested the application of salt, to relate the result.

The chairman called upon Mr. Casely, who said that, by its application, the straw was a more generous and stiffer growth, the heads fuller, and kernal plumper and brighter, and was very beneficial in destroying the wire worm. He sowed after barley was up last year, this year with seed, one barrel to three acres.

Mr. James Tran said he always sowed salt and plaster together, mixed two barrels of salt to one of plaster, and fifty bushels to the acre.—*Markham Economist.*

Enemies of the Potato.

The present season seems to be prolific of troubles to the potato. Not only is it threatened by the Colorado beetle, but it is attacked by a small beetle akin to that which destroys the turnip, beet and cucumber. This beetle, which is known by entomologists as a species of *Haltica*, or flea-beetle, is described by Harris as *Haltica cucumeris*, from its attacking the young cucumber vines; it also infests beets, tomatoes, and especially the potato, eating small holes through the leaves until they are completely riddled, and only the veins left, in many cases. The leaves being destroyed, the plants perish.

For this insect there are, however, many remedies. The Paris green, which is effective against the Colorado beetle, is a complete remedy for it. This may be applied in the same manner as for the former, either by mixing one part of green with twenty or thirty parts of dry plaster (gypsum), or rye flour, and sprinkling it upon the leaves while the dew is on early in the morning; or a heaping tablespoonful of the green may be mixed in a pailful (ten or twelve quarts) of water, and while kept stirred, sprinkled by means of a broom-corn whisk upon the plants, or the water may be sprinkled upon them from a fine rose of a watering can.

Any fine gritty powder is also an antidote against these flea-beetles upon whatever kinds of plants they may be found. Road dust, fine sifted coal ashes, dry-slacked lime or plaster, may be sprinkled upon the leaves while wet with dew, so that they will adhere. If the lime is slaked with water in which one ounce of carbolic acid has been dissolved, it will be more effective. It is very necessary to use protective measures as soon as the need arrives, lest the countless number of enemies destroy the crop before any impression is made upon them, as well as to kill them off before they breed and increase by thousands.—*New York Times.*

How to Get Large Crops.

Now how are we to get larger crops per acre? The atmosphere perhaps furnishes us with all the carbonic acid which plants require; and the rains and dews furnish us a small quantity of nitrogen; but not nearly as much as we need to produce large crops. Nitrogen, phosphoric acid, potash, etc., are annually developed from the soil. The amount so furnished, varies greatly according to the character of the land. On light, sandy soil it may not be sufficient to furnish food for more than a quarter of a ton of hay, or five bushels of wheat to the acre; or it may be sufficient on some soils to furnish food enough for a ton of hay or twenty bushels of wheat an acre. Whatever the amount is, that is what I call the normal yield of the soil; cultivation may accelerate the development. It may procure us a larger quantity in a given time. A meadow which produces less than half a ton of hay to the acre, if plowed up, well worked, and seeded down again, may give us two tons to the acre. This is due in a great degree to the decomposition of the roots, which have been formed from the slowly developed matter in the soil for some years past. This is not the normal supply of plant food.

In Mr. Lawes' experimental wheat field, the annual yield of wheat for over thirty years, without manure of any kind, and the crop of grain and straw all removed has been about fifteen bushels per acre. This is the normal yield of wheat on that soil, with two plowings each year, and hoeing between the drills, to keep the crop clean. I have

used this well established fact to illustrate what Mr. Geddes calls my "pet theory of the advantages of raising, at long intervals, large crops of wheat by summer-fallowing." I hope the careful readers of the "Agriculturist" understand my views better than to limit my theory merely to summer-fallowing. That is only one of the means I have suggested. Raising clover, peas, mangels, turnips, mustard, rape, rye, corn, oats, buckwheat and grass, and feeding them out on the farm, carefully saving and turning the manure, is just as much one of my "pet theories." The principle is the same.

What I contend for is, that we must in some way get a greater accumulation of available plant food in the soil, especially for our best-paying crops and those which require the largest amount of labor to the acre. There are but two ways of doing this: 1st.—Buy the plant food. This we can do in artificial fertilizers. The nitrogen in this form will cost us twenty to thirty cents per pound. We can also buy stable manure from the cities. We can also buy hay from such of our neighbors as are willing to sell, or bran, oilcake, grain and other foods, and feed it out to cattle, sheep and pigs. There are some who can get fish, seaweed, swamp muck, etc. 2nd.—We can get this accumulation of plant-food by saving that which is annually developed from the soil. And it is right here that we need all the aid which science and experience can furnish us. It is the starting point of good farming.

If you have a good calcareous clayey soil like that of Mr. Lawes, which will produce fifteen bushels of wheat per acre every year, I contend that it is poor farming to sow it to wheat, or barley, or oats, or corn every year, and sell all the produce. It would require less seed and less labor to raise a crop of thirty bushels every other year—and the land would be cleaner. You raise and sell just as much wheat in the one case as the other. I do not say that by summer-fallowing you would be sure of getting thirty bushels every other year, or, if you summer-fallowed two years in succession, that you would get forty-five bushels every third year. I have only used these figures to illustrate my meaning.

What I contend for is, that we should raise fewer crops, or either summer-fallow more, (on heavy soils), or raise more clover or other crops which are consumed on the farm. I want to raise just as much wheat as we do now; but I want fewer acres and larger profits. And I want more good beef, mutton, wool, pork, cheese, butter and milk into the bargain. I believe all this can be accomplished, and I do not think Mr. Geddes would oppose my plan unless he can suggest a better one. It is easy to say you cannot afford to produce good beef in the State of New York, or to raise large crops, or that we cannot make farming pay. It is certain that if farming will not pay in this country, other business interests will not long prosper.—*AMERICAN AGRICULTURIST.*

Sugar Beets.

In the London "Agricultural Gazette" a writer says that many Continental farmers consider a crop of sugar beets far better and more profitable than any other root crop. It furnishes more nutritious substances, does not exhaust the land, and may be grown on fallow, and by good cultivation and judicious manuring, yields as much as any other root. The sugar beet is not inclined to get hollow in the top, does not suffer so much from the frost, and keeps better in stocks. The white Silesian beet is best, being the richest in sugar and grows mostly underground. The seed is sown in April or May, sixteen to eighteen pounds to the acre, in rows eighteen inches apart. As soon as the plants appear, a careful hoeing must be given; afterward they are thinned out, and then the cultivator must be kept going as often as necessary to keep the ground clear and mellow. Rotten farm-yard manure is used if it can be had; if not, guano, superphosphates and potash salts. Stimulating manures are not good for sugar beets.

Wood Ashes.

To the question about wood ashes being beneficial to land possessing an excess of alkali, we say, emphatically, no. If you have on your place any land of the opposite character, that is, if it is clayey, stiff and heavy, you can use a large amount of ashes upon it to advantage, both immediate and permanent; even coal ashes may be turned to good account there.—*Rural Press.*

Canada Thistles—Their Benefit and Damage.

The "Country Gentleman" differs widely from many Agricultural writers in his opinion of thistles. They are by most people reckoned among the greatest pests on a farm, and the enquiry is incessant—what means shall be taken to extirpate them? In our slight experience of them, we have never had much difficulty in eradicating them, and we have doubt that the method here recommended will, if carried out, be successful.

A luxuriant crop of weeds, especially such as the thistles, ragwath, and others of the larger species, are symptoms of the fertility of the soil, and not only so, but as the "Country Gentleman" well remarks, the thistle is a most efficient loosener of the soil. Deep down for many feet it strikes its tough roots, and they, when rotted, as they will be when its vegetation is killed, leave the places they occupied free passages for heat and moisture, and the mineral food they have drawn from the subsoil is a fertilizer of no little value.

The "Country Gentleman" says:

A farmer anxiously inquires of us how he can possibly kill a dense patch of several acres of Canada thistles. He will perhaps be startled if we should tell him that we would rather have a field filled with a dense growth of these thistles by the middle of June, on a strong soil, than to have a bare field or a badly seeded pasture. Next to red clover, the roots, stems and leaves of the Canada thistle are one of the best green crops to plow under. The roots are powerful looseners of the soil, and the tops, when well rotted, help to increase its fertility. Plow them under with a chain on the plow, when just coming into blossom, and they will soon rot in the soil. If left a little later, the plowing will be more destructive to the plants, but they will not rot quite so quickly. If the plowing is deeply and thoroughly done, they will not be seen above the surface for a month. But the very moment the first green point is seen peeping, plow the land again, and repeat it just often enough to keep them constantly smothered. By the 20th of September or 1st of October, the thistles will be effectually killed, and will never again make their appearance, while the rotted stems and leaves will have increased the fertility of the land. Usually about four plowings will have done the work effectually, at the same time that it will have rendered the field mellow like a garden, and destroyed most of the other weeds that may have been in the soil. All perennial rooted weeds, if kept under, will be destroyed, and all the seeds of annuals that have been thrown up near enough to the surface to germinate, will share the same fate.

We have never found any difficulty in killing patches of Canada thistles in a single season by a few plowings, if the soil is of a heavy or clayey character, so as to rest compactly upon them when they are turned under. On lighter soil, more care and more frequent plowing is necessary. If there are any large stones, stumps or other obstructions to free and perfect plowing, the thistles will not be destroyed at those places; or if they line boundary fences, where the plow cannot reach them, they will of course escape, and other modes of clearing them out, or the removal of the fences, will be necessary.

Working and Salting Butter.

Touching this important branch of making butter of prime quality, S. E. Lewis, of Oxford, N. Y., writes as follows: "When the butter comes, as soon as the dash churns clean, take off the churn; do not gather the butter compact with the dasher in the churn (as usually done); do not gather it at all, but have a hair sieve, which first wet in hot and then cold water, so that the butter will not stick to it; then have a piece of a board that will fit inside of the churn to hold the butter back, turn the buttermilk from the churn through the sieve; when the buttermilk is drained out let the butter remain in the churn; then take your water, holding it up as high as your head, and pour it upon the butter in a stream moving about upon the butter. This will separate the little balls of butter. Fill up the churn with water until what little buttermilk there was in the butter is diluted to the extent that there will be no necessity of changing the water, and the result

Canada Thistles

Trip to New York.

Being desirous of still improving your paper, we took a trip to New York in quest of material for its embellishment and information in regard to seeds, &c. We left London on the 6th of July, per G. W. R. to Suspension Bridge. The crops along the line show a most wonderful improvement; spring crops promise a bountiful return. The country from Suspension Bridge to near Rochester is rather of a hard, cold, clayey nature; large quantities of beans are raised in this part of the country; spring crops look well; hay and fall wheat both light crops.

Rochester is remarkable for its beautiful flower gardens and for the quantity of fruit raised in its vicinity. Even in the city grape-vines are numerous, and the houses are more encircled with fruit and ornamental trees, grape-vines and flowers than in any place we have noticed.

We proceeded to Coldwater Station, and thence to Mr. Harris' farm, the celebrated writer whose able articles have appeared in the *Agriculturist*. We seen a little of his farm—of the Squire's and Deacon's; they appear to be a happy family. The Squire and Deacon are pleased to beat Mr. Harris in any part of his management; the Squire beats him in his barley crop and the Deacon beats him in his wheat crop, or at least we should judge so from present appearances. The Deacon has the Clawson wheat; Mr. Harris has the Diehl. But Mr. Harris beats them both in the quantity and quality of his hogs and sheep; he keeps fifty breeding sows—pure Essex, and has a fine lot of good pigs; he also keeps about a hundred Cotswold sheep. This is his principal stock. Mr. Harris was just prepared for a journey for his holidays, with his family; in fact, the carriage was in waiting at the door on our arrival, and Mrs. H. and family had their luggage all ready. Thus we only had a few minutes with him.

The land in this part of the country is of excellent quality, worth from \$100 to \$200 per acre, 6 miles from Rochester. The Squire has 700 acres; in one place he has 50 acres in fruit, which pays well, although at this time, perhaps, there might be nearly 100 bushels of cherries rotting because they would not pay to market. The reason is that the fine kinds of cherries will not keep any length of time after being gathered. We should have thought something could be done with them, as the same kinds that we saw spoiling in this part of the country were selling at wholesale in New York market for \$5 per 100 lbs.

We might treat longer on our observations in this section, but as Mr. Harris was absent, we concluded to call again at some future time. The Squire must accept our thanks for his great kindness in showing us through that part of the country.

We next went to Geneva and proceeded to the residence of Mr. J. Johnstone, the celebrated writer on draining, farming, stock fattening, &c., whose writings have been well known to the readers of the *Country Gentleman* and all agricultural periodicals. The old gentleman walked partly over his farm with us; he is now 84 years of age, and of course time begins to tell on him, but for his age he is remarkably active. We particularly wished to learn something of the seed wheat. Mr. Johnstone had been like Mr. Harris and thousands of other first-class farmers too favorably impressed with the Diehl wheat; on examining his crop he estimates the yield of the Clawson wheat at fully one-third more per acre than the Diehl. What appeared strange to us was that none of the farmers in New York State, as far as we could ascertain, know anything about the Scott wheat, which has been so successfully raised in Canada.

Mr. Johnstone had only three acres of the Clawson wheat. Some years ago he had a pupil to instruct in farming, named Swan; the pupil married one of his daughters, and purchased a large farm near by. He appears to have surpassed his instructor, for his farm is one of the best, perhaps the best we have seen in America, taking all things into consideration. He has it all under-drained and in the highest state of cultivation, and the crops were looking better on it than on any farm we have seen this year. His principal aim is to fatten stock. He comes to Canada and purchases sheep and cattle of good quality, and such as we should term fat, or nearly so, and makes prime meat of them. He has his scales, and weighs his stock and feed, and can tell just what he is doing. His residence and grounds appear more like those of an English nobleman than those of an American farmer; in fact, no farm that we observed in England surpassed this in exact management, good cultivation, beauty and neatness of its buildings, lawn, house and general appearance. It is a pattern for English farmers to see; they can learn from it and profit thereby. It is worth a trip to Geneva to see this beautiful farm. It is situated on the border of the lake; thus, not only is the farm itself handsome, but the scenery and surroundings are charming.

We shall give more about our trip in future numbers.

What Wheat Shall we Sow?

Seed time will soon be here, and the question will be with many—what wheat shall I sow? To answer this question correctly is not so easily done as many would imagine. Thousands expect this journal to furnish them with the information. To enable us to do so correctly, we must have more knowledge, and we respectfully ask our subscribers to aid us in giving correct replies to the above question.

We will now give you the results of our observation and experience.

We have examined several pieces of wheat in Canada and in the States. We are as yet undecided to which variety we must award the laurels as the most profitable for us to raise. One thing we are now satisfied about; that is, that there has been more money lost by sowing the Diehl wheat the past year than from any other cereal we have sown. We have seen no instance, where this variety has been sown in the same field with the Scott or Seneca wheats, in which it has equalled either of them. There has been more of it plowed under than of any other kind, although it is the finest wheat to look at of any we raise; the quality of the flour is inferior in strength to other varieties. In some parts of fields we have seen good crops of it.

The Soule wheat has been sown, but in small quantities: it has not succeeded better than the Diehl. The Michigan Amber and Midge Proof have not been largely sown. The Treadwell, Weeks and Mediterranean wheats have been preferred, and some good pieces of each are to be found.

The main trial is between the Clawson or Seneca wheat and the Scott wheat. We wish each of our readers that have procured the Clawson variety to report to us how it is doing; also, how the different kinds compare. We wish the reports to be in by the 15th of August. As far as we have seen, these two varieties will be most in demand by those who have seen them growing. They are both hardy and have stood the test of our winter and spring frosts as well as any in most fields. Even these varieties are considerably injured, but not as bad as other varieties. We have examined the crop about Rochester, Albany, Geneva and

other places in the States, besides many places in Canada, and feel safe in saying that these two varieties will yield a larger average return per acre than any other varieties procurable in any quantity. The Clawson being a white wheat, will be preferred by many on that account; its yield, we think, will be equal to that of the Scott. We do not know which will make the best quality of flour.

The American Shorthorn Herd Book of 1874.

Col. L. F. Allen, of Buffalo, will accept our thanks for this volume. This is the 14th volume, and contains 917 pages. It is very neatly got up, and embellished with about 70 lithographs of some of the most valuable Shorthorns, which have been drawn by the finest animal artist in the world; in fact, so fine has been the artist work, that we are almost led to believe that art in this respect almost surpasses nature. The great care and labor bestowed on such a work, and the drawing of a line to say which animals are to be entered and which rejected, has been an arduous task. This work is necessary for those who wish thoroughly to understand the pedigrees of the most valuable Shorthorns. Persons wishing to procure the Herd Book can address Mr. Allen, from whom former numbers can also be procured.

Prize Essay.

IS CO-OPERATION BENEFICIAL TO FARMERS?

Some time since a reader offered a prize for the best article on the above question, and it has been awarded to the following essay. This article appears to be very appropriate at the present time, as there has been a discussion at Washington with a view to bring about amalgamation with the Co-operative Society of England. The English society is not a secret organization:—

The principle of co-operation seems to be inherent in our nature—in fact very little could be accomplished without it. Even among insects and animals we find it existing. What is a colony of ants, or a swarm of bees, whether safely lodged in a hive within the limits of an apiary, or domiciled in a hollow tree in the bush, but a co-operative society in which every individual labors for the benefit of the community. A single beaver can accomplish nothing. A co-operative society of beavers constructs a dam, build houses and lay in a supply of food for the winter. If a beaver is unfortunately caught in a trap, and escapes with the loss of a leg, he is expelled from the community and left to shift for himself as he best can. The effects of co-operation on a large scale are still to be seen in the Pyramids of Egypt, and the still existing ruins of ancient cities, not only in Eastern lands, but also in the dense forests of Central America, which only await a visit from a Rawlinson, or a Champollin, to decipher their hieroglyphic records, and reveal to our gaze the secrets of extinct races on our continent. The first co-operative society of which we have any record is that which was formed for the purpose of building the tower of Babel, a purpose which, being inconsistent with the designs of Infinite Wisdom, was suddenly frustrated, and the members of that society scattered over the face of the earth. The next form of co-operation was probably the patriarchal, followed as mankind increased by the tribal and national, for what is a nation but a co-operative society on a large scale; but the question now to be discussed is whether co-operation is beneficial to farmers? Farmers' Granges are only co-operative societies, and I have not the least doubt but that if they carefully act up to their principles, they will be productive of much good. At present I will only consider the principle as applied to co-operative stores, and in this point of view I am not disposed to regard them with favor. In the first place, where are they to be located? There is not a town or village in the Province which is not already overcrowded with stores, and consequently prices are kept down to the lowest remunerative point. If such stores are established anywhere in the country, I doubt if the custom of all the farmers round for a distance of five or six miles in every direction would yield

sufficient profit to pay man would have to business, and the a secure the services manager would absorb establishment of such a way the attention or beget a craving for too general. I know country where farm were making money in their haste to get sold or leased their ness pursuits for w and modes of thought and, having failed, h to take sewing mach travel about the coun tions fail, as fail they they will find themse former occupation of either leave the coun situations where they for their daily bread tent to follow stead they would in all p lives in the enviable their way, and owe n end. For these reas the establishment of not likely to be of themselves. I adm successful in many manufacturing cent chance of being w many have failed, y always, been owing dishonesty of those management. A should choose one b Rothschild, the emi asked his opinion on a young brewer. H and you may beco brewer, a merchant soon find yourself in vice as applicable to

Edgewater Farm,

A. C. AT

Introduc

An apiarian frien ceiving a large cor requests a descrip lowed in putting th at the head of his located in Woodbu ply with his wises plan that we trie successful. It diffe modes that have b easy of execution, a not to be despise that a queen cage is

This is an adjunc with in setting quee a valuable life is at be used. The m diate with certai by his bees to a for stocks that were l the sovereigns off they would have g malities. It is o experience, and is stincts and habits giving them an un

The cage, then, fine wire netting, it is of zinc it shou have no rust adher answers, and a sp is to roll a piece into a cylinder, sev wire, and close its may be made from ting 5 inch squares the parts left fro dicular position, thus constructed

We dislike to re some makers ask therefore, we wish of the appliances

sufficient profit to pay the expenses, as a business man would have to be engaged to carry on the business, and the amount of salary necessary to secure the services of a *really honest and efficient* manager would absorb all the profit. Besides, the establishment of such stores would tend to draw a way the attention of the farmers concerned, or beget a craving for trade profits which is already too general. I know instances in this part of the country where farmers, who had good farms, and were making money, slowly perhaps, but surely, in their haste to get rich without hard work, have sold or leased their farms, and entered into business pursuits for which, by their previous habits and modes of thought, they were altogether unfit; and, having failed, have found themselves obliged to take sewing machine or insurance agencies, and travel about the country; and when these occupations fail, as fail they probably will sooner or later, they will find themselves unfitted to return to their former occupation of farming, and will probably either leave the country, or seek some subordinate situations where they will be dependent on others for their daily bread; whereas, had they been content to follow steadily their previous occupation, they would in all probability continue all their lives in the enviable position of being able to pay their way, and owe no man anything at the year's end. For these reasons I am inclined to consider the establishment of co-operative farmer's stores as not likely to be of any real benefit to the farmers themselves. I admit that such stores have proved successful in many places in England, in large manufacturing centres, where they had a fair chance of being well supported, and although many have failed, yet this has generally, if not always, been owing to either the incompetence or dishonesty of those who were intrusted with their management. A man to be successful in life should choose one business only and stick to that. Rothschild, the eminent London banker, was once asked his opinion on some promising speculation by a young brewer. He answered, "Be a brewer only, and you may become the brewer of London; be a brewer, a merchant, and a banker and you will soon find yourself in the *Gazette*." Is not the advice as applicable to a farmer as to a brewer?

CHARLES JULYAN.

Edgewater Farm, Sarawak.

The Apiary.

A. C. ATWOOD - - - EDITOR.

Introducing Ligurian Queens.

An apiarian friend, in daily expectation of receiving a large consignment of Ligurian queens, requests a description of some method to be followed in putting these much-esteemed foreigners at the head of his black colonies, which are all located in Woodbury hives. We cheerfully comply with his wishes, and shall give an account of a plan that we tried lately, and found eminently successful. It differs slightly in detail from other modes that have been recommended, but it is more easy of execution, and it has advantages that are not to be despised. We must premise, however, that a queen cage is necessary.

This is an adjunct that cannot well be dispensed with in setting queens over strange colonies. When a valuable life is at stake, every precaution should be used. The most skillful apiarian cannot predicate with certainty what reception will be given by his bees to a foreign element. We have known stocks that were long queenless seize and destroy the sovereigns offered them, which we thought they would have gladly accepted without any formalities. It is only an adept, who has had long experience, and is well acquainted with the instincts and habits of bees, that should venture giving them an unprotected queen.

The cage, then, as most people know, is made of fine wire netting, or of perforated zinc, but when it is of zinc it should be kept perfectly clean, and have no rust adhering. For our purpose any form answers, and a speedy way of extemporizing one is to roll a piece of the zinc three inches square into a cylinder, sew the sides together with copper wire, and close its ends by corks. Or a box cage may be made from the same piece of zinc, by cutting $\frac{1}{2}$ inch squares from its corners, and bending the parts left from their horizontal to a perpendicular position. A lid to cover and fit over box thus constructed may be made in the same way.

We dislike to read of the exorbitant prices which some makers ask for their bee furniture, and, therefore, we wish it to be understood that most of the appliances needed under "the new and ap-

proved system of bee keeping" can be home-made at very little expense. We pointed out a short time ago how a honey extractor could be made very cheaply, and we have just had the satisfaction of seeing a brandy cask fitted up with a revolving apparatus, the spindle of which is turned by two lathe wheels (a large and a small of wood grooved for a strap) fitted on the top cross bar. The same kind of wheels are employed in the Walter and Cowan machines, which are exhibited at the Crystal Palace Bee Show.

Our barrel extractor is, perhaps, inferior in appearance, but it is equal in action to any, it allows the whole internal work to be lifted out at pleasure, which is an advantage, and its entire cost was 10 s. 5d. being paid for the cask.

This, however, is a digression, and we must return to the subject in hand.

A sufficient number of cages being prepared, and the small boxes having arrived, which contain Ligurians queens, an examination must be made of the contents, to ascertain how many are living, and give food to such as require it.

The queens are next to be removed from as many hives in the apiary as there are substitutes provided. This is done by prying up and screwing round the crown boards, which are apt to be fastened down by propolis, and looking over the frames, which are taken out in succession, until the queens are found, and these, each having a few attendants, should be carried off to some safe place and kept alive as a provision against casualty or accident. After the frames are restored to their places, the hives are to be covered again, not with the crown board, but with folds of warm cloth, such as carpet or any material convenient. In this condition they must remain six or twelve hours, that the bees may make the unwelcome discovery of having sustained such a loss, and show their distress by hurried movements to and fro at the entrances.

The foreign queens are next to be put into cages each accompanied by four or five subjects, and carried to their intended domiciles. The cloth or carpet being raised, not roughly, the cages are to be rested on the top bars, their centres being between two of the frames, on which the bees were found to congregate most numerous. All is then covered over as before with cloth, care being taken to prevent any escape of heat from the hives.

On the day following, an examination may be made, but if any hive is discovered to be fighting, or if its bees around the queen cage manifest hostile intentions, by sticking to it, and "holding on like grim death," curling their abdomens, and making a kind of hissing sound, the new sovereign must abide in her shelter 24 hours longer, and on no account be released. If, however, the bees about the cage are placid, showing a friendly anxiety and desire to touch the included prisoner with their antennae—the door of the cage may be quietly opened, and liberty to walk out granted.

When making inspections, and particularly when setting the royal captive free, everything approaching or jarring should be guarded against. Bees are very irritable, and a frame roughly pulled from its place will sometimes awaken anew the regicidal mania which had subsided. Hence the advantage of using a carpet or cloth, rather than a crown-board, when employing a cage. It is easily removed, and its removal causes little or no disturbance. The cage on the frames—rather than between them and out of sight—shows at a glance, and without any trouble, the attitude of the bees towards the new comer, and whether it is peaceable or otherwise.

Two or three hours after liberating the queen it is satisfactory to make an examination, and obtain evidence to her safety. Should she be found encased, the cluster may be broken up by smoke, and the unfortunate one again caged; or queen and cluster may be immersed in honey to destroy their animosity.—*Agricultural Gazette*.

P. E. Island.

This summer the amount of flour consumed will be much greater than any former year, and the importations will be less. This is the result of the excellent crops of 1874,—much of the produce of the island having remained unconsumed, notwithstanding the severity of the winter. The number of barrels usually imported during summer is enormous, and the home supply of the year must add much to the prosperity of the country. It is computed that the amount of money expended on imported flour this season will be a quarter of a million less than last year.

AGRICULTURAL ITEMS.

The Township Agricultural Society of Harwich has purchased four acres of land, and is about erecting an exhibition hall sixty feet long and thirty-six feet wide.

An injection of salt and water or of linseed oil will remove the worms which inhabit the rectum. If linseed oil is used, two drams of turpentine in a pint of oil may be injected every morning for a week. A dram of copperas should be given twice a day in the feed of each horse.—*N. Y. Tribune*.

Lameness in hogs is caused sometimes by the large pores in the back part of the legs getting clogged. They are a little above the knuckles in back part of the legs. Wash the lame legs with soap and luke-warm water, using a stiff brush and rubbing hard till the pores open, and when the pores are washed open the lameness will leave.

FERTILIZERS.—Liquid manure can be applied to all growing plants with great advantage. Manure from the hen roost or barnyard can be utilized in this way. Guano, when obtainable, is one of the best kinds to use to make a liquid application of. Land plaster and wood ashes are among the best and most easily obtained fertilizers, and put on the ground during moist weather will do much good.

The mixture recommended by an English authority, Mr. Fisher Hobbs, as an antidote to the turnip fly, consists of one bushel of fine coal ashes; one bushel of fresh lime, dry slacked; six pounds of sulphur, and ten pounds of soot. These are reduced to a fine powder, well mixed, and the mixture sprinkled on the turnip plants very early in the morning before the dew has dried. The above quantity is sufficient for two acres.

The *Prairie Farmer*, in interviewing a prominent miller, learned that 263 pounds of No. 1 spring wheat should yield 177 pounds of best flour, 19 pounds superfine flour, 47 pounds of bran, 8½ pounds middlings, and 3 pounds screenings, the loss in grinding being 8½ pounds. A person who is curious as to such matters might well puzzle himself to determine what virtue there may be in the magic quantity of 263 pounds.

A Western stock raiser, whose specialty is Berkshire pigs, writes from England to the *Live Stock Journal* that the prices for pigs in that country are such as "to make purchasers look blue," those pigs that he had purchased having cost him \$250 to \$700 each. This may be taken as a very broad hint to those who have a desire to buy the produce of fashionable imported stock, and to whom in general "a nod is as good as a wink."

The improvement of agriculture in the East Indies is progressing very favorably. In the Madras Presidency a model farm of 250 acres has been started with success. By means of irrigation green fodder crops are raised at all seasons. Sorghum, lucerne, and the various small grains are all raised for fodder, and furnish the Indian "ryots" with much better means of subsistence for their stock than they have hitherto possessed.

A number of men who were sent to hoe a field of potatoes reported after the work was finished that they saw "millions of potato bugs," and it was supposed the growing crop was surely destroyed. For several days after, large numbers of crows were seen to alight in the field, and a second close examination, by the men who hoed the potatoes, detected but twenty lugs, the remainder having been eaten by the crows. These birds are fond of any kind of insects, and are in many ways valuable to the farmer.

The *Boston Journal of Chemistry* regrets that the millers use all their finest, soundest wheat for fine flour, and the poorest for Graham or brown bread, a general name given to mixtures of bran and spoiled flour. "What we need is good, sweet, whole wheat flour, finely ground, and put up securely for family use, and any Western miller who will give his earnest attention to furnishing such flour will realize a fortune speedily; securing the most nutritive principles the Creator has stored for man's food."

An English professor has reported some curious statistics in regard to the proportion in the most prominent countries in the world. It appears that Great Britain has one cow to every twelve persons, a sheep for everybody, and one pig for every six. France has a like proportion of sheep, a double share, comparatively, of cows, but only one pig to every six persons. The Swedes have a cow between three and one-half of them, a sheep between two and three-quarters, and a pig to a baker's dozen.

Is Salt of any Value for the Destruction of Vermin?

The writer's knowledge of the advantage of salt for the destruction of vermin in the soil is not of recent date. In taking up the subject, a brief mention of his first knowledge of it is not inappropriate. On a fine day in March, such as is desired in that month by the farmer when he estimates "a bushel of March dust to be worth a king's ransom," a farm laborer was spreading coarse salt over a field before sowing the seed oats. The crop the previous year had been badly injured by the cut-worm—much of it killed, root and stem; and now this man, by the direction of his master, was giving the field a liberal dose of salt—two sacks to the acre. The crop then sown was not in the slightest degree injured by the cut-worm. The writer was then a mere school-boy, but he had eyes to see and a mind to treasure up such lessons as this, and for many years he knew that ground, and never again was the same remedy needed.

Since then he has, times innumerable, and in different places, in his own experience, known salt to be applied for the freeing of land from cut-worms and others, that finding their home in the soil, prey upon its products, depriving the husbandman of the expected returns for his labor. The effects produced by salt when used for this purpose are known to every one at all engaged in the garden, even on a very small scale. Brine to be used should be very much diluted, its strength, if undiluted, being fatal to vegetation. In using salt for the destruction of vermin, from five to ten bushels are sufficient, without danger of injury to the crops, or two hundred and fifty to five hundred pounds. To kill weeds four times that quantity is used. The effect is then to destroy all vegetation for a time, but in a short time the vegetation is greatly improved.

The value of salt in horticulture has been long known. Gardeners have used it to prevent earth worms in lawns, as well as to kill weeds in gravel walks; and in preparing a heap of garden mould from weeds, leaves, sods and such materials, salt is used to prevent such heaps being the nursery for grubs and worms, and to kill the weeds and increase the fertility.

Salt for agricultural purposes was highly prized by the early English farmer, but fell greatly into disuse from the increased price caused by the duty imposed upon it, first in the reign of William the Third; still, at all times, even when but little used for that purpose, it maintained its character for farmers. To use the language of Professor Johnson, "They learned that it was used to kill worms and to destroy weeds; that it cleansed fallows, increased the produce of light arable lands, and was good to sweeten grass. It was well known, too, that a single grain of salt placed upon an earth worm speedily destroyed it, and that if brine were poured upon the lawn, all the earth worms were immediately ejected from that spot."

One thing is proven by testimony that cannot be shaken, a testimony of many centuries, and confirmed by modern experience, that if a field be infested with vermin such as we have spoken of, they can be expelled by the application of salt as a dressing to the soil. We know that this remedy has been in practice for at least two thousand years. This destruction of vermin may be caused by means of a chemical change in the soil, produced by the salt. Certain elements, as, for instance, lime and salt, do, we know, produce such changes. In a case such as this article refers to, a field becomes infested with wire worms or grubs. We know it had not been so heretofore. This change proceeded from some alteration in the condition of the soil. To change again this unhealthy condition, we introduce into the soil some power-

ful chemical agent, as we know salt to be, and by this means restore the former healthy condition of the soil, rendering it no longer a fit residence and breeding place for those destructive pests, but rather, we are assured, being to them a deadly poison.

The objection that a top-dressing of salt—so small a quantity to the acre dressed—can have no effect in destroying vermin, is not new to us, but if a fact be above the comprehension, is it any less a fact? Are we to be led away by mere sophistry to deny everything that may to us seem inexplicable? We can arrive at but one conclusion in the matter—experience has proved irrefutably that salt is of great value for the destruction of vermin in the soil.

Care of Newly Planted Trees.

We cannot, even at the busiest season on our farms, afford to neglect the trees we have newly transplanted. They are sure to be—if taken proper care of—the most valuable adjunct to the farm. More enduring than ninety-nine per cent. of our houses, they add to the farm house an air of comfort, and to the whole farm a beauty and a pecuniary value that a mere house, however well designed and built, cannot give. The number of years that are required before the young trees are of considerable value, whether for shade, or ornament, or use, enhance that value when they are some years grown. A few months suffice to build and finish a tolerably good house, whereas a great number of years are required for trees to make a good shade. Not only should we plant liberally for shade and fruit, as well as for general purposes, but, need we add, we should take all due care of them when planted.

When lately transplanted from the nursery or woods, the first season is the most trying for them, and then they need the greatest care. If properly planted, after due care is given in their taking up and removal, the greatest labor is done; a half hour from time to time in the summer and autumn evenings, may do all that is afterwards required, but that half hour must be spared to them. The care they need is little compared to the care and labor required by many farm crops, and there is no labor for which we have so fair a prospect of a good remuneration. And, we all know, it is the putting to good account those extra half or quarter hours that often ensures success.

If the ground in which we have planted our trees be left uncultivated during the summer and autumn, the surface, at least, will be baked into a hard crust, and the tender rootlets will be unable to obtain the benefit from dew and air that are absolutely essential to their health and growth. Instead of the dark green hue of the leaf and the healthy appearance of the bark, the leaf has a yellowish tint; there is disease from some cause, a want of food, of heat, or air, or an inability to use the food, though in the soil. This should not be. Let the soil be stirred lightly with a digging fork—the best implement for the purpose—taking all care not in the least to disturb the roots, and we soon see, sometimes in twenty-four hours, a great change in the trees.

Between our newly planted fruit trees I always grow root crops, as early potatoes, carrots or turnips, and this necessitates the cultivation and manuring of the soil, so that it is always in the best condition. I can see no good grounds for the objection that some make for cropping the fruit garden. On the contrary, I have the strongest proof—an experience of years—that it is a system attended with great advantages.

Watering newly planted trees must not be neglected, but it should not be done frequently, and a little at a time, as is the practice with some.

When planting, a pail of water should have been put into the hole for each tree, and when, after some time, more is needed, give not much less. Pouring water merely on the soil is apt to cause a hard crust on the surface, the very thing to be guarded against. To prevent this, if the ground be mulched with straw or grass, pour the water on the mulching, and it will trickle through to the soil beneath, and there will be no hardening of the surface. If watering what is not mulched—take a hoe with the watering pot; with the hoe remove the surface soil, then pour on the water, and having done this, replace the soil drawn away. Than this there is no better method of watering trees. By it the roots get all the benefits of the watering, and there is no forming of a crust on the surface. There is yet another method of watering—one recommended in a communication to the FARMER'S ADVOCATE. It is making holes with a dibble round the roots of each tree, or plant and filling them with water. This is recommended especially for the application of liquid manure.

Stake your trees carefully when they are planted, of such a height that they may not be liable to be shaken in the ground by the wind. Nothing is more apt to kill young trees than such a disturbance of the roots. To guard against it, some planters use two or three stakes to each tree, but one good stake firmly placed, and the tree braced to it in such a way as to cause no chafing of the bark, will in all ordinary cases be found sufficient.

Take off from the stems all branches that shoot out too low. Pinching them off with finger and thumb is the best way to remove them when budding out. By this means any injury to the stem will be avoided, such as might afterwards be caused by the use of the pruning knife or saw.

Is it Advisable to Sow Late Crops for Fodder?

To one who has been conversant with agriculture and agricultural produce in Britain, and who is now a farmer in this western world, of no crop does the field present so great a contrast as that of the meadows. The greater humidity of the climate of those countries that lie embosomed in the great ocean and washed by the frequent rains so lately evaporated from the thousand leagues of water, and after so short a period arrested by the trees and mountains to be forced down on the grateful soil, causes for the greater part of the year an uninterrupted growth of the finer grasses, and consequently the meadows are thickly dotted with hay-cocks, as the stubble field with the large stooks of corn. Especially is this the case in Ireland, its humidity and the fertility of its soil causing such a perpetual rich verdure as to obtain for it the name of the Emerald Isle.

A yield of hay that here would be considered exceptionally heavy, would there be considered a merely ordinary crop. Three Imperial tons (6,720 pounds) per acre on land, with ordinary cultivation, would only be called a pretty fair crop of hay on a dry upland field—a first cutting. Rich bottom meadows give twice as heavy a produce. There can be no doubt that by a more thorough system of cultivation and heavier manuring, we can secure a better meadow produce than we do, dry as our climate is generally, and subject to occasional severe droughts and spring frosts. Hence the great necessity of supplementing our hay and straw as best we can.

Our design now is not so much to speak of our grand produce of grass or of our climate, as of the policy of providing for the want of winter feed for our stock, a want caused mainly by the drought when our meadows were in most need of rain. As long as there can be any reasonable expectation of a fair return for seed and labor, we should continue

sowing late turnips, whatever else will serve. Every ton of such food for mow, and will serve the stock; this, of its feeders. Stock in grass are always fed with much less expense than days of winter are used.

A large supply of food saved in the fall, is not though I have heard of sowing millet, even in June in time to save it for profits I one time had some be called a lost spring vetches, with but they did not ripen rather late, the land growth of the vines, to all, the season was never passed away, a formed. The bees, however, laid up extra store blossoms of my vetches of sowing seed from lost. I had it more horses and pigs—but such a quantity of feed the greater part of after having been trampled some time, piled in layers, with droppings. My profit from my first was in the quantity sive years at least I first year from an unfollowing that, an a

There can be no wonder, even if some be a farmer can put it saw too much stored cattle food, on a far

New Disease of Potatoes

In the "Journal" (June 24th), some notice is given to a peculiar disease of several new varieties of potatoes produced from the United States.

Our correspondent here cultivates an Early Rose, Brown Seedling and Thor's shoots withered above the surface, appearance. Such after a while put on but the Early Rose affected. In the what is most remarkable maintained a growth.

Another correspondent marks that the disease of the American variety (of June) been half not be infectious; that any of the produced. The experiment against them. A Rose, and after growth it was rejected as now tried what was early sort, Extra this year be destined in haulm or tubers, probably go to the No more American

sowing late turnips, corn—though late—rape, and whatever else will serve to eke out the fall feed. Every ton of such food will be a saving to the hay mow, and will serve to keep up the condition of the stock; this, of itself, is no trifling gain to stock feeders. Stock in good condition, when housed, are always fed with much greater profit and at much less expense than if lean when the dark cold days of winter are upon us.

A large supply of fodder, even if green and unsaved in the fall, is never unprofitable on a farm; though I have heard it urged in opposition to sowing millet, even in July, that it would not mature in time to save it for hay. I remember the great profits I one time had from a crop that might by some be called a lost crop. I sowed a field of spring vetches, with the intent of saving the seed, but they did not ripen. They had been sown rather late, the land was rich, causing a very rank growth of the vines, not easily saved, and, added to all, the season was wetter than usual. September passed away, and the pods were not fully formed. The bees, even in the first days of October, laid up extra stores of honey from the sweet blossoms of my vetch field. I was disappointed of sowing seed from the crop, but it must not be lost. I had it mown and fed to stock—cows, horses and pigs—but as they would not consume such a quantity of feed in the limited time, I had the greater part carted into the farm yard, and after having been tramped under foot by cattle for some time, piled in the manure heaps in alternate layers, with droppings of cattle and other manure. My profit from my field, and I found it a good one, was in the quantity of manure. For two successive years at least I was receiving the profit, the first year from an unusually heavy root crop, and following that, an abundant grain crop.

There can be no loss in a great quantity of fodder, even if some be green, or, it may be, coarse. A farmer can put it all to good account. I never saw too much store of hay, straw, or any other cattle food, on a farm.

New Disease Affecting American Potatoes in England.

In the "Journal of Horticulture" [(London, June 24th), some interesting facts are stated relative to a peculiar disease affecting the growth of several new varieties of potatoes recently introduced from the United States.

Our correspondent states that the sorts which he cultivates are Extra Early Vermont, Snowflake, Late Rose, Brownell's Vermont Beauty, Willard's Seedling and Thorburn's Paragon. The young shoots withered away when about two inches above the surface, and presented a brown, sere appearance. Such as attained to a greater height after a while put on the same sickly appearance, but the Early Rose had so far been the least affected. In the locality of this correspondent, what is most remarkable is that all English sorts maintained a growing and healthy appearance.

Another correspondent in a distant locality remarks that the disease had only appeared among the American varieties, and that they had (middle of June) been half destroyed. "The disease may not be infectious; if it is, it will be a great pity that any of the American varieties were introduced. The experience gained at Loxford is all against them. A high price was paid for Early Rose, and after growing it for two or three seasons it was rejected as a miserable failure. We have now tried what was thought the next best red early sort, Extra Early Vermont, and it cannot this year be distinguished from Early Rose either in haulm or tuber, and the disease to boot; it will probably go to the pigs like all the rest of them. No more Americans, if I can have my way."

In the gardens of the Royal Horticultural Society at Chiswick, this mysterious disease is particularly virulent the present season, but faint traces of it have been observed for the past two years, particularly in the Early Rose both in this and many other localities. The foliage is described as becoming spotted, the stem discolored, and in a few days not a vestige of green is left, and in this way the tubers are effectually stopped in growth and cannot attain to a sufficient size to render them of any value for edible purposes. "The evidence is now forthcoming, and proves beyond any manner of doubt that the American varieties of potatoes grown from home-raised or English seed are especially liable to a visitation which may, as instances at Chiswick prove, render the crop worthless. The information we gave was not a moment too soon, for the disease is an established fact, not as a pathological discovery merely, but as a destructive agent jeopardizing the crop of a valuable esculent." In these gardens the disease seems confined to American varieties from English grown seed; those directly imported appear, so far, unaffected. Thus American Bread Fruit, from imported seed—the plants are perfectly healthy, while Snowflakes by their side, from English seed, are extensively diseased.

The principal seat of the malady appears to be the stem of the plant, just very slightly within the surface of the soil. "It is best explained by the perfect analogy afforded by a decayed post; above ground it is sound, and below sound, but between these points it is decayed." The old sets themselves generally appear healthy and sound, and the mischief, whatever may be its cause, first appears at the point of the stems before described. Whether the fungus which takes possession of the affected part is the cause or effect of the disease, cannot be satisfactorily determined without much patient microscopic investigation.

"The disease is distinct from the old murrain in appearance, and also in being affected by weather influences. The old disease spreads most rapidly with rain; the new increased the most quickly under the late dry sunny weather. Since the rains the progress of the malady has been slower, and the plants are generally more healthy and show fewer fresh outbreaks. It would appear that the real seat of the disease is in the seed tuber, and that when once acquired it is hereditary. Certain it is that in instances more or less frequent it has exhibited itself during the past few years, and, unfortunately, not much less certainly it is increasing in virulence."

It would thus appear that this important and hitherto regarded indispensable esculent is destined to encounter fresh and increasing enemies. The present great plague of a great portion of this North American continent—the Colorado beetle—has not as yet reached the shores of Europe, but should it do so, the culture of the potato will certainly become still more difficult and uncertain. Our principal reliance must be placed in thoroughly carrying out the precautions which observation and experience will be able to suggest; patiently awaiting for the light which scientific investigations, particularly those of a microscopic character, cannot fail ultimately to impart on this and other kindred subjects of great and acknowledged intricacy.

Preventing Damage by Currant Worms

Dry ashes are recommended as being a sure preventive against the ravages of the currant worm. When the worms first appear, dust the bushes thoroughly with dry ashes when the morning dew is upon them. The application must be repeated two or three times at intervals of a few days, as more worms will hatch from previously laid eggs.

Culture of the Poppy in the United States.

The cultivation of the poppy for opium is a branch of industry unknown to Canadian farmers; and until recently it was as much unknown to American farmers, though there it has been pursued for some years. The climate of some of the Southern States is very favorable to its culture, and as the demand for it incessantly increases, we are not surprised to see the area devoted to its cultivation extending from year to year. It is said to be largely grown in Louisiana, Florida and California.

Opium is well known in medical practice, and were the use of the drug limited to what is used as medicine, there would not be the slightest objection on moral or philanthropic grounds to the introduction of its culture into America; but, unfortunately, its use is not so limited. It is stated, and on good grounds, that not less than one hundred thousand Americans use this pernicious drug as a stimulant or narcotic, and it is known the annual importation of it to American ports is fully two hundred tons. When we add to this quantity imported that which is the product of the American soil, we may well believe that the number of victims to its use is not over-estimated. Opium is far more injurious to the human system than any other stimulant known in the Eastern or Western hemispheres. While the person who indulges in its use snatches a momentary pleasure, the use of the opiate insidiously undermines his constitution, enervating his body and mind, and leaving but a wreck of his former self.

Till within these few years the culture of opium was confined to Asia. India and Turkey were the principal, if not the only growing countries, and the Chinese the only important consumers; but now its culture is a regular branch of agricultural industry in America, and not only in the Southern States, but is becoming a well known crop in New England, and there is no need to look abroad for a market for the produce; home grown and imported—all find ready sale in the cities and towns of the Union. The American drug is prepared by expressing the juice from the whole plant, not as the Indian, which is prepared solely from the sap of the seed capsules. It is prepared in different forms, sometimes as molasses, syrups, elixirs, and sometimes solid in pills; but whatever the form, the seductive power and the deadly effects are the same—the entire prostration of mind and body.

Seed Wheat.

At the last meeting of the Forest City Grange, Mr. J. Johnstone, of Westminster Township, enquired of us how it was that the Scott wheat, which we recommended so strongly, had not stood the winter as well as other wheat he had, both having received the same treatment. This being the first complaint of the kind we heard, we promised to examine the wheat personally and ascertain the reason, if possible. Mr. Bruce said the Scott wheat with him had stood the winter better than any other variety; in fact, that no winter wheat he had seen this year was at all to be compared to it. He had one field, and a neighbor of his also had a field of it, and he did not believe there was any wheat as good in that township.

We went and examined both pieces. Mr. Johnstone had the Clawson wheat in the same field with the Scott; both varieties had been injured by the spring frosts. The Clawson, perhaps, looked a little the best, but we accounted for this principally from the fact that wheat had been raised last year on the part of the field where the Scott wheat was growing, and corn on the part where the Seneca wheat was. We consider that wheat after wheat is not likely to yield as good a return as wheat after corn. Mr. Bruce's wheat, we believe, would surpass any we have seen in the Township of London this year.

will be that your butter is washed, or the butter-milk all rinsed out of the butter, without breaking, marring or injuring a single grain. When it sufficiently hardens in the water take it out for salting, using the ladle to get out the most of it, and then the sieve. Now comes the salting and working. I prefer for a butter worker an inclined plain in the shape of a letter A, with a round lever. Spread the butter upon the worker, then put one half the quantity of salt that you may desire to put on, roll it in, then with a small, flat, wooden shovel, turn one half of it over on to the top of the other half. Put one half of the remaining, roll it back, do the other half the same, and then put on the balance of the salt; then work the salt in somewhat, taking particular care not to let the lever go down on the butter in a rolling motion. If you allow the lever to slip on the butter it will destroy the grain and make it shiney. Set the butter away in a cool place; at night put it on the worker; work it a little, then let the mass stand until morning.

Worms and Weeds

There are two enemies of the farmer which at this season of the year make desperate attacks on his premises, and, if they once gain a foothold, are not easily routed. These are worms and weeds. The worms deserve the first attention. Indeed, it is already late to commence the campaign against the tent caterpillar, which does much damage in our cherry and apple orchards. It is a good military doctrine to fight the enemy on his own ground. When he is fairly entrenched on your territory, and is thriving on your forage, he is not easily dispossessed. The time to destroy caterpillars is before they are hatched. A practised eye can easily detect the waxy protuberance that surrounds little twigs, looking very much like a warty excrescence, and containing the eggs, often 200, of the tent caterpillar. This waxy covering of the eggs is always placed near the extremity of the twig, so that the young caterpillars may easily find the tender leaves, which they begin to devour as soon as hatched. Cut the twig just below this excrescence and sacrifice it, eggs and all, to Moloch. This is Scipio's plan of carrying the war into the enemy's country.

The time for fighting the tent caterpillar in his own home has now passed. His tents may be seen pitched in all our orchards, and the worms are feasting and fattening on the young leaves. We see some young wild cherry trees by the wayside, on which there is not a green leaf remaining. But it is not too late to prevent these worms from passing into their perfect or the butterfly state, in which they mate, lay their eggs and die. The trees, also, if relieved now of these disgusting harpies, will send out new leaves and breathe in new vitality; and the sooner this is attended to the better. The best mode of destroying tent caterpillars is to handle them without gloves. We have tried opening their tents, putting in a little gunpowder, and exploding them powder-mill fashion. This does up the work effectually, but sometimes causes a cancerous wound on the tree. We have also burned them with a sponge or rag tied to the end of a pole and saturated with kerosene, but this method is liable to the same objection as that of gunpowder. Squelching them by means of a rag simply on the end of a pole is apt to leave a few stragglers, who will repair the tent and live to

multiply the race. We, therefore, prefer to give them a good hearty squeeze with the hand. It requires a little nerve to do it; but there is nothing like being accustomed to it, as the old goose said when plucked of her feathers for the tenth time. The operation is not so bad as one might suppose. The tent is made of silk, and crushing the worms inside is simply crushing them with a silk kerchief in your hand. If any one prefers to handle them with gloves, all right; but squelch them utterly.

In this worm business there should be no license. Prohibition is the only safety. It is expected of every man that he should do his duty on his own premises, and there should be a law compelling the officials of a town to destroy them on the trees by the highway. As it now is every one laments seeing them multiply by the wayside, but no one stops to destroy them. What is everybody's business is nobody's, and they are allowed to destroy the trees and increase some sixty and some a hundred fold. The wild cherry leaf is the favorite food of the tent caterpillar, and as the fruit of this tree is little valued, the worms are often allowed free

we will explain the great labor required to produce a cauliflower and the ease with which pig-weeds grow. The cases are very analagous. The cauliflower was originally a weed, but by judicious culture and selection of seed, has become a delicate and delicious vegetable. The same is true of all our table vegetables. Asparagus was once a tiny woody shrub growing on the sand of the sea-shore. Celery was simply smellege, a rank weed, thriving under the lee-way of stone walls. The improved plants cannot live on the same food as skunk's cabbage and hardhacks, any more than a cultivated man can thrive on the food of the Hottentot. The weeds must be eradicated or the vegetables stand a poor chance; much such a chance as the white man surrounded by a band of marauding Indians. The sooner the extermination of the weeds is effected the better for the crop. If they are neglected and left to grow together for weeks the vegetable becomes stunted, and cannot recover its vigour.—*N. Y. Times.*

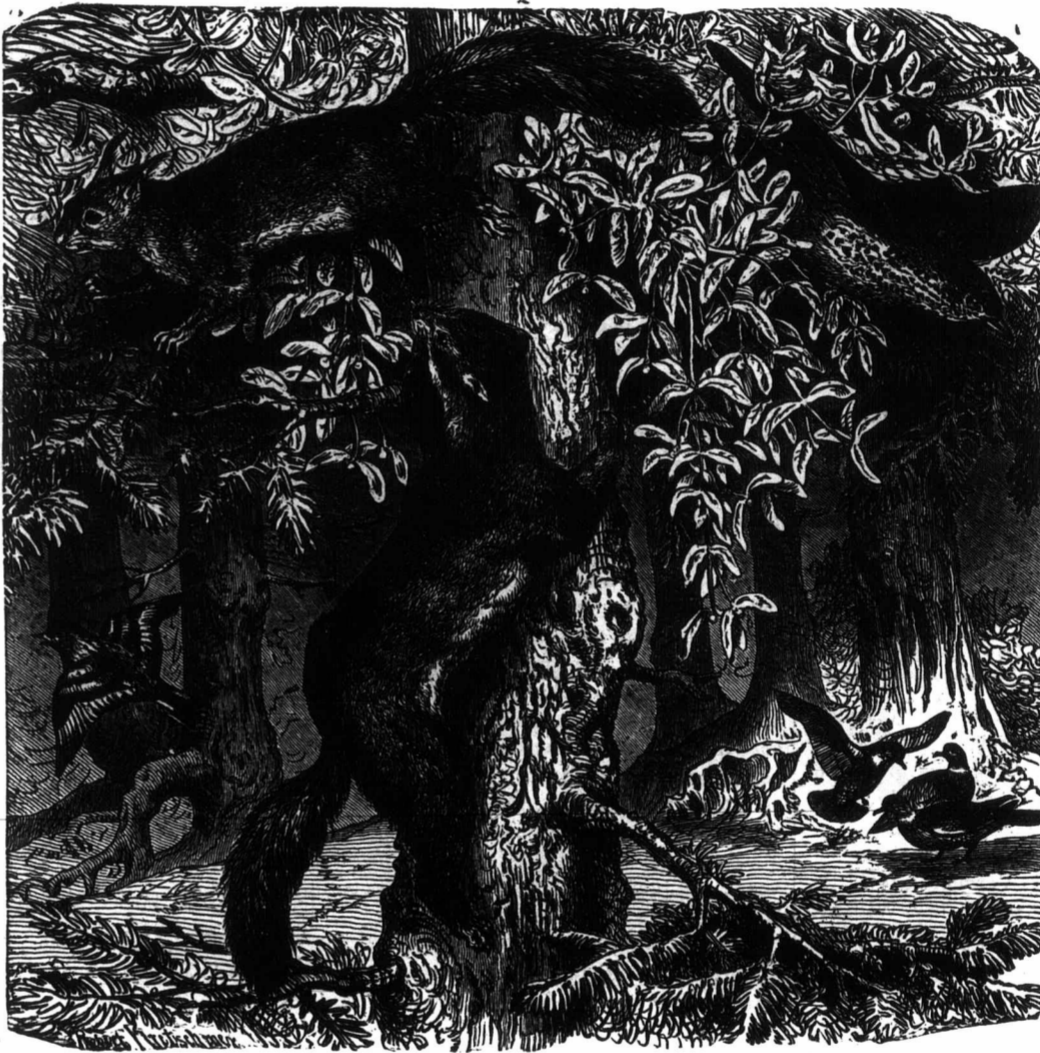
Reducing Bones.

If bones are cracked into fragments by means of a sledge hammer, on a broad, heavy, flat stone—surrounded with a broad hoop to keep them from flying—they may be reduced with ashes in two ways. They may be placed in a hogshead or barrel with alternative layers of wood ashes and a little fresh lime, so as to form a solid mass, the ashes being just sufficient to fill the interstices, and keep moist with water, but not enough to leach or run down. In a few months the bones will be softened, and may be worked over with the ashes and mixed with loam, road-dust or dry peat, into a compost. Or the work may be more rapidly performed by boiling the cracked bones in a large kettle, with as much ashes as will give the mass a semi-liquid consistency, and about a peck of lime to each barrel of bones to make the ashes caustic. Most of them will be softened, and by continuing the process a few hours longer on the larger and harder pieces, the rest will be reduced, when the whole will be mixed with absorbents as before. Or, if the bones are first ground, they will make a good compost in a few weeks if placed in alternating

layers with fermenting manure in compost. Their will be nearly equal value to superphosphate, varying with modes of treatment, and may be applied at the rate of 400 or 500 lbs. per acre.—“Country Gentleman.”

Scene in the Woods.

Our illustration, so pleasant and cheery, needs no descriptive words;—it speaks for itself. We all like to see the capers of the squirrels, and seldom they present themselves to the same advantage as here exhibited. How delightful it is to ramble among scenes like these, breathing in the delicious fragrance, and rejoicing in the glad music of “those noble choristers of nature's great cathedral.” How many there are penned inside city walls and town noises, who would like to spend the summer in the country, far from the din of the crowded cities. No doubt the sight of the picture in your *ADVOCATE* will please many of you, when you are too tired to go to the woods and give relief to the eye and mind.



The *Agric* sons which on the conti first heard man who, in what appea

“That so ever, no lo use has been of the *Roy* by agricult frequently relish with flavor and a have many we may a damper the better ough be appreci following sh in supposi maize or gr and covere used, and the better.

garian es actually s eight feet open and Into thes rises just mound w left until spade, all given to

“The p the pres need won dition. storing b a large v There se should n thus pitt to be ne used.

“An i compress out, and der is sof the wet

Sour Hay.

The *Agricultural Gazette* says:—"One of the lessons which the farmer may learn from his brethren on the continent is the use of sour hay. The writer first heard of this product from a French gentleman who, in broken English, attempted to explain what appeared to be a very unpromising process.

"That sour hay is actually a useful food is, however, no longer to be doubted, as its making and use has been pointed out both in a recent number of the *Royal Agricultural Society's Journal*, and by agricultural contemporaries. The writer has frequently seen it used, and can speak to the relish with which stock eat it, as well as to its flavor and appearance. Sour hay making seems to have many points to recommend it to English, and, we may add, Irish agriculturists; in fact, the damper the climate, and the worse the season, the better ought this process of preserving fodder to be appreciated. The process is as simple as the following short description of it might warrant us in supposing: The fresh fodder, usually green maize or grass, is tightly crammed into a trench, and covered over with a foot of earth. No salt is used, and the wetter the fodder is put together the better. In practice upon Austrian and Hun-

weather no one need then despair of storing his grass so as to preserve its utility; and again in seasons when keep is too plentiful, and apt to be wasted, the Austrian sour hay may be remembered with advantage."

[This method of preserving fodder fresh, through the winter comes to us recommended by so good authority that we cannot doubt that if properly carried out it would be attended with success and profit. We expect there will be much late forage crops this season, as many will strive to have some fodder—corn, millet and others—even though they were sown late. Some who may be unable to save them for hay by the ordinary methods might give this mode a trial, though it is new to the country.] —Ed.

Seeding to Grass.

We lay down the following requisites for successful seeding:—

1. A smooth bed of mellow earth.
2. Covering the seed by surface or brush harrowing, or rolling this mellow surface.
3. If seeded with winter grain, mellowing the surface either in late autumn or in early spring by surface harrowing.

which offer premiums for heavy crops, include grass as one of the most important of all?—"Country Gentleman."

Changing Seed.

A change of seed in agricultural operations is almost always beneficial. Growing the same crop in one locality from seed, year after year, often tends to deterioration. The advisability of this change of seed from one locality to another is well instanced in the oat crop. Seeds grown in the cool atmosphere and soil of Northern Vermont and Canada, are found to be more luxuriant when sown in the Middle and Western States, and uniformly turn out heavier weight to the bushel. If the same seed is sown every year, in the latter States, without new importation, the product per acre and the weight per bushel gradually deteriorate. The farmers of Bermuda always grow their potatoes from American seed, and never from their own seed; hence they are able to attain a remarkable success in potato culture such as we never knew here. Vegetable seeds should be changed frequently and obtained from localities remote from the farms where sown. The farmers of England, who raise cereals, roots and grasses are particular



garian estates (for we speak to what we have actually seen), trenches four feet wide and six to eight feet deep are made, and kept permanently open and fit for use by struts of wood and boards. Into these trenches the fodder is crushed, until it rises just enough above the surface to make a mound with the superimposed earth. There it is left until winter, and it is then cut out with a hay spade, allowed to dry, cut with a chaff-cutter, and given to the cattle in stalls.

"The process is so similar to that employed for the preservation of sugar-beet pulp, that no one need wonder that the food comes out in good condition. It may also be compared to the plan of storing brewers' grains by trampling them down in a large vat, only in this case salt is usually added. There seems to be no reason indeed why salt should not be sprinkled between layers of fodder thus pitted, but as above stated it is not thought to be necessary where the process is extensively used.

"An important practical point will be sufficient compression, so as to ensure all the air being driven out, and this will be easier affected when the fodder is soft, succulent and moist—hence the remark, the wetter the better. In case of set-in wet

4. If seeded with spring grain, and especially with oats, sowing never more than half the usual amount of grain.

5. The grass crop will be much increased by sowing a large amount of seed, say a half a bushel or more per acre.

To these requisites we may add that if the surface of the ground can be dressed with a moderate coat of light compost or short manure before sowing, to be finely intermixed with the soil by a light subsequent harrowing, it will not only tend to cause all the grass seed to germinate, but its growth will be greatly increased. A careful and thorough preparation will prove more economical in the end, by the heavy and reliable product which it will afford.

Farmers have given much attention to raising great crops of corn, potatoes and carrots, but very little special effort has been made to produce premium crops of grass. Manuring, fine pulverization, and abundant seed, which shall give from three to five tons of hay per acre, or a corresponding amount of pasturage, would doubtless be more profitable in the end than a more careless and superficial treatment affording only a ton and a half per acre. Why will not agricultural societies

in the selection of seed; in procuring it from a foreign country, if possible, and in steeping it in liquid manure before sowing. In the north of Ireland, where flax is grown extensively, the farmer prefers seed brought from Russia or Holland to that grown by themselves, as they find the change very beneficial. The finest bulbous and tuberous-rooted flowering plants are annually imported into England, the United States, etc., from Holland and Germany, and the change is beneficial for two or three years. Forest trees seeds obtained in the mountains of the Tyrol germinate in other parts of Europe with much greater vigor than those of home growth.—*Montreal Daily Witness.*

Travelling Scene.

When travelling one sees so many changing scenes at railway stations that are quite a little study to an imaginative mind. Our young readers might amuse themselves, and improve themselves also, by describing each character they see in the above illustration.

A Vermont sheep-breeder recommends a tablespoonful of sulphur to 2 qts. of salt as a feed to sheep that will exterminate ticks; feed twice a week.

Stock and Dairy.

Effect of Heating Milk to Different Degrees.

A correspondent asks the difference in effect of heating to 130 degrees, or to the boiling point. In the time of keeping sweet there will be considerable difference. The boiled milk will keep sound longer. Heating to 130 degrees drives out the animal odor, and kills most of the germs which the milk may contain. Heating to 180 will kill still more, and cause the milk to keep sweet a little longer. Boiling kills all, and makes the milk keep longer still. In the last case it would keep indefinitely if protected from the contact of air in which spores are floating.

The spores which float in the air are very minute and dry. As they fall into liquids or upon moist substances, they gradually absorb moisture and expand in size, and after a time, like other seeds, they begin to grow and multiply. In their growing stage they are very tender, and, like other germinated seeds, are killed by a little heat. A hundred and thirty degrees might be sufficient to destroy them. If they are only swelled it would require a higher heat to kill them; if they are dry, or have made but a trifling progress, nothing short of a boiling heat will wipe them out. When all the germs in milk are thus killed, it will not spoil till a new seeding of spores fall into it from the air, and have time to develop and multiply. If the heating has been so moderate as to kill only a portion of the spores which have started in it, decay will occur sooner than if all had been killed. The effect of the different degrees of heating upon the keeping quality of milk, may be thus accounted for.

When from any cause a cow becomes feverish, or her health so affected as to make her cream flecky, heating to 130 degrees will obliterate the tendency to flecks if the tendency is but little developed. If it is stronger a higher heat will be required; and if very strong, a boiling heat only will stop it. The same is true where milk is so affected that the butter comes with difficulty, or not at all.

For all ordinary cases of milk varied from its normal condition by the food or health of the cow, heating to 130 is sufficient to preserve the milk sound and in wholesome condition till it is consumed, or made into butter or cheese.

To facilitate the rising of cream, low scalding is best. A moderate heat—130 to 140 degrees—thins the milk and swells the butter globules, and makes them rise rapidly. Upon milk so heated, the cream rises so perfectly as to leave a blue skim-milk. A boiling heat cooks the milk and thickens it so much as to hinder the ascent of the cream, and leaves a white skim-milk, indicating that the separation of the cream is not perfect.

EFFECT OF HEATING UPON FLAVOR.

There is always in milk a small per cent. of flavoring oils derived from the essential oils of the herbage consumed by the cow. These, according to the herbage derived from, become ethereal, and escape at different degrees of heat. As the number of species of herbage which a cow usually consumes is pretty large, these oils are escaping all the way from the blood heat to boiling. The oils from some plants, like clover, become ethereal and escape at a very moderate heat; others, like turnips, require a little higher heat, while the flavoring from onions and garlics is not removed by even a boiling heat. But, in general, the higher milk is heated, the more of flavoring oils, whether good or bad, are driven off, abating the flavor of the milk and butter made from it. From the above reason it often happens that while the flavor of milk and butter will be improved by a moderate heat which is sufficient to pass off objectionable flavors, a higher heat will depress flavor by driving off desirable ones. And this same reason may explain why some milk is better not to be heated at all. Milk which is made from pleasant-flavored herbage, and is in all respects perfect, is better for butter making not to be heated, but the best butter I have ever had the pleasure of tasting, was made from milk which was moderately scalded.

If heating is to be done at all, whether high or low, it should be done quickly. The longer it remains hot, and the more evaporation from its surface, the thicker and tougher will be the skin which forms on its surface, into which both fat and casein enter and are rendered useless for either butter or cheese. The thicker the skin which forms on the top, the more butter and cheese there is wasted,

The pellicles which enclose the butter globules, which, by testing with nitrate of silver, I have recently shown are not casein, but in all probability are membranous, become softened and adhesive by cooking, and require constant stirring while heating to keep them from forming into a tenacious scum by the rapid evaporation from the heating milk. The quicker, therefore, the heating is done, the less loss there will be in this direction. —L. B. Arnold, in *Buffalo Live Stock Journal*.

Extract from Willard's Butter Book.

THE BUTTER CROP.

The annual butter crop of the United States has been variously estimated at from 700,000,000 to 1,000,000,000 of pounds. But enormous as these figures are, the leading butter merchants of New York believe the product to be larger. During the summer of 1864 the New York Butter and Cheese Exchange appointed a committee of eminent merchants to consider the subject of classifying and grading butter, in order to facilitate trade in this important staple.

The committee, in its report, states that the census returns of dairy products are incomplete and defective; and it is affirmed, further, that the latest, the most analytical and reasonable estimate in regard to the present butter crop of the country is the following, which was prepared by an experienced and careful statistician, who estimates the annual product to be over 1,400,000,000 lbs. If the average price be put at 30c. per lb.—a sum which would not be considered excessive for a fine quality of butter—we find the total value of the product to be \$420,000,000.

CONSUMPTION INCREASES AS QUALITY IMPROVES.

It has been observed—and, indeed, the fact seems to be beyond question—that as we improve the quality of our dairy products, the consumption *per capita* increases; and this has been especially so in regard to butter since the improvement in its quality on account of the introduction of the creamery system.

PRICE OF BUTTER ADVANCING ABROAD.

Another feature of importance in regard to butter may be mentioned in this connection; the price—though at times liable to fluctuate like that for other commodities—appears on the whole to be gradually rising. The English markets have shown this for several years past. During the last two years, and especially during 1874, the trade in London has complained of the scarcity of a good article. Butter imported into England from the continent of Europe has been quoted as high as 168 shillings sterling per cwt. That is to say, about 36 cents, gold, per pound. High prices in England have a tendency to maintain good prices on this side.

But in addition to this outlet the time is close at hand when the entire demand for dairy products in the West Indies and South America will be supplied from the United States, and will become an important trade. Increased transportation facilities, the use of metallic packages and improved methods of putting down butter, so that it will remain unimpaired during the sea voyage, together with the best methods of manufacture, must add greatly to the prosperity and permanency of this branch of dairying. The estimates presented will be sufficient for dairymen to fully appreciate the situation.

THE BUTTER COW.

On the value of the different breeds for the dairy, it is said:—

Nor can any one breed be recommended for all situations or to best suit the wants of all persons engaged in butter dairying. Farms differ widely in their character. Some lands have a level surface, others are rolling or gently undulating, while others yet are hilly and broken. Soils, too, vary from the richest to the poorest. Again, one farmer desires to make butter and cheese; another wants to get the best returns from his animals in butter, cheese and beef, or in butter and beef, while a third is looking simply for the best butter yield alone. It is evident no one breed will fulfil all these conditions at once and at the same time. As a general principle, it may be affirmed that good butter can be produced from any breed, and not unfrequently a common cow, with no renowned blood in her veins to boast of, will yield as much and as good butter as the boasted cow that has a long record in the herd book.

The dairyman should have a clear understanding as to his situation, the character of his lands, and

what he is seeking to realize from his stock, and then choose that breed which is best adapted to his purpose. But in saying this it must not be inferred that we regard a thorough-bred herd as indispensable; on the other hand, the cheapest and perhaps the most practical course to be adopted will be to select the best common cows that are to be had, and cross them with a thorough-bred bull of the breed best adapted to his purpose. Breeding in this way, from year to year, he will be likely to obtain a herd that will yield him the most profit and at the least expense.

THE MILK OF EACH ANIMAL SHOULD BE TESTED.

In choosing stock for the butter dairy, each cow should be tested separately as to the quantity and quality of milk she is capable of yielding. The milk should be accurately weighed or measured and then set aside to cream, and the per centage of cream determined. But this will not be sufficient, for some cows will give a large percentage of cream, yielding a comparatively small quantity of butter. The cream, therefore, must be churned and the percentage of butter obtained. In this way the dairyman will be able to form a true estimate of the amount of butter in each cow's milk, and from such estimate he will learn what animals in his herd are best adapted to butter-dairying, and those that should be discarded as not fit for his business.

Large losses are often sustained by keeping inferior stock. Many dairymen can give no accurate account of the value of any cow's milk in the herd. They know at the end of the year the quantity of butter that has been produced from the whole herd; but if it falls below what would be considered an average product, they are unable to point to the true cause of the deficiency. Not unfrequently the cow that gives a large mess of milk is credited much higher than the one yielding a moderate quantity, and yet the latter, on account of its superior richness, may be altogether the best butter cow. Some dairymen are under the impression that exceedingly rich milk is made by excessive feeding, ignoring the fact that the real butter cows must be sought for in particular animals or breeds noted for this peculiarity. Every cow has a structural limit in the richness of milk which she will yield, and beyond this standard of richness no amount of feeding will increase. Butter dairymen, therefore, should be careful to test the capacity of each cow in this regard, and they should enter her record on a book kept for the purpose, so that they may know what animals are yielding a profit and those that are not paying the expenses of their keep.

The Dairy and Butter Making.

An Essay by Mr. G. Jarvis, Westminster, Delivered at the Forest City Grange.

In these times, when there is so much information disseminated broadcast through our land, on everything pertaining to the farming interest, by means of the agricultural press, it can hardly be expected that I should offer anything new on the subject of butter-making. And here allow me to digress for a moment from my subject, to remark that we cannot sufficiently estimate the blessings and benefits we have realized from journals of agriculture during the last ten or twelve years; there is more general and useful knowledge by far possessed by us, as farmers, at the present time, than there was a dozen years ago, and very much of this is owing directly to the agricultural press; and yet there are many who do not avail themselves of this means of rendering their occupation more pleasant and profitable, their homes more cheerful and attractive, and their families more intelligent and happy. This is to be regretted, as such people do not realize half the pleasure in farming they might.

There has been so much said and written on the subject of butter making, that it would seem that all ought to be good butter makers, and yet we know this is not the case; nothing, indeed, is more common than poor butter. Go where you will, on the market, in the grocery store, at the hotel table, and the fact stares you in the face that one-half of those who make butter for sale make a very poor article indeed, something which is as much inferior to prime butter as a stale egg is to a fresh one. I think the subject a very important one, for while first-class butter is a wholesome and delicious article of diet, nothing is more disgusting to the taste and nauseous to the stomach than the

abominable stuff is really unworthy.

Perhaps the with butter constantly before throughout the milk is drawn up in rolls for sure should care respect is fail we may be i cleanliness w requires parti a proper time ing the milk risen; it shou as the milk b pans. The evening, in the winter. Th after each sk three times a week in wint washing butt sion that it is buttermilk s before the sa matter of ta place for tw and made i market.

One thing cows. No good, rich m wholesome supply of p give good, p I regard it should be w in this respo comes out al to spare, th is, if a cow much again regard to th changed my think six or consider th think a cow have better With regard with proper can be mad the feed of as nearly as can be done stalks cut w Then, if yo milk free fr are being keep it at n no difficulty. As to whet pends altho cows, and will only l dently will make first highest pri tion arises— this I woul from 180 to cows that highest fig est and see a pound gi worth \$10, have not ti that a goo such cows you may ti on the sou from the carefully valued it t suppose th to be dry t on an aver take three worth \$2 ninety day in ninety s on, thu in a year, ducting fr more to p \$40 for so cwt. of g each pig.

abominable stuff some people call butter, but which is really unworthy of the name.

Perhaps the most important thing in connection with butter making, and that which should be constantly before the mind, is absolute cleanliness throughout the whole process. From the time the milk is drawn from the cow until the butter is put up in rolls for the table, nothing of an impure nature should come in contact with it; failure in this respect is failure everywhere, for however careful we may be in every other particular, a want of cleanliness will spoil it all. Another thing which requires particular attention is to skim the milk at a proper time. Many injure their butter by allowing the milk to stand too long after the cream has risen; it should be skimmed, if possible, as soon as the milk begins to thicken on the bottom of the pans. The milk should be skimmed morning and evening, in the summer, and once a day will do in winter. The cream should be thoroughly stirred after each skimming, and churned not less than three times a week in warm weather, but twice a week in winter. People differ in the opinion of washing butter, but we have come to the conclusion that it is better without being washed. The buttermilk should be well worked out of the butter before the salt is added. The quantity of salt is a matter of taste. It should then be set in a cool place for twenty-four hours before being worked and made into rolls or prints for the table or market.

One thing I forgot to mention is the care of cows. No cow can furnish an abundant supply of good, rich milk, unless she is well fed with good, wholesome food, and furnished with a plentiful supply of pure water; give her these and she will give good, pure milk, either in summer or winter. I regard it of the utmost importance that cows should be well wintered. Many people greatly err in this respect; they seem to think that if a cow comes out alive in the spring, with perhaps a little to spare, that is all that is required; but the truth is, if a cow is well wintered, she is worth nearly as much again than if she were half starved. With regard to the time that cows should go dry, I have changed my opinion somewhat of late; I used to think six or seven weeks long enough, but I now consider that ten or twelve weeks is better. I think a cow will give as much milk in the year, and have better general health by being dry that long. With regard to making butter in winter, I think, with proper care, very nearly as good an article can be made as in summer. In order to do this, the feed of the cows should be made to approach as nearly as possible to the grass in summer; this can be done by feeding early cut clover and corn-stalks cut while perfectly green and nicely cured. Then, if you have a room where you can keep the milk free from getting tainted from articles that are being cooked, etc., and also where you can keep it at nearly a uniform temperature, there is no difficulty in making excellent butter in winter. As to whether butter making pays or not, that depends altogether upon management. To keep poor cows, and make a poor article of butter, such as will only bring the lowest price in market, evidently will not pay. But to keep good cows and make first class butter that will readily sell at the highest prices, pays all the time. Then the question arises—what is a good cow? In answer to this I would say, a good cow is one that will make from 180 to 220 pounds of butter a year. I have cows that make considerably more than the highest figure mentioned; but let us take the lowest and see how we come out; 180 pounds at 25c. a pound gives \$45 for butter, and the sour milk is worth \$10, to say nothing about the manure. I have not time to go into particulars, but I hold that a good cow is worth \$50 a year, and to keep such cows will pay very well. Perhaps some of you may think I have placed too high an estimate on the sour milk, but from my own experience and from the experiments of some of my neighbors, carefully conducted, I am satisfied I have not valued it too highly. To illustrate this, let us suppose that I have four cows; allowing each one to be dry three months in the year, I am milking on an average three cows all the time. If, now, I take three pigs, well bred, five or six weeks old, worth \$2 each (and I can raise them for that), in ninety days more I can turn off three more, and so on, thus making 1,200 pounds of first class pork in a year, which at 7½c. a pound, gives \$90; deducting from this \$24, the price of pigs, and \$26 more to purchase shorts, we will say will leave me \$40 for sour milk from four cows; \$26 will get 26 cwt. of good feed, which will allow over 2 cwt. to each pig.

Bots in Horses.

The larvae of the gad-fly find a temporary habitat in various parts of the bodies of higher animals. One variety, the *Estrus equi*, passes part of its life in the stomach of the horse, where it finds the conditions which are favorable to its development until it is ready to assume the chrysalis state. The time which is required by the larva to attain their growth is probably about nine months. As they are introduced into the stomachs of herbivora during seven months of the spring and summer, it naturally happens that an equine stomach is seldom examined without some of the larvae being detected adhering to the mucous membrane, or that portion of it particularly which is not concerned in the preparation of the digestive secretion the gastric juice.

Bots cannot properly be called worms, nor are they, in the proper acceptation of the word, parasites. Their residence in the internal organs is temporary, and at the proper time they quit their hold of the digestive membrane, and are expelled along with the feculent matters.

There is no difficulty in accounting for the presence of the bot in the stomach; in fact, the horse regularly infests himself by swallowing the eggs which the parent deposits in various parts of the body, especially in the legs, while the animal is feeding in the pastures or travelling along the road. Probably while the horse is confined to the streets of the town he is comparatively safe, but few animals go through a summer without entering a suburban district, and half an hour in the green lanes will suffice for the deposit of numerous eggs, which will afterward be swallowed, enter the stomach, and there become hatched into the larva, which quickly grow to a considerable size, some of them being nearly an inch in length. A smaller variety, which is of a bright pink color, is sometimes found, but there is nothing in relation to the peculiarities of these larvae, as compared with the common kind, which has any significance in a veterinary point of view.

An important question for the veterinary pathologist is—Are bots, during their temporary residence, usually or occasionally injurious to their host? And are there any means of expelling them? To the first question the reply is a general negative, but there are a few instances on record in which the larvae have been so numerous and have made so many notes in the coats of the stomach, that the integrity of the viscus has been destroyed, and the horse has died from rupture of the organ. Such cases are, however, extremely rare.

At different times we have been called upon to investigate instances of alleged death from the presence of bots in horses' stomachs, but in the majority of cases causes of disease altogether unconnected with the existence of larvae have presented themselves. In one remarkable case a number of horses had died in succession from an obscure malady, the nature of which could not be defined. The animals fell off in condition, refused food, and ultimately died in an extreme state of emaciation. It occurred to some to open the stomach of one of the animals, and, finding a number of bots attached to the lining membrane, it was at once concluded, without any hesitation, that the cause of the fatality was discovered, and the only question which remained to be investigated was the best method of getting rid of the pests, and thus preserving the lives of the other horses in the establishment.

A careful enquiry was meanwhile made into the circumstances of the animal's management, the result of which was to establish the fact that the fatal disease was in reality blood poisoning, due to the use of provender of a bad quality. No attempt was made to expel the bots, but a total change in the system of feeding was ordered, and no further attacks were reported.

In all instances where disease is apparently attributable to parasitic invasion, it is well to remember that other causes of disease may be present. The tendency to look upon worms of all sorts as the authors of any mischief which may have occurred, is likely to lead to wrong conclusions in the minds of unscientific inquirers.

As to the treatment of bots, it may be stated that no agent has yet been found to cause them to quit their hold of the membrane. Some remedies having been given at the time when the larvae happen to have attained their full development, gain the undeserved credit of causing their expulsion, but experience goes to show that no treatment is necessary, and none is likely to be effectual, even if it were necessary.—*London Agr. Gazette.*

Corn as Fodder for Stock.

The following is the experience of several prominent American farmers in feeding stock on green corn fodder. One New York State farmer says:

"Last year, though I was short of hay; July 4, I sowed an acre of corn for fodder, three bushels of seeds, eight rowed yellow, and rolled the ground after harrowing. October 1, a man with a corn cradle cut it in one day, and it lay in swath one week (if very dry weather three or four days would be sufficient). Two hired men then bound and set up in one day in shock, tied nicely at the top. There was on that acre 1343 bundles of fodder as large as a man could reach around and bind. I let it stand there until the ground was frozen, when I found it to be dry and fit to go into the barn, where I packed it with straw in alternate layers. Every bundle came out as bright as the day it was bound. I fed seven cows, three head of young cattle and one span of horses until the first of February on that one acre of fodder. The cows gave as much milk while the fodder lasted as at any time in October on after-grass. The horses did better on it alone than when fed twelve quarts of oats and hay per day. I have as good a river-bottom meadow as there is in the County, and I think the acre of fodder was worth more to me than four of the best acres of meadow. Observe the following rules and I warrant success: Sow broadcast small yellow corn, roll the ground, wilt the fodder, bind when dry four or six bundles in a shocktie nicely at the top, let stand until cured, feed out in the field if convenient, or pack up in the barn with straw."

Another farmer in the same State gives his experience, as follows:

"I keep a dairy, and for three years past I have used sowed corn fodder for winter feed with satisfactory results. I am at this time milking 16 cows most of which have been milked constantly since last spring, and my average flow is 120 quarts per day. I have not fed a forkful of any fodder but sowed corn since they came to the barn, about the first of November. I used about two bushels of buckwheat bran or shorts each day; sometimes brewer's grains in place of shorts, in which case I double the quantity. This amount is divided among the whole herd. My stalks are fed in bundles as they come from the field (uncut). After the cattle have picked them over for an hour or so, I mixed the shorts in the form of a mash, and put it on the stalks remaining in the mangers, the most of which they eat, leaving only a few of the coarsest of the butt. The stalks are most of them fine. My stables are warm, and the mangers tight. The cattle remain in through the day except about two hours, when they are let out for water, and are in fine condition. It must be remembered that it takes much heavier feeding to produce milk than to keep dry stock.

I sow the seed with a drill, five rows at once, 18 inches apart, and use three bushels of (Western) corn to the acre. The ground should be well prepared; nothing further needs to be done until you harvest the crop. The past year I began to sow the middle of May, and sowed at intervals until the last of June. That sown about the first of June produced the best and most feed. I commenced to cut about the middle of August, and cut at intervals until the first of October. I lay it in swaths to wilt about three days, then bind in small bundles and put up in small stacks with bands, leaving the top open for the escape of steam. I leave the fodder in the field till winter, and bring it in in small quantities as required for use. My feed is all bright and sweet, except the outside leaves, which are somewhat bleached. I sowed last spring 26 bushels of corn, shelled. From its product I shall carry a stock of 17 milch cows from the first of November to the first of May, with the help of the shorts as above. I am not saying that it is cheaper or less labor to use corn fodder than hay if you have the meadow from which to cut the hay, but I do maintain that I can carry as much stock on 10 acres of fair crop of sowed corn as can be carried on 38 acres of average meadow.

Gypsum will sometimes prevent disease, and will always contribute to the growth of potatoes. Put it in the hill with the seed, and on the hill when the tops first make their appearance, or when you cultivate the first time. A handful or so is sufficient in the hill, the top-dressing may be more liberal. Ashes and salt are also beneficial, and a mixture of ashes, gypsum, and salt is highly recommended by those who have used it as an excellent fertilizer for growing crops.

gether, breaking them into fine mist. Mr. Severance says that the faster he pumps, the finer is the mist; that the water can be thrown with such force that he can fairly cover a tree from one standpoint, and only waste a trifle of the liquid; that one pailful is sufficient for about two trees of the ordinary size in our oldest orchards; that the Paris green will settle to the bottom, making it necessary to stir it frequently, which he did by turning the nozzle into the pail, when, with two or three strokes of the pump it is thoroughly agitated; that the force pump is valuable for various uses, so that it cost him very little for his outfit. He was but half a day in sprinkling the 250 trees, and one sprinkling killed every worm.—*Rural New Yorker*.

Value of Earth Worms.

The common earth worm, though apt to be despised and trodden on, is really a useful creature in its way. Mr. Knapp describes it as the natural manurer of the soil, consuming on the surface parts of decayed vegetable matters, and conveying downwards the more woody fibres, which there moulder and fertilize. They perforate the earth in all directions, thus rendering it permeable by air and water, both indispensable to vegetable life. According to Mr. Darwin's mode of expression, they give a kind of under-tillage to the land, performing the same below ground that the spade does for the garden, and the plow for arable soil. It is, in consequence, chiefly of the natural operations of worms that fields which have been overspread with lime, burnt marl or cinders, become in process of time covered by a finely divided soil, fitted for the support of vegetation. This result, though usually attributed by farmers to the "working down" of these materials, is really due to the action of earth worms, as may be seen in innumerable casts of which the initial soil consists. These are obviously produced by the digestive proceedings of the worm, which take into their intestinal canal a large quantity of the soil in which they feed and burrow, and then reject it in the form of the so-called casts. "In this manner," says Mr. Darwin, "a field, manured with marl, has been covered in the course of 80 years, with a bed of earth averaging 13 inches in thickness."—*Encyclopaedia Britannica*.

If there is one place more unlikely than any other in London where gardening would be pursued, it is the dome of St. Paul's Cathedral, yet there, at an elevation of somewhere about 200 feet, one of the officials tends his four small pots, the tenants of which are a fuchsia, a geranium, and two musk plants.

The caterpillar scourge in Oxford county, Me., and vicinity, has caused immense damage; the orchards and large tracts of wood land are as bare as in winter, and many trees have been killed, while in the little town of Buckfield alone the loss by the ruin of the apple crop will amount to at least \$20,000.—*N. E. Farmer*.

M. Leroy, a French farmer, has experimented upon the growth of beets planted at six different spaces between the rows, and as many between the plants in the row. At 20 inches between the rows, and ten inches between the plants, the crop amounted to 72,600 kilograms; when the spaces between the plants were increased, the crop decreased as follows: At 12 inches, to 72,200 kilograms; at 14 inches, to 68,800; at 16 inches, to 67,700; at 18 inches, to 64,400; and at 20 inches, to 64,100. Thus, contrary to a grain crop, a crop consisting of moderate sized roots, growing closely together, would seem to yield a heavier produce than a crop of larger roots more sparsely grown.

Readers of newspapers often meet with the term "car-load," but few of them know just what or how much it is. The *St. Louis Times* has taken the trouble to learn, and says, as a general rule, 20,000 pounds, or 70 barrels of salt, 70 of lime, 90 of flour, 60 of whiskey, 200 sacks of flour, 6 cords of soft wood, 18 to 20 head of cattle, 50 to 60 head of hogs, 80 to 100 head of sheep, 9,000 feet of solid boards, 17,000 feet of siding, 13,000 feet of flooring, 40,000 of shingles, one-half less of hard lumber, one-fourth less of green lumber, one-tenth of joists, scantling, and all other large timber, 340 bushels of wheat, 300 of corn, 680 of oats, 400 of barley, 360 of flax seed, 360 of apples, 430 of Irish potatoes, 360 of sweet potatoes, 1,000 bushels of bran.

Common Mistakes.

What a common mistake it is, amongst even some of our most intelligent men, to select low, sheltered, warm places, if possible, whereon to lay out their orchards, quite forgetful of the fact that by so doing they are laying their fruit and other trees all the more liable to the ravages of frost. This may seem paradoxical, but let us examine the philosophy of it. On hills, where the wind blows freely, it tends to restore to plants the heat lost by radiation, which is the reason that hills are not so liable to sharp frosts as are still valleys. When the air is cooled it becomes heavier, and rolling down the sides of the valleys, forms a lake, so to speak, of cold air at the bottom; this adds to the liability of frosts in low places. The coldness is frequently still further increased by the dark and porous nature of the soil in low places, radiating heat faster to the clear sky than the more compact upland. A knowledge of these properties, therefore, teaches us the importance of selecting elevated localities for fruit trees and all crops liable to be cut off by frost; and it also explains the reason why the muck or peat of drained swamps is more subject to frosts than other soils on the same level. Therefore, corn and other tender crops upon such porous soils must be of the earliest ripening kinds, so as to escape the frosts of spring by late planting, and those of autumn by early maturity.

Caterpillars.

It is with some concern we learn that these pests are quite numerous in some parts of the country. They have made their appearance in Maugerville and Sheffield, attacking the trees, and doing considerable mischief. In Rushagonis, or in some part of the settlement, the trees have been stripped of the foliage by them, and one farmer informs us, that having got through that part of their work, they have spread themselves over his pasture, and are so plenty, as to prevent his stock grazing. He much fears that they will attack the crops next, and should they do so, the consequences will be very serious. The method he has adopted to save his fruit trees, is in the first place to wash them off with a goose wing, or something of that sort, then place tar around the tree, quite close to and about the lower part of the trunk. Here they stick as they come, and pile up by themselves, when he kills them. Some brush them off the trees with hot water, but others affirm that this does not kill them, and as the water cools off, they cool off too, and resume their march. A gentleman told us to cut one by passing the blade of his knife half way between the extremities, the knife cutting into the bark of the tree. The vermin immediately called a halt, and backing up to the forward part, went through the process of uniting, which he accomplished in a very short time, and then moving on as complete as if nothing had happened. The story sounds rather hard, but we are afraid, to use our informant's words, that there is more truth than poetry in it. The only wonder is that the rascal did not don an additional head and tail, and become two distinct caterpillars.—*Colonial Farmer*.

The Bird Question.

In an article entitled "The Bird Question," published in the seventh volume of the *Transactions of the Illinois Horticultural Society*, showing the indispensable agency of birds in holding the insect world in check, it is admitted, nevertheless, that if any species of bird should actually become so numerous and injurious as to interfere essentially with the cultivation of any important crop, it would fall into the same category with noxious insects, and that it might therefore become necessary to reduce its numbers.

I have since questioned, very much, the propriety of disseminating this doctrine, because, though it may be theoretically true, it remains to be proved that any such case has really occurred, or that it is likely to do so; and the danger is that any admission of this kind is so liable to be taken by thoughtless persons as a sanction for destroying these beautiful and almost universally useful creatures, under circumstances which could by no means justify the cruel practice.

As stated in the article referred to, there are, fortunately, only a very few species of birds which have been accused of being seriously injurious to the farmer or the horticulturist, and these feed largely upon insects during all parts of the year except the few weeks in which they regale themselves upon the ripening fruits. The two species of birds which have been signalized as most in-

jurious to the horticulturist, on account of their habit of pecking into ripe grapes, and thus damaging more than they devour, are the quaint-voiced catbird and that elegant ornament of our grounds, the Baltimore oriole or golden robin. Both of these are active destroyers of insects, and like the great majority of birds, feed their young exclusively upon this kind of diet. They have both frequented my garden the present season, and I have been much interested in watching the assiduity with which a pair of cat birds fed their young with various kinds of worms or larvae, their nest having been built in a syringa bush which was trained against the side of the house.

I have also observed the golden robin in its search after insects, and in one instance saw a female alight upon the perpendicular trunk of an apple tree, clinging to it with much tenacity, though not with the ease of the woodpecker; she would sometimes even stand with her head downward, then let go her hold and catch in a new place, and once darted off after a moth, which she had dislodged from its hiding place, and this is just the situation where she would be most likely to capture the codling moth as it emerged from its pupal covering under the bark.—*W. L. B., in Prairie Farmer*.

Orchard Grass.

A friend of ours—a progressive farmer in one of the best farming towns of Western New York—is enthusiastic about orchard grass. He says he can keep a cow on a half acre during the summer and have some hay for winter use on the same plot of ground. Orchard grass starts earlier than any other feed, stands the drouth well, and not only bears but needs frequent cutting or cropping. Our friend's plan would be to pasture in sections. Tying the cow to a stake during the day and letting her eat the grass in a small circle around it. As soon as any part of it became large enough to cut it should be mown, and either fed to a cow at once or saved for hay. Nothing injures orchard grass more than to let it get too large. The stalk becomes woody and the root is enfeebled. When cut often and early the grass starts with astonishing rapidity. No other grass will yield as much good feed per acre, and no other will pay better for liberal manuring.—*Rural New Yorker*.

Corn Fodder.

A correspondent of the *New York Tribune* says:—I have never failed to have bright, sweet fodder, and with less labor than your correspondents generally think necessary. Sow in rows 2½ feet apart, seed one inch distance in the row; when ready to cut, use a common corn-knife; take six rows in breadth, and the distance down the row to make a square, grasp the standing corn with the left hand—as much as the hand can hold—and cut with the right hand, stand each handful around a centre stalk (left uncut) until the square is all cut, then bind around the top with cut grass, straw or stalks. By this plan no fodder is lost, nor injured; it is put up in the stalks green, rain will not injure it, and all the labor of turning the stalks, picking up and anxiety for fear of rain is avoided. Fodder thus cured can remain in the field a month or more, and when removed will be found to be bright and sweet. My rule is never to allow a stalk to lie upon the ground—nor a stook either when blown down—because it will cure better and be safer in the stook and unnecessary labor be avoided.

Lice on Cattle.

You can destroy these parasites by washing the whole body with a strong solution of tobacco or stairsacre; but if the itching causes the patient to lick the skin freely, there is some risk of poisoning, unless a frame is put on the neck to prevent the head from being turned one side. The following are safe and efficient: Sulphur ointment or whale oil rubbed over the part of the whole body; a solution of sulphuret of potassium, four ounces to the gallon of water. These do not destroy the eggs, so that a second dressing may be wanted four or five days later when these have hatched out, or even a third after an equal lapse of time. Stalls and rubbing-posts may be dressed with quick lime; clothes, if any, should be boiled, and combs and brushes dressed with one of the washes mentioned. A liberal diet is an important adjunct, and the avoidance of subsequent contact with lousy animals is no less essential.—*E.*

Many am
centage of
In some in
able, but in
the care, or
care bestov

To comm
should be
dried, and
they will
eat until t
them to th
boiled egg
hearty fee
will negle
own appet

Do not,
it will onl

The sec
three hou
light. F
should be
set (and
plan to h
able, so t
sired—to
steal the
potatoes,
should be
add to th
up Indian
bake it in
the chick

At two
the last
nating p
enough to

At abo
morning
Indian m
cake, the
never use
The chick

Where
vise that
curds, th
again ov
your feet
then stir
than the
cracked
thrive.—

N. wr
dan fowl

I have
and four
in gener
bodied a
seven to

seven.
with cre
combs s
strawben
colored,
across of
having t
the Dorl
indispos

very ha
care of
of their
very usu
not usua
they are
three ye
fertile,
comment
parent
want to

The
being c
and the
wet. T
fatten
ordinar
convinc
good, a
Mr. T
for the

Poultry Yard.

Care of Young Chickens.

Many amateur breeders complain of a large percentage of loss among their early hatched chicks. In some instances this is perhaps almost unavoidable, but in the majority of cases the fault lies in the care, or, more properly speaking, the lack of care bestowed upon the young broods.

To commence at the beginning, the young chicks should be taken from the nest as soon as fully dried, and placed in a basket near the fire, where they will be kept warm. The young chicks rarely eat until twenty-four hours old, at which age give them to the hen, and feed with the yolk of hard-boiled eggs. It is best to give the hen a good hearty feed before giving her the chicks, else she will neglect the brood until she has satisfied her own appetite.

Do not give any more feed than will be eaten up; it will only be wasted.

The second feed should follow in about two or three hours, even if it has to be given by lamp-light. From this time until a week old they should be fed five times between sunrise and sunset (and six or seven times is better.) It is a good plan to have a lath pen in front of the coop—portable, so that it can be lifted from one side if desired—to feed them in; then the old fowls cannot steal the feed. After three or four days, boiled potatoes, mashed and mixed with fine wheat bran, should be added to their food. At a week old, add to the latter scalded Indian meal. Also, mix up Indian meal and water, put it into a pan and bake it in the oven; crumble it fine and feed it to the chicks.

At two weeks old begin feeding cracked corn for the last feed at night, and continue this—alternating perhaps with wheat—until they are old enough to eat whole corn.

At about three weeks old begin feeding them at morning and noon equal parts, by measure, of Indian meal, medium wheat bran and ground scrap cake, thoroughly mixed and scalded. We have never used a more growing feed than this last. The chicks grow and thrive wonderfully on it.

Where sour milk can be obtained, I would advise that the milk be placed on the stove until it curds, then strain off the whey, and placing it again over the fire, let it come to a boil. Scald your feed (either for young or old) with this, and then stir in the curds. This is even better feed than the above, and chickens kept on this and cracked corn, as advised, alone, are certain to thrive.—*Poultry Bulletin.*

Houdan Fowls.

N. writes to the *Country Gentleman* of the Houdan fowls as follow:—

I have kept the Houdans for two or three years, and found them eminently the fowls for farmers in general. These fowls are short-legged, heavy-bodied and mature early, the cocks weighing from seven to nine pounds, and the hens from five to seven. They are evenly spangled black and white, with crests, or top-knots mixed black and white; combs small, forked or antler-shaped, like a split strawberry; wattles large, red and bright; legs lead-colored, and five toes. They look as if they were across of the Colored Dorkings on the White Polish, having the shape, fifth toe and table qualities of the Dorking, with the large crest, prolificness and indisposition to sit of the Polish fowls. They are very hardy and "shifty," willing and able to take care of themselves with but little care on the part of their owner. The hens lay a large, white egg, very similar to that of the Black Spanish, and do not usually become broody or inclined to sit before they are two years old, and often not until they are three years old. Their eggs are almost invariably fertile, and the chicks, almost as soon as hatched, commence foraging for themselves, without apparent regard for their mothers, except when they want to be hovered.

The chicks mature and feather rapidly, never being callow (without feathers) like the Asiatics, and therefore are not liable to injury from cold or wet. They are naturally very tame, and therefore fatten rapidly. Careful comparison with all the ordinary varieties of fowls sold in the markets has convinced me that there is no fowl equal to, if as good, as the Houdan for the table. I know that Mr. Tegetmeier claims that a black fowl is best for the table, but a comparison of the Houdan

with the Black Spanish, as generally served up on our tables, will convince any one that the black fowl is the poorest meat. I have never tried the Crevecoeur, which was the black fowl especially referred to by Mr. Tegetmeier, but if it is a better table fowl than the Houdan, it is worthy of all the encomiums bestowed on it by so noted a poulterer.

Mr. Lewis Wright, the author of the *Practical Poultry Keeper*; says of this breed that "of all the French breeds we should ourselves give the first rank to the Houdan, on account of its great hardihood and plentiful production of eggs." He also says that "the French breeds are eminently table fowls; and it is worthy of remark that by breeding for edible qualities, without paying over-much attention to feather or other fancy points, our neighbors have succeeded in procuring birds far superior to any English breed." He also states that in his opinion, "they are emphatically the fowl for the farmer, and will yield an ample profit on good feeding, both in eggs and flesh. Almost the only drawback is their refusal to incubate." I quote Mr. Lewis Wright for the reason that he candidly states the general experience with the different breeds in all parts of England, and is an unprejudiced writer.

Never having kept Leghorns, I cannot give from experience the comparative merits of the two breeds. Judging from appearances, the Leghorns will not endure so severe cold unharmed as will the Houdans. These latter can safely be permitted to roost under open sheds in the winter, without fear of losing their combs, but they will not lay under such treatment. The Leghorns are not so good a table fowl, being more bony, leggy, and having more offal. There would probably be little difference in their laying qualities, when kept in similar circumstances.

Profit in Poultry.

It may not be generally known that the largest and best appointed poultry yard in England or the world is owned by a lady, under whose immediate supervision it is successfully conducted. I speak of Right Hon. Lady Gwydyr, at Stoke Park, Ipswich. If a lady of her standing finds profit and pleasure in raising poultry, I know of no good reason why the ladies of America, especially in the days of "women's rights," may not also engage in it, both for profit and pleasure. I am confident, if the farmer's wives would devote a portion of their time to this pastime, they would not be compelled to ask their sometimes begrudging lords so often for pin money; in fact, they would be able to relieve their husbands from some of the drain upon their purses for household expenses. Besides, by judicious selections of stock, they would soon be possessed of something in the stock line to be as proud of as their husbands are of their herds of Jerseys, Devons or Berkshires.—*Cor. of North West Poultry Journal.*

Feeding Turkeys.

Why is it that one farmer raises nearly every turkey that comes out of the shell, and does this nine years out of ten, without much respect to wet or dry seasons, while another loses from one-half to three-fourths with about the same uniformity? We know of men with whom success is the established rule. They are very systematic in this, as in all other business. We visited one of these thrifty farmers, who raised 165 turkeys last year from nine hens, and upon inquiry found that he did about the same thing every year. We wanted to know just how he did it, and found him communicative. He insists upon good stock to begin with—the best always selected to breed from. Then he places great reliance upon regular feeding during the fall and winter, so that the flock becomes very gentle, and the hens make their nests immediately about the sheds and barns in places prepared for them. This is a great safeguard against foxes, skunks, crows, hawks, and other creatures that destroy birds or their eggs. When the young first come off the nest, they are confined in pens for a few days until they are strong enough to fly over a board enclosure one foot high. Feed frequently with coarse cornmeal and sour milk until four in the afternoon. He found in his experience that he lost a good many turkeys from the food hardening in the crops. There is danger from overfeeding. As the turkey grows, the sour milk diet is increased, and during the summer it is kept constantly in a trough for them. They are exceedingly fond of sour milk and buttermilk, and they grow very rapidly upon this diet. An incidental

advantage, and an important one, he thinks, is that the young birds are prevented from straying very far from the house. They return many times during the day to the buttermilk trough for their favorite food. This, with Indian meal, constitutes their principal food until midsummer, when insects are abundant, and they wander further from the house. This method can easily be tried on dairy farms.—*Massachusetts Farmer.*

The Guinea Fowl.

We can assure our correspondent, from repeated personal experience, that the Guinea fowl is the richest and most palatable of all our domestic poultry. We can remember of no game bird among the Gallinae that surpasses it, and when our grouse and partridges and prairie chickens become extinct, as they will by-and-by, the Guinea fowl will prove a perfect substitute for them, and as it breeds freely and requires but little care, it will be practicable to breed it in all sections. After the bird attains an age of two years, it needs some other process of cooking than by roasting, but with an age of less than two years, a roasted Guinea fowl will discount anything else in the edible line we can raise. In reply to the query in relation to Brahma fowls' combs, we would say that the form now most desired is the triple or pea-comb.—*Ed. M. Plowman.*

Physiology of Eggs.

Every fowl has two small organs near the extremity of the body called the ovaria. It is filled with elastic tissue, and feels, under the finger, like a sponge. The eggs are started here, and those which will mature in a year or two, or three hence, are in embryo. One is forced up, is seized by the stroma, which is seventeen inches long, and passes rapidly through. When the egg leaves the ovary it consists of yolk only, but in its passage through that short canal, the yolk is surrounded by enough albumen to perfect the chick. The white of the egg has in it all that nature requires for making bones, muscles, blood vessels, connecting tissues, skin and feathers. Just before the egg leaves the body, this canal has the power of secreting lime for the shell. This shows how valuable the egg is as a nutriment, and also what demands are made for rich food by a hen that lays an egg daily. Besides what she requires for her sustenance, she is called upon to secrete the material for the body of an entire chick, and also retains for the little creatures sufficient to last many hours after it leaves the shell. It shows also that a hen cannot make albumen so rapidly, except out of albuminous food, such as meal, wheat and small animals. It is not true that there is a certain number of eggs, and that, this number exhausted, no more can be expected; but it is true that the secretions lessen as old age comes on, and latterly the hen fails to have sufficient force to carry forward the process. The practical bearing of this is that we must see that the fowl is always well kept.

The way to have good laying pullets is to quicken the circulation and strengthen the systems by liberal nutriment. The yolk is food for the first three or four days.

Careful housewives make a mistake by attempting to feed them before the expiration of that time. Let the mother bird have charge, and success will be certain, for she knows better than man can what the chick requires.—*Poultry Review.*

A New Enemy to the Crops.

B. M. Gill, residing at Murray's Farm, Baltimore County, sends us a lively specimen of the worms that are praying in the rye and wheat fields in some parts of the country. Although this particular worm was brought by mail from Woodens-brough, and was tossed about in the usual way in the distribution of the mail at the post-office and in the *American*, it was in excellent health and spirits when taken from the envelope, and forthwith began to crawl over the editorial desk with remarkable activity. In general appearance it resembles a young caterpillar, but it is far more agile. Mr. Gill also sends specimen ryeheads in which the pest has been practising his nefarious arts. The soft grains are hollowed out, leaving nothing but the shock and the chaff. The worm is about one and one-fourth inches in length. Concerning the ravages of this pest, Mr. Gill writes: "In some rye fields heads are almost void of grains, and the ground litterly covered with chaff. Late sowed rye would not be worth harvesting, were it not for the straw. The early sowed rye is also seriously damaged. The wheat crop in this section has also suffered slightly.—*Baltimore American.*"

Garden, Orchard and Forest.

Hints About Transplanting.

Most farmers would be well repaid by frequent visits to market gardeners near large cities. They learn much by visiting each other, but market gardening is farming refined to its last degree of profitable soil culture. Not that gardeners always use more expensive methods than farmers; often they are less so, and farmers may frequently learn economy in doing nice jobs from men whose keen competition compels the greatest possible saving of time, labor and money, while they will also learn the skillfulness and care essential to success. This is especially true in setting out plants, shrubs or trees. The comparatively little which farmers do in this line costs more than it should, and after all, from carelessness of important rules, is as likely as not to result in failure. The farmer's tomatoes and cabbage are more apt to wilt than the market gardener's, though the time the farmer gives to the work may be fourfold what the other employs.

The common error in transplanting herbaceous plants, as cabbage, tomato and celery, is in trying to save too much top. The farmer gets large plants with thrifty leaves, which make a fine appearance, and he hates to sacrifice any. The market gardener looks mainly to the roots, increasing them if he has the growing of them, by once or twice transplanting from the seed bed. This causes numerous fibrous roots to form and makes the check from final transplanting very small. As for the leaves, a market gardener will trim these remorselessly, leaving only a centre from which all growth must spring. The result is the same in either case.

The fine-looking leaves which the farmer tries to save invariably die, spite of careful covering with burdock or rhubarb leaves, while the trimmed plants of the gardener, if planted at sundown, have taken root by morning and will take little injury thereafter. The philosophy of this is very simple. The large leaves attached to the plant are exhaling moisture all the time, and the leaves wither clear to the stem before the root can supply them with any moisture. Even at this stage it is better to clip them off with the shears rather than leave them to rot on the plant and slough off slowly, as they will surely do.

A common mistake in transplanting is, deluging the soil with too much water. A little water on the leaves checks their evaporation by keeping them cool. But the ground is apt to be of lower temperature than the air, and if deluged with cold water, this makes it colder, retarding the action of the roots and often causing many of them to rot outright. Quite frequently the plant perishes from this cause, and the owner does not suspect what is the matter. Besides, on heavy soil, excessive water, warm or cold, causes the earth to bake in dry weather and a hard crust to form on the surface, entirely excluding light and air. Under such conditions tender plants cannot thrive — can scarcely live.

The practice of the best gardeners is to use very little water about the roots, and that rather warmer than colder than the air. If the ground be freshly plowed, it will usually be moist and favorable for the roots to start. In such cases, dipping the plant, roots and top, in water, will be sufficient. Some water will adhere to the roots and the earth will cling to this sufficiently. If further watering is needed, let it be always before the hole around the plant is filled up.

The packing of earth around the roots should be done carefully by hand, pressing fine particles around and between the root fibres. Where a hole is made in the ground and earth raked in around the plant, it is always the lumps which naturally fall in first, and in these the roots make hard work to live. Put the finest earth in contact with the roots. Even if dry, when the roots have been wet properly it will moisten the soil sufficiently. Better have too little water than too much. Press the earth moderately around the stem. With the too common practice of packing the earth at the top of the ground and little if any below, it is a wonder that so many plants live as do.

Do not, on any account, drench the plant heavily with water soon after transplanting. The only effect of this is to wash down among the roots and loosen the earth from rootlets already perhaps beginning to form. If the plant seems to be drooping, wetting its leaves or covering with a wet rhubarb leaf will usually be sufficient. (A great many farmers will use burdock for this purpose,

and burdock leaves will answer, but we shan't take the responsibility of recommending burdock.)

Do not put any strong manure in contact with the roots of newly-set plants. Many farmers have their cabbage and tomatoes unaccountably die from this cause. If it is advisable to manure in the hill, put the manure a little below or on one side the plant, and mix it somewhat with the soil. The roots of newly-set plants are dormant at first and easily begin to rot. For this reason strong liquid manure should never be applied until some time after a new growth has commenced. Ground for celery needs to be very rich, and mistakes are most frequently made in too heavily manuring this plant in contact with its roots. It should be remembered that celery loves a moist, cool soil, as well as a rich one, so that violent heating manures are not advisable for this plant. — *Rural New-Yorker*.

Coal Ashes for Plum Trees.

A correspondent of the "American Farm Journal" writes as follows:—

A thorough trial has convinced us that coal ashes scattered around the roots of plum trees from five to six inches in depth, and for an extent of about four feet in circumference, is the best remedy for the annihilation of that destroyer of this luscious fruit, the curculio. For many years a fine and apparently healthy plum tree of the green gage variety has every spring gladdened us with its countless snowy blossoms, only to bring disappointment since scarcely had the fruit begun to form, before the little black specks, denoting the destructive work of the dreaded and apparently invincible curculio became apparent. Every remedy ever heard of was applied for its eradication, but all to no purpose, not a single plum escaping its ravages, and all the fruit falling stung and worthless to the ground long before it was half grown. The tree grew large, and as its shadows injured other trees in its vicinity, it was decided to cut it down, since it merely cumbered the ground. Adjoining it grew two large old peach trees, which with the best nursing and care, could live but a few years longer, and as it seemed a pity to cut down this healthy tree when the two others must inevitably soon be also taken out, which would leave our small yard shadeless, hot and sunny, we resolved to give the plum tree another year's trial.

Our coal ashes from two coal stoves had, during the entire winter and spring, been placed in a huge pile in the yard, with the intention of having it carted away during the summer. However, learning of the value of coal ashes for old apple trees, the thought struck us that there would be no harm in trying it for the young plum tree, as it might destroy the curculio eggs in its vicinity. Accordingly coal ashes as above described was placed around its roots, and the remainder of the ash heap scattered in the same manner around four or five English cherry trees, hitherto useless, since their fruit had been so stung that it had always been worthless. Never did trees blossom more profusely, but it was a good fruit year, and the ashes was not supposed to have benefited them in this respect. As the small green fruit began to form, very little of it fell to the ground, and that was not stung; and when it had reached maturity it was unusually large, plump, perfectly sound and healthy, and very abundant in quantity.

Since the plum tree has borne fruit this is the first year that the plums have been fit for use, several bushels of which have been gathered, whose marketable value is five dollars per bushel. Both in quality and quantity the plums are all that could be desired by the most ardent lover of this delicious fruit. It became necessary to gather them before they had fully ripened, as they moulded on the tree, probably because there was a lack of sunlight in the yard, which is quite thickly planted with other trees; but as the flavor of the fruit is better for canning before it is perfectly matured, nothing was lost thereby, especially as the plums ripened after lying in the house a day or two, where they were required for use in a fresh condition. From our own experience, we believe that the value of coal ashes for fruit trees which are old and diseased, or for the eradication of insects of every description, cannot be over-estimated, and for plum trees particularly we would recommend its prolific use, as the only efficacious remedy against the curculio. The earlier the ashes are placed about the trees in the spring the better; late in autumn might be even more certain of benefit against destroying insects, but the spring seems to us the most convenient

time, as the winter's ashes has then accumulated. No fears need be entertained that too much ashes will injure the trees; it acts as a fertilizer, while it keeps down the grass until late in the summer and serves to invigorate the trees.

Apple-Tree Bark Lice.

There are two species of bark-flies known in this continent. The first is a native of North America, and is generally known as Harris bark-louse (*Aspidiotus Harrisii* Walsh). During the winter months a scale is found, of a dirty-white color, adhering closely to the tree, irregular in its shape. Upon removing the scale, minute eggs will be found, of a bright-red color. They are not considered very injurious, since the natural enemies and parasites keep them in due bounds.

The second species (*Aspidiotus conchiformis* Gmclin,) commonly known as the oyster shell bark-louse, is one of the most destructive insects found in the Northern States on the apple-tree. The scale of this species presents, in the winter-time, a uniform shape, and is of an ash-gray color, containing eggs pure white, instead of red as the former species. Just before hatching, the eggs turn a yellowish color; and about the first to the third week in June, according to season and latitude the young lice emerge from under the scale and disperse over the tree. If, however, the weather proves too cold, they remain under the scale for several days, they become fixed to the tree, and a white waxy secretion commences to issue from the body in the shape of fine threads. This at first sight, appears to be the beds of the insect, and becomes a yellowish brown color, but, on removing this carefully, the body will be found underneath and separate. After three such growths, the scale assumes the regular oyster shell shape. Upon removing the scale the insect will be found securely fastened to the tree by slight whitish fringe and occupies only half the space within.

The time taken for this process is usually about two months, and, if the scales are then lifted, the insect will be found in the act of laying its eggs. During the process the parent louse shrinks away, until, when all the eggs are deposited, she can scarcely be distinguished at all. As many as 100 eggs are often found under the scale. Since only one brood is produced annually; the eggs remain under the scale from the time of deposition until the following June, exposed to the warmth of the fall months, as well as the continual freezing and thawing of winter, and yet their vitality is unimpaired.

The question has often arisen. How can this insect spread from place to place, and from tree to tree, since the female bark-louse is only capable of motion, for the first three or four days, and, for the rest of her life, is firmly fixed to the tree?

One very plausible way is by the transporting of young trees from one place to another, the scales being already upon the tree. Another is, since the insects themselves are very light, they are often borne from place to place by the winds during the few days they are capable of travelling. Often in a large orchard the branches overlap each other, and the insects migrate from one tree to another. Though belonging naturally to the apple tree, it is often found upon the pear, currant and plum.

The damage done by one of these small insects, by the absorption of sap, cannot be perceived upon the hard bark of the tree, but, when found on the soft bark, and when the entire trunk and limbs of small trees are covered, the general damage is very great—often killing the tree entirely in three or four years.

There are some natural enemies which prove very destructive to this insect. A small maggot is sometimes found under the scale, the larva of some Hymenopterous insect, which destroys the eggs of the louse. A small mite has also been found destroying the insect itself, as well as the eggs, and has proven so efficient in some orchards as to entirely exterminate the bark louse.

One of the lady birds (*Chilocorus bivulnerus*, Muls) has proven itself very useful in destroying both kinds of bark louse, and is equally voracious in the larval form.

A good way to exterminate the bark louse is by placing several of these insects upon the infested tree. It is easily recognized by its polished black color, and the blood-red spot on each wing case. When planting out an orchard, it is very important that the young trees be carefully searched, and if any of the scales are found they can be removed by scratching the bark. Since the eggs are so well

protected, they do not are apt to the bark louse, the few da danger is foliage and

As they the tree, the use of Chrysalis- It will be as the lice time sold Tribune.

A writer be grown in our latitude. Nearly ever the luxury population of such a who own them. A furnish an fruits in th set twelve plums, te quince, si currants, berries, l required b planted an easily cul morning a mer mon pruning, ample. E family are passed in i

Liqu The be water, wh flowering cultivators general. are more h from rank more healt ure given i cased in ra We know use very li bones or b cannot giv can consu the soil th continue t

The suc stimulants in keeping almost off are few an soil and th better the draw up la ure is need to show si the virtue world will tions. B prepared i cient to oc watering i longer int factory. this seas have faith a weakly

A numb bound, bu prevented to each w and the p only mad from June goniums, allowed t out of th when they allowed to crammed all times plants gre

protected, all alkaline washes are of no avail, as they do not penetrate, and those of an oily nature are apt to injure the trees. Hence, the only time the bark louse can be successfully fought is during the few days it is crawling over the limbs, and the danger is that the washes used will destroy the foliage and fruit.

As they adhere only to the more tender limbs of the tree, they can only be effectually reached by the use of a syringe or spraying instrument. Chrysolic-acid soap is also strongly recommended. It will be necessary, however, to repeat the wash, as the lice do not all hatch at once, though the time seldom extends over three days.—*Chicago Tribune.*

Small Fruit Gardens.

A writer in a New England paper tells what may be grown in a small plot of ground. Of course in our latitude the list would be somewhat different. Nearly every owner of a suburban home can enjoy the luxury of a choice fruit garden. If our laboring population appreciated the pleasures and comforts of such a garden, there are very few of this class who own their homesteads who would not have them. A garden 75 x 50 feet may be made to furnish an ordinary family nearly all the choice fruits in their season. In a space as above may be set twelve standard pears, nine dwarf pears, six plums, ten dwarf apples, five peach trees, six quince, six grape vines, twelve gooseberries and currants, a fine bed of asparagus and one of strawberries, besides the various garden vegetables required by a family. Such a garden, when once planted and provided with suitable walks, may be easily cultivated in the ordinary leisure of the morning and evening during the spring and summer months. With good tillage and careful pruning, the reward will in a few seasons be ample. How much better for the father and his family are the evening hours, so spent, than when passed in idle gossip at the hotel or village grocery

Liquid Manure for Pot Plants.

The beneficial results obtained from manure water, when judiciously applied to fruiting and flowering plants, have long been recognized by cultivators; and its use is now becoming more general. It is well known that the roots of plants are more healthy when growing in pure soil free from rank manure, and that these roots will draw more healthy nourishment to the plants from manure given in a liquid state, than when they are encased in rank material which they cannot consume. We know that our most successful grape growers use very little solid manure in the soil—only a few bones or bone meal, or similar material, which cannot give off more stimulant than the plants can consume. These will remain much longer in the soil than manure, which dissolves rapidly, and continue their action as a fertilizer to the end.

The successful florist has more faith in giving stimulants when the plant really needs them, than in keeping the roots buried in soil made rich and almost offensive by strong manure. When roots are few and the plants almost at rest, the purer the soil and the less stimulant the plants receive, the better they will thrive when their roots come to draw up larger supplies of nourishment. Moisture is needed to soften the soil and to allow the root to extract nourishment from it; but when all the virtue is out of the earth, and the plants begin to show signs of distress, all the watering in the world will not give vigor to the exhausted functions. But let a portion of guano or any well prepared manure be mixed with the water sufficient to color it, and let this be repeated at every watering instead of giving a much stronger dose at longer intervals, and the result will be most satisfactory. We have tried a number of experiments this season with liquid manure, and all lead us to have faith in the application of it, at watering, in a weakly state.

A number of old fuchsias were stunted and pot bound, but pressure of more important matters prevented our potting them into fresh earth; but to each watering a coloring of guano was allowed, and the plants with their pot bound roots have not only made vigorous growth, but flowered freely from June onward till November. Some Pelargoniums, which were cut down last season and allowed to break in the usual way, were shaken out of the pots and placed in smaller ones; but, when they should have been shifted, they were allowed to remain in the small pots, which were crammed with roots. Guano water was given at all times when they required moisture, and the plants grew and made fine foliage, and flowered

better than others which are favored with larger pots and fresh soil. We could give many other examples to prove that giving liquid manure frequently, and not until roots are in abundance to consume it, is the proper way to deal with this important assistant to cultivation.—*Florist.*

Preparation for Winter Flowers.

It is best, even in summer, to make a little preparation for winter flowers, and it is surprising what a little forethought will do in this direction. A pot of mignonette and another of sweet alyssum cost nothing, and yet few things will be found more pleasant and attractive in the winter season. Plants that appear unimportant, almost insignificant, and entirely eclipsed by more ambitious rivals, when the garden is ablaze with its summer glory, sometimes prove to be very queens of beauty when transferred to the sitting room, or the bay window. The balsam is a very desirable plant for winter blooming, particularly the white, and towards autumn we often select cuttings from a few of the finest plants in the garden, and root them in pots for winter flowers. The stalks are equally good. The cobaea scandens, and nearly all the climbers, make excellent winter bloomers. We mention these things because they are so easily grown, and yet every way desirable. To grow plants for winter flowering, seed can be sown about July or August, in a shady, cool place in the garden, or in boxes, the soil being kept well watered, and by autumn plants will be just right to transfer to the house. Of course, as the plants get large enough to transplant they must be put in pots in which they are to flower. Mignonette and sweet alyssum may be sown as late as September. Put from three to six plants in a pot. The Maderia vine tubers may be kept out of the ground until the latter part of June; and if then planted in pots will be in just proper condition to transfer to the house, and will prove no mean ornament to the window garden. The tuberose should be treated in just the same manner, and will flower in the early winter. Any plants in the open ground that have not bloomed may be taken up carefully and potted, shading a few days after potting, and giving a full supply of water.

Look around the garden before frost, and see if you have some young and strong plants that proved a little late for out-door flowering, that you would like to try in pots. If so, take them up with as little disturbance as possible, put in good soil, and treat as previously directed.—*Vick's Floral Guide.*

Gardening on Balconies.

With very little outlay or trouble, a balcony may be made a mass of bloom during a great part of the season, and its decoration affords pleasant occupation. If it be covered, I would suggest, first, that a Virginia creeper be trained over the roof, as nothing with which I am acquainted grows faster, and its color in Summer is a bright green, while in Autumn it becomes a mass of glowing red. It should be planted in a tub or box, placed at the end of the balcony, along the front of which should be trained creepers, such as clematis, and these should also be planted in pots or boxes at each end of the balcony. If the latter be very long, however, some may be placed in the centre as well. On the pillars or supports, honey-suckle, passion-flower, and jasmine might be trained with advantage, and neat baskets suspended between the pillars have a fine effect, filled, say, one with a fine-leaved coleus, surrounded with blue convolvuluses to hang down all round it. Another might contain a white and pink fuchsia, surrounded by blue lobelias; a third might be furnished with a handsome calceolaria in the middle, and scarlet tropaeolum to hang round it; and a fourth might consist of a plant of centaurea, surrounded by Rollison's unique geranium. Then, standing at equal distances in pots along the front, might be placed either handsome flowering plants or shrubs. All the plants which I have mentioned might remain out of doors all the year round, except those in the baskets, some of which may be saved in a small greenhouse if such a convenience be at hand. The cost, however, of filling them every season is but trifling. In Autumn I would advise their being filled with variegated ivies, many of which look lovely drooping down round the edges, and in their centres should be placed hyacinths, tulips, squills, or any spring-blooming bulbs. In the case of balconies which have no roof, but which merely consists of an ornamental railing, arches of iron rods should be placed along the front, lengthways,

and covered with creepers, consisting of the varieties above named, a basket being suspended from the centre of each arch. An arrangement of this kind has a very good effect. Instead of having large plants along the front, a box, made either of wood or tiles of whatever width is desirable, to run the entire length, might be used filled with bedding plants during the Summer months, and in Autumn with bulbs and spring flowering varieties. When purchasing baskets, I should always advise well shaped, but not ornamental-worked, patterns to be selected, as those with ornamental work on them are much more expensive, and when the plants are in them little of the ornamental part can be seen.—*The Garden.*

The Canker Worm.

Mr. E. F. Curtis, of Rockford, Ill., has placed before us a circular which he published last December in the *Rockford Register*, in which he contends that Paris green diluted in water, a tablespoonful of the poison to a patent pailful of water, and showered over the apple trees, will destroy the young worms. The following is an extract from a communication from Mr. Curtis, published last May, in the *Chicago Evening Journal*—

"The female canker-worm rises out of the ground in the spring, as soon as the frost is out, and crawls up the trunk of the tree (as she is wingless), and deposits her eggs under old bark in rough places, which hatch in May or the fore part of June into small looping caterpillars, or the so-called measuring-worms, which soon spread over the trees, destroying the foliage.

"Many plans have been tried to prevent the worm from crawling up the trees, and with some success. But to 'wipe them out' completely, so that there should not be one of them left to tell the tale, is by the use of Paris green in water, applied with a large syringe or hand force-pump, a tablespoonful of Paris green to a patent pailful of water.

"When the worms are all hatched, as near as can be judged, give the trees a good wetting-down, and if, afterward, it is discovered that they were not all killed, but usually one wetting will answer.

"This liquid will not only destroy the canker-worm, but the myriads of insects too small to be seen by the naked eye, that are preying upon the foliage of trees. One party says that, after using it last year in his orchard, the foliage made such luxuriant growth, and was so dark a green that it was almost black, which accounts for the fact that apples grown on trees on which these worms have been killed are almost perfect, larger, and fairer than on the other trees.

"It can be used just as safely in the flower-garden, destroying the insects that infest the shrubbery, as in the orchard."

The following will show the practical application of the poison to the trees:

It was four feet long, three feet high, and wide enough to just fit into his lumber wagon box. The top planks extended two feet further than the tank, in front as well as behind, for a platform on which he could stand. In this tank he put an ordinary force-pump, to which he attached a few feet of rubber hose with a sprinkler. The sprinkler has about 50 one-eighth inch holes, which, Mr. Herring says, should not be more than one-half the size. He then filled the tank with liquid Paris green, which he was careful to strain through fine wire-cloth, and to keep well-stirred to prevent its settling.

After killing the worms in his orchard, he did the same for several of his neighbors, among whom was David Campbell, Esq. Mr. Campbell's orchard was visited the year before by such vast numbers that when they had stripped the apple trees they covered his house and barn, outside and in; but, finding nothing to eat, they soon disappeared. His trees this year were all saved, with the exception of a few that were stripped of their foliage before Mr. H. was called. Mr. Campbell says Mr. Herring saved him three hundred bushels of apples.

Mr. Severance, whose place is six miles north of this city, on the river road, has forty acres of orchard. He had never seen canker worm in it until last spring; he then discovered that they had fairly covered about 250 of the trees. With a barrel of water, a patent pail, plenty of Paris green, and a force pump, all in a lumber wagon, he started for the orchard. He prepared his liquid, a pailful at a time, he then fixed his force-pump by screwing on the nozzle a piece in which there are two holes for the water, throwing two streams to-

Home Circle.

Now

"There is a good time coming, boys,"
So runs the hopeful song;
Such is the poetry of youth,
When life and hope are strong.
But when these buoyant days are passed,
Age cries, "How changed are men!
Things were not so when I was young;
The best of times was then."

"There is a good time coming, boys,"
The truth we will allow;
But, waiting for the brighter days,
There is a good time now.
Why not improve the present, then,
Where'er the future lead;
And let each passing moment's page
Bear proof of thought and deed?"

"There is a good time coming, boys,"
And many a one has passed;
For each has had his own good time,
And will have to the last.
Then do thy work while lingers youth,
With freshness on its brow,
Still mindful of life's greatest truth,
THE BEST OF TIMES IS NOW.

The Mill and the Manor.

PART II

On the day following the accident which we have recorded, the whole state of affairs at Crumble Hall was changed. Instead of wearing the appearance of a neglected tenanted mansion, as it had done for years past, it was now a scene of as much bustle and excitement as a fashionable country residence during the shooting season. Elegant carriages, belonging to the neighboring gentry, were continually driving up to the dilapidated lodge, with inquiries regarding the young lady who was its accidental tenant. Expresses, borne by footmen and grooms, came and went between the house and the park-gate; for horses could not be driven up to Crumble Hall, on account of the 'drive' being tangled with weeds. Servants in elegant livery lounged about the entry of the mansion; the gossips and idlers of the village, attracted by the extraordinary change in the aspect of Crumble Hall, discussed the accident and its consequences in various parts of the domain. Even the few deer that were left scamped hither and thither over the park as if frightened out of their wits. In short, one day had effected a complete revolution in the aspect of the old manor-house itself, and of all around it.

The squire shrouded himself closer than ever in his favourite muniment room, but could observe from the window all that was going on. He stared in bewilderment and wonder at the extraordinary occurrences that were passing before his eyes. He could not comprehend how the accidental relief of a damsel, whom misfortune had overtaken, could possibly produce so extraordinary a commotion in his secluded establishment. In the midst of his reflections Charles Kennedy burst into the room in a state of great exultation. "The crisis is past!" he exclaimed. "She is out of danger. After a night of the most intense anxiety to us all, consciousness has returned, without any of those ill effects which were anticipated."

The old gentleman sat in his high-back chair, and answered with much dignity and calmness as the agreeable news—acting upon a really good heart—enabled him to assume, "That he felt glad to hear the young woman was better."

"And now, my dear uncle," said Kennedy, "let me entreat you not to be so rude to her parents, who still remain below, as not to see them. I am again the bearer of a message from them expressive of a wish to tender personally their thanks for your hospitality to their daughter. But you seem pale, agitated, my dear uncle," continued Kennedy, perceiving the effect which unwonted excitement had wrought upon the recluse. The old gentleman passed his hand over his brow, and complained that he felt as if he were in a dream. The noise of the comers and goers distracted his ideas from the one subject they had been unremittingly fixed on for years. As to receiving company, that was quite out of the question. Was it not enough that they had invaded his house, and turned the public of Crumbleton loose into his park? "And, sir," added Mr. Crumble, gradually recovering animation, "I should be glad to know who these people are, that

first place my house in the state of siege, and then would invade the sanctuary of my private leisure, by forcing their acquaintance upon me?"

"The gentleman is proprietor of the next estate! What?" said Mr. Crumble, "the cotton-spinner who disfigured the prospect by a mass of unsightly buildings?"

At this moment Penthouse made his appearance with a message from the persons spoken of—Sir James and Lady Spindler—even more urgent than that brought by Kennedy. "I cannot see," said the latter, "how you can any longer resist these people's civilities."

"Civilities!" returned the squire in an unusually vehement tone. "Has not the man raised a huge brick abomination at the very foot of my park? Has he not changed the bed of the stream, which flowed in its wonted course since the days of Sir Hildebrand Crumble, who caused it to fill a fosse when our house was fortified in the times of 'the Roses?' Did not the accident which has brought all this turmoil upon us lay half my domain under water? Has he not turned my house into a bearing garden? Besides, is not the man a trader, a weaver, a purse-proud citizen, who will, peradventure, vauntingly jingle his purse in our ears? Has he not come perhaps to spy out the nakedness of the land? No, nephew, I am not for such men's civilities. A spinner of cotton is no company for an Earl of Crumbleton," and he paused ere he added, "de jure."

Kennedy found it in vain to attempt answering these objections, and returned from the library to make the best excuses he could for his uncle's refusal to see the guests. Sir James was alone in a room, whose torn drapery, worm-eaten furniture, and dusty condition, showed that he was the first visitor who had been received in it for many years. The tact of Penthouse had managed to put the best face on affairs. He turned the comeliest sides of the chairs outwards, and covered the table with a county map to conceal the cracks and flaws. Kennedy, on returning to his guest, rested his apology on his uncle's secluded habits, and consequent aversion to new faces. Sir James Spindler replied in the most frank and cordial terms, that though he regretted losing this opportunity of making the acquaintance of so near a neighbor, he would not on any account attempt to give him pain by an unnecessary intrusion. "I fear, however," continued the worthy knight, "that other, besides general causes, exist for Mr. Crumble's hesitation to see me. Our proceedings on the Bampton estate are, I have reason to believe, displeasing to him?"

Kennedy candidly owned that they were. "The near neighborhood of a cotton-mill is not desirable anywhere." "That is very true; but I bought the estate for the purpose of building a factory, and with the express understanding that I should do so. I trust, however, in time to make converts both of yourself and your uncle to a faith in the utility and revivifying powers of my cotton-mill upon this decaying neighborhood."

"You will not have me to convert, Sir James," said Charles; "I am perfectly alive to the share which the wonderfully rapid growth of manufactures in this country has had in bringing her to the pitch of wealth and power which she has attained. I will own frankly that when I first beheld the damage your buildings had done to a prospect I loved in my youth, I was much excited against the projector. Further reflection has, however, convinced me of the folly of my regrets. Nay, I will go so far as to add, that if my good but mistaken uncle, instead of draining his estate and exhausting his means to follow up his claim to a useless peerage, had employed his fortune in some manufacturing speculation, the present melancholy condition in which—it is too notorious for concealment—our property has sunk, would certainly have been averted."

Sir James appeared surprised to hear such sentiments from the lips of the heir apparent to the Crumbleton manor. He shook him cordially by the hand, and congratulated himself in having only one instead of two converts to make. At this moment Lady Spindler entered from the room in which her daughter lay. Sir James presented Kennedy to her, and she was profuse in her thanks for the hospitable kindness shown to her daughter. "She is now well enough to be removed," added the lady, "and we shall relieve you of our intrusions immediately."

"Before we go, it will be highly necessary," said Sir James, "that Mr. Kennedy afford us an opportunity of thanking Miss Spindler's preserver."

"True," interrupted her ladyship, "the game-keeper—Noble fellow! we can never reward him sufficiently. My daughter has just narrated to me the whole of the circumstances, and some adequate reward must be planned for his acceptance."

Charles blushed, and was for some time unable to answer. At length, though seriously embarrassed, he explained the mistake, and owned that the good fortune of having rescued the young lady was his. The parents overwhelmed him with gratitude, and at that moment one of those sincere friendships was begun between Sir James Spindler and young Kennedy which are not soon or easily ended. It was now announced that Miss Spindler was ready to be removed into the carriage, which had been driven up to the house; thanks to the knowing foresight of Penthouse, who had set all the village idlers at work to clear the drive. A short time after the invalid was on her way to her own home, all appearance of bustle and excitement subsided at Crumble Hall, both within and without; the drawing-room windows were closed, and the recluse returned to his favourite studies. Penthouse lounged as many hours a-day as heretofore in the library, poring over "The British Classics," because he had nothing better to do; and Kennedy was left to pass the time as best he might, in planning schemes to avert the slow but certain ruin that was creeping over the family, and to cement, by frequent visits, the friendship he had formed with the Spindlers, whose dwelling was but a short distance from Crumbleton.

After a time, he discovered that this intimacy was extremely distasteful to his uncle. In conversations which he had held on this subject, Charles always endeavoured to divert Mr. Crumble from the mistake in which he had so long persevered. He showed that the same energy, applied to some feasible plan for bettering their condition, would be far more beneficial. The old squire heard these sentiments more in sorrow than in anger. He complained that the new acquaintance was filling his nephew's mind with sentiments quite unworthy of the last of the Crumbles, whose ancestors had abstained from every profession save arms, up to the periods of their earliest records. With a view to give these sentiments a deeper meaning, he would take his nephew to the picture-gallery, and endeavour to awaken aristocratic sentiments by showing him the portraits of his ancestors. Some of these quaint and ancient effigies were knights clad in armour, and seated on horseback on very uncomfortable saddles; others, clothed in blue uniform, with tremendous epaulettes and very long queues, were the naval heroes of the family. Concerning each of these ancestors, Mr. Crumble would indulge his nephew with some wonderful anecdote, calculated, he thought, to raise the young man's respect for noble blood and family honors. At length Charles gave up all hopes of either convincing his uncle of his mistake, or of bringing him and his new friends, the Spindlers, upon visiting terms.

Months passed away; and while new difficulties surrounded the inmates of the manor, prosperity favoured the mill. The buildings once finished, operations were begun; machinery was set up, and the village of Bampton soon filled with workpeople. Even the trade of Crumbleton revived. The old schoolmistress nearly doubled her number of pupils; the landlord of the Tabard obtained better employment than lounging about his door; and an unexpected stranger was no longer surrounded by a crowd; for his appearance ceased to be a rarity. Meanwhile dark clouds lowered over the house of Crumble. The whole of the costs in the appeal for the peerage had not been paid, and threats were becoming more urgent of "attaching" the unsuccessful appellant, which meant putting him into prison until the debt was discharged. Kennedy had already sacrificed the produce of his commission to pay the most urgent of these claims; but one still remained, for which he saw no better escape than the sale of the family possessions.

(Concluded in our Next.)

A scientific lecturer on walking says his experiments show that one side of the body always tends to outwalk the other. It is not possible when the eyes are shut to walk in a straight line for any length of time; and it will be found, where persons lose their way, that they almost invariably wander off to the right rather than to the left.

Boys should learn to read and reflect more for themselves. They should take more pride in becoming the architects of their own fortunes. The most successful men of the present day are those who have made themselves such by their own individual efforts.

Uncle Tom

63.—I am used by am a fruit; behead a body; once again and note. ANNA MAE

64.—As I went to first store I went into and half an egg; the half what eggs I had store I went into I marning and half an many had I at first?

65.—There is a wo Take one awa

66.—Five letters do Which any one My first one by Will count two My second is n It counts just r My third's a p Its just the mi My fourth is ty Sometimes you My fifth you'll In yonder sky, My whole's the If you can't gu

67.—A consonant animal; a lord; a st

68.—What is it t fours; at noon on ty three?

69.—Entire I was Yet I should If there was Four-fifths o And still an To give me I And that's t From the ce

70.—Why is th son's nose?

71.—The initials final a story. 1st—India islands; 3rd—5th—part of the heavenly bodies; 7 lieved by the Gree 8th—a heroic deed royal or kingly; 11

72.—A plant; a ture.

73.—A sweet pla a circular motion o

74.—A valuable a Chinese river; to

75.—I am a mor And unto S I neither co But spare I And thoug I kill those Like to the I carry sev I rise amid And full I In colors, t An ever v As best m Who stagg With flavo A thing th

Uncle Tom's Department.

Puzzles.

63.—I am used by fishermen; behead me and I am a fruit; behead again and I become part of the body; once again and transpose and I am a musical note. ANNA MARY RICHARDSON, Hazledean.

64.—As I went to Ottawa to sell my eggs, the first store I went into I sold half what eggs I had and half an egg; the next store I went into I sold half what eggs I had and half an egg; and the next store I went into I sold half what eggs I had remaining and half an egg, and had one egg left. How many had I at first? F. LOWRY RICHARDSON.

65.—There is a word five syllables contains, Take one away and no syllable remains. AGGIE JOHNSTON.

REBUS.

66.—Five letters do my magic name compose, Which any one may curiously dispose. My first one by itself, as I'm alive, Will count two hundred times the entire five; My second is no less a standing wonder, It counts just nothing by itself or under; My third's a paradox, you may depend, Its just the middle of a midge tale's end; My fourth is two-thirds of an ox's eye— Sometimes you'll find it in a pumpkin pie; My fifth you'll see in any cloudy day— In yonder sky, resplendent, gay; My whole's the talisman that rule's mankind, If you can't guess me now you must be blind. HENRY FITZJOHN, Lowville.

TRIANGULAR PUZZLE.

67.—A consonant; to exist; a kind of meat; an animal; a lord; a sticking substance. FRANK LAWSON.

RIDDLES.

68.—What is it that in the morning goes on all fours; at noon on two legs, and in the evening on three? TOM RUSTON.

69.—Entire I wade o'er many fields, Yet I should quickly fade, If there was not upon me sent Four-fifths of what I'm made, And still another thing I need, To give me life and health, And that's three transposed letters From the centre of myself. F. LOWRY RICHARDSON.

70.—Why is the letter V in civility like a person's nose? FRANK PARKINSON.

DOUBLE ACROSTIC.

71.—The initials read downwards name a poet, the initials a story. 1st—a bird; 2nd—one of the West India islands; 3rd—a river in England; 4th—a title; 5th—part of the human body; 6th—one of the heavenly bodies; 7th—a mountain in Greece believed by the Greeks to be the centre of the earth; 8th—a heroic deed; 9th—a girl's name; 10th—royal or kingly; 11th—a woman's name. A. H. CROSS.

SQUARE WORDS.

72.—A plant; a member of your body; not nature.

73.—A sweet plant; stricken in years; necessity; a circular motion of water. J. E. ANNABLE.

74.—A valuable fruit; a voracious bird; to shun; a Chinese river; to endow with a portion. J. HOUSER.

ENIGMA.

75.—I am a monster old in sin, And unto Satan close of kin; I neither count the odds nor ends, But spare my foes and kill my friends; And though a shame, 'tis yet my boast, I kill those first who love me most. Like to the Prophet's horny beast, I carry seven heads at least. I rise amid the fiery flames, And full I am of evil names. In colors, too, chameleon-like, An ever varying hue I take, As best may suit his blood-red eye, Who staggers in to drink and die. With flavors I am well supplied, A thing that's rarely been denied;

And savor well, both strong and clear, To those who come to perish here. So I'm the beast, dear children, I, That's found in dens where idiots die. J. H. CROSS.

Answers to July Puzzles.

1.—Because its in the centre of Greece. 2.—A bear-skin coat. Prizes won by Miss Flynn, Varna.

55.—The letter M. 56.—The moon. 57.—Eye. 58.—The cows that took back the ark from the land of the Philistines to Bethshemesh. 59.—Gulf, Ural, lane, flee. 60.—There are no gains without pains. 61.—THE FARMER'S ADVOCATE. 62.—Water.

ANSWERS RECEIVED TO PUZZLES IN JULY No.—Eleanor Hughes, West Winchelsea; Gideon N. Wilson, Whitby; J. E. Annable, West Winchester; Tom Ruston; Lucy Roberts, Ingersoll; Jenny Dyer, Nissouri; Frank Lawson, Nilestown; James H. Cross, Caledonia; Catherine Lindsay, Fitzroy; Mary McLean, Ridgetown; J. K. Blackburn, Chelsea; Aggie Johnston, Co. Simcoe; Henry Fitzjohn, Lowville; Thomas Caldwell, Cumberland; F. A. Caldwell, Cumberland; Anna Mary Richardson, Hazledean; F. Lowry Richardson, March; C. Regan, London; Mary J. Hughes, West Winchester; Benson Summers, West Winchester; Ebenezer Robertson, Nepean; Alice Reed, Reedsdale; John Parkinson, Teeswater; Eliza Sherlock; Jas. Stevenson, Fitzroy; Canadian Cliff, South Granby, P. Q.; Mary Charlotte McDwat, Brownsburg, P. Q.; Miss Flynn, Varna.



"Will He Escape?"

This represents a scene among the farmers in Australia. Kangaroos are very plentiful in some portions of this island, and are frequently a source of annoyance and great loss to farmers, and the capture or destruction of these animals is attended with much danger. Should the farmer bring the kangaroo to bay on land, he will fight desperately for his life. Each of his hind legs is furnished with a claw as formidable as a boar's tusk, and woe-betide the enemy that comes within the range of a lunge of either of them; or worse still, if the kangaroo should catch his assailant in his fore arms, there he will hold him till he is flayed from head to foot.

Some one, evidently a novice, propounds the following: "Why do they do up so much more of pears, peaches, and small fruits now than formerly?"—Because they "can."

At Spitzbergen the longest days lasts three months and a half. This must certainly make it bad for young people who only do their courting Sunday nights. But, on the other hand, just fancy the sweetness long drawn out when this night happens to fall on Sunday! Three months of steady courting—looking fondly into each other's eyes, talking about the state of the weather, the crops, &c.!

A Nebraska farmer sneaked round one night to the place where an army of millions of grasshoppers were sleeping preparatory to wading into his wheat on the morrow, and after throwing a lot of hay around he set fire to it. Well, it was death to the grasshoppers; but by the time the farmer had run four miles over a burning prairie and climbed a tree with his hair and eyelashes burned off, he had occasion to take breath and say, "I'll be cussed if I thought I was goin' to get up a circus like that."—Milwaukee News.

HUMOROUS.

That Hired Girl.

When she came to work for the family on Congress street, the lady of the house sat down and told her that agents, book-pedlers, hat-rack men, picture sellers, ash buyers, rag-men and all that class of people must be met at the front door and coldly repulsed, and Sarah said she'd repulse 'em if she had to break every broom stick in Detroit. And she did. She threw the door open wide, bluffed right up to 'em, and when she got through talking, the cheekiest agent was only too glad to leave. It got so after a while that pedlers marked the house, and the door bell never rang except for company.

The other day, as the lady of the house was enjoying a nap, and Sarah was wiping off the spoons, the bell rang. She hastened to the door expecting to see a lady, but her eyes encountered a slim man, dressed in black and wearing a white neck-tie. He was the new minister, and he was going around to get acquainted with the members of his flock, but Sarah wasn't expected to know this.

"Ah—um—is—Mrs.—ah—!"

"Git!" exclaimed Sarah, pointing to the gate.

"Beg pardon, but I'd like to see—see—!"

"Meander!" she shouted, looking around for a weapon, "we don't want any flour sniffers here!"

"You are mistaken," he replied, smiling blandly, "I called to—"

"Don't want anything to keep moths away—fly!" she exclaimed getting red in the face.

"Is the lady in?" he inquired, trying to look over Sarah's head.

"Yes, the lady's in, and I'm in, and you're out!" she snapped, "and now I don't want to stand here talking to a fly-trap agent any longer! Come, lift your boots!"

"I'm not an agent," he said, trying to smile, "I am the new—"

"Yes, I know you—you are the new man with the patent flat-iron, but we don't want any, and you'd better go before I call the dog!"

"Will you give the lady my card and say that I called?"

"No, I won't. We're bored to death with cards and handbills and circulars. Come, I can't stand here all day."

"Didn't you know that I was a minister?" he asked as he backed off.

"No, nor I don't know it now; you look like the man who sold the woman next door a dollar chromo for eighteen shillings!"

"But here is my card."

"I don't care for cards, I tell you! If you leave the gate open I'll heave a flower pot at you!"

"I will call again," he said, as he went through the gate.

"It won't do any good!" she shouted after him; "we don't want no prepared food for infants—no piano music—no stuffed birds! I know the policeman on this beat, and if you come around here again he'll soon find out whether you are a confidence man or a vagrant!"

And she took unusual care to lock the door.—Detroit Free Press.

Colored women are manifestly born to blush unseen.

The Kansas grasshoppers are pleased with the quality of this summer's tomatoes.

We understand that a great deal of capital is still "locked up." This might be expected, considering how frequently money has been "tight" of late.

A Texas woman has learned to use the lasso so deftly that she can stand in the door and haul the hat off the lightning rod pedler while he is unfastening the gate.

When Abernethy, in a passion at finding its door blocked up with paving stones, told one of the laborers "to remove them instantly, and take them to hell if he liked," the Irishman quietly replied: "Hadn't I better take them to heaven? Sure they'd be more out of your honor's way."

Two colored men took refuge under a tree in a violent thunder storm. "Julius, can you pray?" said one. "No Sam," was the reply; "nebber prayed in my life." "Well can't you sing a hymn?" Just then the lightning struck a tree near by, shivering it, when the first speaker exclaimed: "See heah, honey, sunffin, 'ligious has got to be done, an'dat mighty sudden, too, s'pose you pass round de hat!"

Minnie May's Department.

DEAR MINNIE MAY—I think your column perfectly splendid, just what farmers' wives and daughters need. Here are a few recipes that I have found useful. The first is

MOTHER'S CUP CAKE.

Take 1 cup butter; 2 cups sugar; 3 cups flour; 4 eggs; 1 teaspoonful soda, dissolved in one-half cup cream; one-half nutmeg, grated. Fruit and icing improves it, though it is good without, and will keep a long time.

CHEAP CAKE.

Break 1 egg into a cup and fill it with cream; add 1 cup sugar; 1½ cups flour; 1 teaspoonful soda; a little salt; can be baked either as a loaf, or on flat tins for jelly cake.

ANOTHER CHEAP CAKE.

Take 2 cups cream; 2 cups sugar; 4 cups flour; 4 eggs, yolks and whites beaten separately; spice to taste. This will make two large cakes.

SUGAR COOKIES.

Take two cups sugar; 1 cup cream; 1 cup butter; 1 teaspoonful soda; 1 tablespoonful caraway. No more this time.

PANZY PIERCE.

Stanstead Co., P. Q., July, 1875.

TO COOK CABBAGE.

Take a good sized cabbage and cut fine; put a lump of butter in the size of an egg, and when quite hot add the cabbage, and cook ten minutes; then add pepper and salt and two cups of good sweet cream.

CREAM PIE.

Line your pie plate with good paste; then cover it over with quartered apples; put in sugar and one cup of good sweet cream; bake till done.

A SUBSCRIBER.

BREAD PANCAKES.

Put a handful of dried wheat bread crumbs into a pint of sweet milk, and let it remain there till it is soft; then strain it through a sieve, and apply four teacupful of sour milk; one egg well beaten; one teaspoonful of soda and half a teacupful of flour; it makes a very delicious pancake, which will use up all refuse bread crumbs. Bake on a griddle.

A CAKE THAT WILL KEEP SIX MONTHS.

Take one teacupful of butter; two of sugar; three eggs; one teacupful of new milk; three of flour; one teaspoonful saleratus; half a nutmeg; some cinnamon; a handful of good chopped raisins, and a little cream, if you have it. Stir often.

CLOVE CAKE.

One cup of sugar; one egg, beaten well; one teacupful of butter; one teacupful of raisins, chopped; one tablespoonful of ground cloves; one teacupful of milk; one teaspoonful of saleratus. Bake in a quick oven.

COOKIES.

One cup cream; one and a half cups sugar; one-half cup butter; two eggs; nearly a teaspoonful of saleratus; spice to taste; roll out as soft as possible. Bake till done. MRS. NICHOLSON, Lancaster.

CORN PUDDING.

Grate ears of green corn; add to a quart of it a teacupful of cream or milk, a lump of butter the size of an egg, and a teaspoonful of salt. Mix all well together; put it in a dish and bake an hour and a half. To be eaten as a vegetable with butter, pepper and salt.

CORN FRITTERS.

Boil a dozen ears of corn more than are needed for dinner, and while warm scrape them with the corn-cutter, and put the corn in the refrigerator until morning. To two coffee cupfuls of corn and two or three well beaten eggs, three tablespoonfuls of cream or new milk, and a small teacupful of flour, with a little salt. Drop in spoonfuls into hot fat, and fry to a light brown.

TO DRY SWEET CORN.

When the corn has become best for table use, remove all husks and silk. With a sharp knife cut just the ends of the kernel off, and with the knife scrape the milk and balance of the corn, leaving the hull on the cob. Now, put the corn in pie tins, or on plates, an inch thick, and place in the oven and just scald the milk; then place in the sun,

or any warm place, to dry. When wanted for use, put in warm water and let soak some time, and cook slowly. When done, add a little sweet milk, a small piece of butter, salt and pepper to taste. This I think far ahead of the old way of cooking before drying.

BLACKBERRY JAM.

Gather the fruit on a dry day; mash the berries and pass them through a fine sieve to extract the seeds; add to each pound of juice one pound of good sugar; boil and stir until the surface is covered with clear bubbles; try a little upon a plate; if it sets, fill your jars or tumblers, let them cool, cover the top of each with papers dipped in glycerine, and keep in a cool dry place until wanted.

BLACKBERRY AMBROSIA.

Make a batter as for batter biscuit of sour cream and flour, spread it half an inch thick on the bottom of an earthen pudding dish, and cover with a layer of blackberries. Place a little more of the batter on the sides of the dish, sprinkle over the berries sugar enough to sweeten them, dredge slightly with flour, and add another layer of berries. Continue till the dish is full, and has the last layer of batter. Bake nearly an hour. If the juice runs out, lift the edge of the crust with a fork and it will run back. Serve warm with sweet sauce.

BLACKBERRY WINE.

Gather when ripe, on a dry day; put into a vessel with head out, and a tap fitted near the bottom; pour on them boiling water to cover them; mash the berries and let them stand covered till the pulp rises to the top and forms a crust—say three or four days. Then draw off the fluid into another vessel, and to every gallon add one pound of sugar; mix well and put into a cask or demijohn, and keep filled until fermentation ceases, when the vessel should be bunged or corked tightly.

GREEN PICKLES—PREMIUM RECIPE.

To 2 gallons of vinegar put 4 ounces black pepper, 4 ounces ginger, 2 ounces turmeric, 2 ounces cloves, 2 ounces allspice, 2 ounces mace, 1 pint mustard seed, 2 tablespoonfuls celery seed, 1 large handful of horse radish, handful of garlic, 3 lemons sliced, 2 pounds brown sugar. The spices must be well beaten. The brine should be well soaked from the articles to be pickled, before they are put in the spiced vinegar.

CUCUMBER CATSUP.

Three dozen full grown cucumbers, eight white onions, peel both and cut as fine as possible; on this sprinkle three-fourths of a pint of fine salt, then put the whole in a sieve and drain for eight hours; then take a teacupful of mustard seed, half cup of ground black pepper, mix them well with the cucumber and onion; then put the whole in a stone jar and cover with strong vinegar, closing it tightly. It is fit for use in three days, and will keep a long time. When cucumbers were scarce we have taken half green tomatoes and half cucumbers, and it made an excellent catsup.

SUCCOTASH.

Common shelled beans may be used for succotash, though lima beans are the best. Prepare and cook the beans as usual. About twenty minutes before serving, add a quantity of sweet corn, cut from the cob; season with butter, pepper and salt, and add a little sweet cream. This dish may be prepared with pork if desirable.

TO PREPARE STRING BEANS FOR WINTER USE.

Butter beans make the best string beans. String and cut up the beans; wash them and put in cold water (in which put a little saleratus) to parboil; let them boil a few minutes; then drain off the water and put some cold water and a little salt on them, in which let them boil until they are quite tender; then drain it off and spread the beans and dry them. They should dry around the stove, so as to dry quickly.

A PRETTY TABLE ORNAMENT.

A correspondent of *The Garden* says: "I was much struck lately with the wonderfully beautiful effect produced by simply placing a handful of heads of wheat in a vase of water. Each grain sent out bright green leaflets, and continued to replenish the fading one for weeks together. Some have doubtless seen this pretty table ornament,

but to me it was new, and perhaps would be so to many others."

CURE FOR LOSS OF VOICE.

When the voice is lost, as is sometimes the case, from the effects of cold, a simple, pleasant remedy is furnished by beating up the white of one egg, adding to it the juice of one lemon, and sweetening with white sugar to the taste. Take a teaspoonful from time to time.

HOW TO DRY PLANTS.

The process of drying plants for an herbarium is simple. The specimens should be collected when free from dew or other moisture, and spread upon a sheet of blotting paper, on the third page of the paper. The leaves and flowers should be spread very carefully, so as to show the structure and perfect shape of each. When the plant is thus arranged, the paper is folded together so that the second page rests upon the plant, and after a number are arranged the whole may be placed in a pile and subjected to a slight pressure for a few days. It is not well to place the plants upon single sheets of paper, because they are very liable to disarrangement and injury. After the plants have become perfectly dry, they may be removed from the blotting paper, and placed between sheets of paper, and if desired may be affixed by touching the under side of the stem and leaves with a drop of mucilage. When practicable the whole plant and root should be preserved.

Patrons of Husbandry.

Granges Organized Since Last Issue.

- 205. Sherwood; Master, Wm. Thusche, Maple; Sec'y, A. E. Keeler, Concord.
- 206. Peel and Maryborough; Master, Thos. Garbett, Hollen; Sec'y, John Waterson, Hollen.
- 207. West Magdala; Master, John Munro, West Magdala; Sec'y, John French, West Magdala.
- 208. Arva; Master, Capt. Burgess, London; Sec'y, William Elliott, Arva.
- 209. Iona; Master, D. McNeil, Iona; Sec'y, John Rogers, Iona.
- 210. Cadmus; Master, C. B. Power, Cadmus; Sec'y, J. S. Power, Cadmus.
- 211. Ailsa Craig; Master, J. J. Cassidy, Ailsa Craig; Sec'y, John S. McEwen, Ailsa Craig.
- 212. Scotch Block; Master, John S. Elliott, Speyside; Sec'y, Ephraim Moore, jr., Speyside.
- 213. Lumley; Master, Arch'd Bishop, Hay; Sec'y, James Tyfe, Lumley.
- 214. Harley; Master, T. S. Rutherford, Burford; Sec'y, A. Harley, Harley.
- 215. Alton; Master, Joseph Dodds, Alton; Sec'y, Wm. J. Dodds, Alton.
- 216. Fay Quinte; Master, Wm. Hogle, Ernestown Station; Sec'y, Wm. M. Fraser, Ernestown Station.
- 217. Rose of Harwich; Master, T. Woolfinden, Harwich; Sec'y, D. M. Craig, Chatham.
- 218. Ballinafad; Master, Joseph Hiltz, Ballinafad; Sec'y, Geo. Letwood, Ballinafad.
- 219. Kintore; Master, Augustus Shaw, Lakeside; Sec'y, D. R. Calder, Kintore.
- 220. Douglas; Master, Ludlow McGibbon, Frederickton N. B.; Sec'y, Chas. McGibbon.
- 221. Acadia; Master, Wm. N. Blain, Truro, N. S.; Sec'y, John W. McCurdy, Truro, N. S.
- 222. Brynaston; Master, W. Johnson, Brynaston; Sec'y, Edw'd Dawn, Brynaston.
- 223. Elm Bank; Master, Thos. Gahan, Elm Bank; Sec'y, Samuel Garbutt, Elm Bank.

Work for Grangers.

Would it not be well to organize a horse thief detecting and prosecuting company. Discuss this question.

Mr. Bruce, the Master of Forest City Grange, has a measure on foot for the protection of our small birds.

B. Payne, of the Delaware Grange, is about to bring before the Patrons a plan for insurance, which may be advantageous.

If your Grange has any good measure to bring forward, let us know about it. If good is to be done, it will bear the light of day.

From a Contemporary.

Moore's Rural New Yorker, after referring to our visit to New York, last week, says: "Mr. Weld has exhibited much pluck and perseverance in his journalistic career, and thereby achieved success where many would have failed. Starting with a small, eight-page sheet, he has more than doubled it in size, and now issues a well edited and printed journal, finely illustrated, with a supplement and cover. Success to the FARMER'S ADVOCATE and its founder, and may both long wave throughout the Dominion!"

SIR,—Please piece of low stream would where can I The piece ten days even Teeswater

[The cult culture of w but from ou that the pie very suitabl vation has l not say if y would advi Rochester, give you an

SIR,—Be I came here farming the way or that your paper confirm my

When I I had the m burnt by li farmer's m have been f within a m ton, on Th shingle, he you to give use of light are two kin the lightn much faith is just i; m; this laid o one on the barn with s mer I must take one of months ago I see grea crops in t prospects; and can't h potatoes ar third as m last. Plea fond of it.

Howick, [Farmers rods from t Some of th will put up more when up on a go them, as th the sale of lightning r they were erect them were come -when prop found bene lowed to b they have tural insur little valu drained all or ornamen lighting much ben Many buil when light When you large buil the most a find but fe

Correspondence.

Cranberries.

SIR,—Please let me know in next ADVOCATE if a piece of low ground on the margin of a small stream would be suitable for cranberries; if so, where can I get them, and at what price?
The piece of land spoken of is flooded for about ten days every spring.
J. PARKINSON.
Teeswater, July 7th, 1875.

[The culture of cranberries is a branch of agriculture of which we have no personal experience, but from our reading on the subject, we would say that the piece of ground you describe would be very suitable for the purpose. Though the cultivation has been introduced into Canada, we cannot say if you can procure the plants here, but we would advise you to apply to A. M. Purdy, Rochester, who can supply you with them and give you any needful advice.—Ed.]

Lightning Rods, &c.

SIR,—Being engaged in farming in England until I came here, and understanding well the way of farming there, I have often wondered would this way or that answer in this country. As soon as your paper comes I generally find something to confirm my ideas.

When I was about to send you my subscription, I had the misfortune to get my barn and stables burnt by lightning. I was lightly insured in a farmer's mutual, but have not got it yet. There have been four large buildings burnt by lightning within a month. A very large building in Harrison, on Thursday, was struck and burnt; it was a shingle, heading and cheese factory. I would like you to give your opinion in your next paper on the use of lightning rods on a building, and if there are two kinds. I hear that one kind will attract the lightning, but will not conduct it. I have not much faith in them myself. My reason for asking is this: my nearest neighbor on the east side has just laid out \$42 upon his stone house alone; the one on the west is now building a very large frame barn with stone work underneath, and next summer I must build myself, if I live. I am going to take one of the plans laid down in your paper two months ago.

I see great complaints in your paper about bad crops in this part. I have never seen better prospects; I have much grain that will be lodged and can't help it; hay is heavy, and turnips and potatoes are going to be good; there is not one-third as many bugs on the potatoes this year as last. Please continue your paper, as I am very fond of it.
Yours truly,
ALEXANDER LACKING.

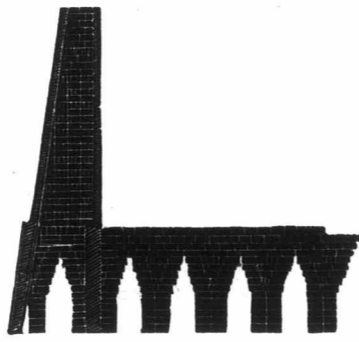
Howick, 17th July, 1875.

[Farmers are often talked into buying lightning rods from the peddlers, but regret it afterwards. Some of these peddlers have no conscience; they will put up lightning rods to come to \$100 and more when they get a chance, and if they get one up on a good farmer's house for nothing, it pays them, as they use his name as an advertisement for the sale of more in that neighborhood. We put lightning rods on our house, barn and sheds, but if they were not there we do not think we should erect them now. We put them up before we were connected with the press. Lightning rods, when properly put up, have in many cases been found beneficial, and in some instances, when allowed to be out of order and improperly erected, they have been the reverse. The largest agricultural insurance company we know of places but little value on them. If a farmer has underdrained all his land, and has no other improvement or ornament to make, he might spend money on lightning rods, but we do not look on them as of as much benefit as peddlers would make you believe. Many buildings have been struck and destroyed when lightning rods have been attached to them. When you go to large cities, if you examine the large buildings that are owned by those who read the most and study and compare results, you will find but few with lightning rods on them.—Ed.]

Kilns for Burning Drain Tiles.

SIR,—I submit the following plan as an answer to your correspondents who wished to inquire about kilns for burning drain tiles.

The plan consists of a number of parallel arches or benches of unburnt brick, set after the style of a brick kiln; the outside benches set to the full height desired for the kiln, and those between set three courses above the arch and forming the kiln floor.



The above cut represents a section of an outside bench and a number of the floor benches.

The order of the work is as follows:—Set a bench of bricks as you would for the outside bench of a brick kiln; *scove and plaster it all around.* Set a number of benches to the height of three bricks above the arches; they are to form the floor for the tiles. Build a scoving wall alongside of the bench last formed; set another bench of bricks to the same height as the first bench; scove and plaster it all around. You will then have the two side walls and the floor of a kiln. The scoving walls between the outside benches and the floor benches should be built to the height of the outside benches. If they were omitted, the heat would pass from the outside arches to the tiles, and it would be impossible to burn the bricks well.

Set your tiles *plum* on the floor benches, leaving a space of about three feet along the heads. Batter so that the scoving will have a slope of about one foot in five feet rise.

Scove up the heads, plaster, cover with two courses of flating, and burn. The fire will have to be maintained longer in the outside arches in order to burn the bricks well. After burning, let the tiles stand in the kiln until sold. Sell all bricks and tiles between the outside arches. Plaster up cracks in the scoving between the outside benches and the floor benches. Let the fire holes in the side benches remain closed. Replace the floor benches with unburnt bricks and proceed as before. One of the outside benches may be carried up *plum* on both sides, and form a side wall for another kiln.

It would take time and occupy considerable space to write all the advantages of this plan. The facts that there are from three to four thousand bricks in each one of the floor benches burned with scarcely any more fuel than would otherwise be required, that the labor and breakage of emptying a kiln are unnecessary, and that the tiles occupy less space in the kiln than anywhere else, ought to commend the plan to manufacturers. I feel confident that any one who fairly tries the plan will not again use a permanent kiln.
GEO. S. TIFFANY.

SIR,—Could you, or some of your numerous correspondents, give me a cure for cows that take swelling in one quarter of the udder. Nearly all our cows are troubled with it every summer; one quarter swells, gets quite hard, is difficult to milk; the milk being thick, and the udder also appears to be very tender, as the cows will hardly stand to get that teat milked. They will remain so for perhaps four or five milkings, then will be all right for some time. If there is any cure or preventative I would be glad to hear it.
Yours Truly,
JAMES HAMMOND.

Hammond, April 24, 1875

Mr. Hammond's letter was mislaid, or we would have replied earlier. The disease his cows are subject to, as described by him, is, we think, that commonly known as garget. There are different causes for it. When the cow is springing, just before the time of calving, many of the best milkers are subject to it. It is attended by inflammation,

caused by the flow of blood to the udder. In drying cows in the fall, they are subject to the same complaint, if due care be not taken.

Irregularity in milking, or worrying the cows with dogs, or boys may also cause it. From an article by Mr. Arnold a well known American writer on the subject, we extract the following:

In cases which are not very severe, washing the bag two or three times a day with water will be sufficient. Many recommend cold water, but warm is much better. Cold water will produce, by reaction, a rush of blood to the parts chilled, and counteract, in part its efficiency. Warm water will at any time reduce inflammation, by an external application, more rapidly than cold. If the bag is milked out clean, this treatment will generally be sufficient.

In severer cases, internal remedies may accompany the bathing. Poke root, grated, and given in a mess of feed, is a common prescription, and, though I can see no reason for its producing any specific effect, it does often act like a charm; and what seems equally strange, cows troubled with garget often show an appetite for it, though they would reject it at other times. Dose, bulk of half a hen's egg. Half an ounce of saltpetre morning and evening, dissolved in the water she drinks, will often render essential aid. When the case is so severe as to need internal remedies, the bag, besides being washed morning and evening with warm water, may be bathed in the middle of the day with liquor of ammonia diluted with some light oil like oil of turpentine, and well rubbed in. This will help to dissolve and scatter the obstructing matter. In such a case the patient should be kept in a comfortable stable and lightly fed with laxative food.

SIR,—I thought I should give some of my experiments in agriculture, as I have now been testing a good many kinds from West and East these seven years as follows: I've tried 13 kinds potatoes, 10 kinds oats, 3 of barley, 7 kinds of fall and 5 of spring wheat, besides clover and grasses, and other seeds.

I am proud to say my fall wheat looks most splendid. I have now growing, 1st, Deihl, the poorest; 2nd, Alexander from North East, very good; 3rd, is reddish blue, strong straw, large heads, great yield, but I've no name; 4th, Soules, shows well; 5th, German is a good wheat; 6th, Tredwell is a splendid wheat, done well last year; 7th, the Scott, is a No. 1 wheat, the above promises fair again. Also have spring wheat, viz., Fife, Weeks, Jerusalem Bald, McCarling, Midge Proof and Black Sea, I hope to look fair this season.

If I had time I would send my experiments for the benefit of our loyal farmers, East and West.

Most respectfully,

Avenmore, P. O., Ont. ADAM H. RUNIONS.

We are always well pleased to hear from such enterprising farmers as Mr. Runions. Not for themselves alone do such men make experiments, but for their neighbors and the country at large. The introduction into the country and testing our valuable variety of seeds or roots may be worth many thousands to the farmers of Canada; and the more so when the person who tests them gives the result of his experience so liberally to the community at large.

SIR,—I noticed in your last paper a brief account of British Columbia, from a Mr. Snise, as there are a number of young men in this part of the country who would be pleased to receive further information. I think if you could get him to write an article in your paper and an account of the free grant lands, and the amount of capital required for a young man to start, and the best season to come, you would confer a favor on us. I cannot close without thanking you for the valuable information we receive through your paper; we would not be without it for anything. We will look for an article in your paper on the above subject.
Your Servant,

Woodstock, June 10th, 1875. E. TOPPING.

We hope to receive from some of our friends in British Columbia such a description as will be useful to Mr. Topping, and other enquirers. We would consider it a favor if Mr. Adam Innes, or

any of our readers in British Columbia or Manitoba would give us a further and fuller explanation than we, at a distance, are possessed of.

The following additional information respecting the Free Grant Lands is from the Government Agent in the *Montreal Witness*, and has, therefore, the stamp of authority:

GOVERNMENT FREE GRANT LANDS.

(*Editor Witness.*)—The settler in the free grant district has no control over the pine timber on his lots, until the patent is issued. He may, however, cut what he needs for his own use, or what may be in the way of his clearing operations; but he cannot sell any. If the pine in the township in which his lots are situated is not yet under license, he may cut and sell on condition of paying Government dues, about 75 cents per M. No license to cut timber can be obtained, except at the regular auction sales of timber limits. The lumbermen pay a nominal sum for the licenses, and afterwards pay the Government, at a certain rate per M., for what they actually cut. They therefore take only what can be conveniently thrown into the lakes and rivers for rafting; and the settler generally finds a considerable proportion of his pine left, when he obtains his patent, five years after location. There is abundance of pine, spruce and cedar, on every lot for fencing. Oak, ash, and chesnut are entirely absent or very scarce. There is very little swamp, the cedar very frequently growing on high land. Good water is very plentifully distributed over the country in streams, and the small lakes with which the whole district is thickly studded. The large streams are generally nothing but strings of these lakes connected by swift rapids or cascades. Very few large springs issue from the ground spontaneously, on account of the nearness of the subjacent rock, which renders very long and deep subterraneous water courses impossible. Plenty of water can be obtained anywhere at a moderate depth. All the water has a dark tint from holding in solution a minute portion of iron oxide and perhaps some other mineral ingredients. This may be the cause of the gradual improvement in health that many invalids experience. Most settlers use no team during the first three or four years, but clear and till the ground by hand. If a team is used it is generally a single horse, which answers every purpose of logging, harrowing, &c. Cattle and sheep can be bought in or near the free grant region. I conversed with many settlers in reference to their prospects, and, unlike your Kimmount correspondent, I found them in every instance contented and hopeful. When I referred to the rugged and rocky appearance of some of the farms, they met my objection by pointing to the vigorous growth of the crops. I endeavored to buy some lots partially improved; but found that I would have to pay about double the cost of the improvements. —J. RYERSON, Waterford, Ontario.

Hon. D. Christie's Short-Horn Sale.

This sale took place last month as we were going to press. We now give the prices received:

FEMALES.	
Oxford's Princess of Athelstane, J. R. Page, Sennett, N. Y.	8525
Mary of Athelstane, E. T. Noel, Nashville, Tenn.	475
Knight's Princess of Athelstane, F. W. Stone, Guelph.	175
Placida 8th, Hon. Geo. Brown, Bow Park.	500
Lady Queen, Gen. S. Merideth, Cambridge City, Ind.	500
April Morn, do.	625
Louan of Brant 4th, E. T. Noel.	850
Louan of Brant 5th, Hon. A. McKellar.	1350
Louan of Brant 6th, Messrs. Holton, Ellison, Ill.	1150
Louan of Brant 7th, do.	500
Louan of Brant 8th, J. R. Page.	350
Louan of Brant 9th, Hon. Geo. Brown.	800
Louan of Brant 10th, Messrs. Holton.	290
Isabella 25th, Gen. S. Merideth.	725
Hattie Napier, Osler & Chegwin, Dundas, Ont.	150
Angus Napier, Wm. Harris, Mt. Elgin.	140
Grace, Hon. Geo. Brown.	600
Faith, Osler & Chegwin.	135
Jura, do.	140
Vandar, B. Sumner, Woodstock, Conn.	235
Rosalie, Osler & Chegwin.	250
Young Rosalie, J. R. Craig, Burnhamthorpe.	75
Mabel, Osler and Chegwin.	150
Miss Goldsmith, A. Elliott, North Dumfries.	135
Ella, R. Renselton, North Dumfries.	105
BULLS.	
Knight of Athelstane, Gen. Merideth.	200
Louis Philippe, do.	200
Prince Athelstane, H. Christie.	150
Sirius, J. Bawtinheimer, Oakland.	100

CHEESE FAIR.—The Ontario Dairymen's Association will hold their Cheese Fair in Ingersoll, on Wednesday and Thursday, the 6th and 7th of October; \$700 will be awarded in prizes.

Fairs.

The Central Exhibition will be held in Guelph, Ont., on the 14th, 15th, 16th and 17th of Sept.

The Western Fair will be held in London, Ont., on Tuesday, Wednesday, Thursday and Friday, Sept. 28th, 29th and 30th, and Oct. 1st.

The Provincial Exhibition, at Ottawa, from the 20th to the 24th of September.

Ohio State Fair, at Columbus, from September 6th to 10th.

St. Louis State Fair, from October 4th to 9th.

Michigan State Fair, at East Saginaw, from September 13th to 17th.

Maine State Fair, at Portland, from September 21st to 24th.

Massachusetts Horticultural Fair, at Boston, from September 21st to 24th.

New York State Fair, at Elmira, from September 27th to October 1st.

Winter Wheat.

We should be pleased if some of our readers in different parts of the country would send us reports of the best kinds of winter wheat in their localities; the probable yield per acre of each kind sown, which variety will yield the most, and what varieties have been most injured by the winter and spring frosts. We want the reports to be in this office by the 15th of August. We wish to publish early reports for September, in time for parties to select their seed.

Seed Drills or Hand Sowing.

Many farmers have not yet inquired into the advantages of the seed drill, or, at least, they still lose seed and also run a greater risk of having their wheat winter killed by hand sowing. This season has told more in favor of using the seed drill than many former seasons, as many farmers who sowed by hand have no wheat to sell, while those who used a drill have wheat to market.

A New Enterprise.

Near this city are five acres of milkweed, sown and cultivated as any other crop. This is for the purpose of making rubber gum; for some purposes it is superior to the India rubber. A company is formed, a large amount of money is paid in, and one thousand tons of milkweed are to be ordered at once.

Perhaps some of our slovenly farmers who have not destroyed the weed on their land, which, by the way, is not easily accomplished, may yet be able to turn a penny from it, for the gum is made out of the common wild milkweed.

Look Out.

Look out for Gypsies and all kinds of tramps; they will be plentiful this season. Five valuable race horses have been stolen, said to be worth thirty-five thousand dollars. These animals were stolen from Coombs' Dam, New York State. If in that State such depredations can be committed, what may we expect, with so many sharpers on the look out? Our advice would be—look closer after your loose property.

The Provincial Exhibition Plowing Match of the 1st, 2nd and 3rd districts of the Association will take place on the 13th of October, on the farm of Messrs. Johns, of Elizabeth Township, near Fairfield East Station, on the Brockville and Ottawa Railway. Messrs. Ira Morgan, Archibald McNab, Andrew Wilson, and Presidents of county societies are the Committee of Management. Secretaries of other societies might forward notices of meetings and of other matches in time for publication.

D. M. Dewey, of Rochester, will accept our thanks for specimens of paintings of fruit, very neatly executed; also for "Agent's Guide." Parties desirous of dealing in fruit trees should send for his circulars.

Reply to J. S.—Hungarian grass should be cut soon after it is in blossom, before the seed is half its proper size.

Cut corn for feed as soon as it has shed its blossom, every day it stands after that it loses in quality.

Illustrations intended for this paper have not been forwarded in time, through the tardiness of the Merchants' Express, which has taken 10 days to deliver a package here from New York. We hope to please you better when you receive the next paper.

Commercial.

Crop and Market Report.

Seldom have we had a more striking illustration of the uncertainty of crop and market prospects than the last few days. The European crops gave good promise of an abundant prospect. From the time of the preparation for fall sowing there was in England, especially, the most favorable prospect of an abundant harvest, and prices during the whole season ruled low; when there came at once an advance in prices of breadstuffs of which there was no anticipation, and for which none were prepared. The telegraph flashed throughout the Western Continent the unexpected news of advanced prices, but no cause for the rise. We know the uncertainty of the weather everywhere, but in the British Isles it is much more uncertain than here. The weather just now—when sunshine is needed for the maturing crops—there is wet, and this and the heavy rains throughout Europe are said to have caused the advance in prices. This advance may, however, be of short duration. The weather in England shows signs of improving. Flour in New York has a downward tendency. Advances from all parts of the Dominion give on the whole favorable reports of the crops, and from the United States the reports promise, at least, a fair yield, if not an abundant harvest. The increased demand, with rise in prices, is evidently based on foreign speculation, but what that speculation may rest on is not very apparent.

European Breadstuffs—A General Advance in Prices.

LONDON, July 20.—The *Mark Lane Express* of this week says:—In France, wheat has advanced in the Provinces to three shillings, and in Paris one shilling and sixpence. Flour has advanced two shillings per sack. Here we have yet to learn the full extent of the advances. Before the heaviest rains there was an occasional rise of one to two shillings. Last week the sales were only 3,214 quarters above those of the same week in 1874. Every market is so scantily supplied that we seem to be on the borders of exhaustion, though from the lowest point our average shows a rise of only three shillings and five pence.

In Belgium and Holland there has been a moderate rise; even in Germany, with good prospects, prices are somewhat higher, while in Hungary, where the crop is enormous, they are also dearer.

Markets.

LONDON, July 23.—Floating cargoes of wheat firmly held; as also are floating cargoes of corn. For cargoes of wheat on passage, the enhanced pretensions on the part of sellers prevent business; cargoes of corn on passage, demand fair, and prices a shade higher.

Mark Lane—Wheat is 1s 6d dearer; corn 6d to 1s dearer. London—Quotations of good shipping California wheat, per 500 lbs., at Queenstown—for orders just shipped, 53s; nearly due, 54s. Quotations of good cargoes mixed American corn, off the coast, per 480 lbs, *late quate*, less usual 2½ per cent, commission, 36s 6d. to 37s. Arrivals of cut moderate; corn, nil. English country markets generally dearer. French country markets also higher. The weather in England shows signs of improving.

Liverpool—Wheat, on the spot, at opening, steady; corn, on the spot, at opening, improving; California white wheat, range of fair to choice shipping club, per cental, 10s 2d to 10s 10d; Red American spring wheat, per cental, 9s 8d to 10s; Canadian peas, per quarter of 504 lbs, 43s.

New York, July 23.—Flour less active and scarcely so firm to-day. Sales, 14,000 barrels at 85 50 to 86 for superfine state; 86 10 to 87 for common to choice extra and Western. Wheat, 3c to 4c lower; sales 70,000 bush, at 81 36 to 81 82. Corn, steady; sales, 45,000 bush at 90c to 91c.

Chicago.—Prices declined still more than in New York. Toronto, July 23.—The market firm but not active. Flour firm and probably 5c to 10c better; extra, 85 60; fancy, quiet, but would probably have brought 85 40 to 85 45; spring, extra, quiet, but good brands would have brought 85 25. Wheat was firm and holders excited; fall was held at 81 30, and 81 23 is said to have been paid; for spring 81 22 was paid, and for one lot 81 24. Oats were quiet and unchanged. Barley and peas nominally unchanged.

Toronto, July 24.—The tone of the market is rather easier, and more disposition to sell. No sales reported on change.

Chicago, July 24.—Flour easier, but not notably lower. Wheat active, lower, panicky, and difficult to give accurate quotations. Corn quiet and weak. Oats in fair demand and lower. Barley dull and lower.

New York, July 24.—Flour less active; prices again declined 10c to 15c. Wheat dull and nominally 1c to 2c lower; sales at 81 34 to 81 50. Corn dull at 81c to 90c. Barley nominal. Oats dull and heavy.

Montreal, July 24.—Flour market quiet and easier; holders anxious to realize at a decline of 5c per bbl on yesterday's prices, buyers holding off awaiting English advices; transactions small. Grain more active.

LONDON, Ont., July 24.—White wheat, per cental, 81 85 to 82 05; red winter, 81 90 to 82 00; spring, 81 80 to 82 00. Barley, 81 20 to 81 25. Peas, 81 15 to 81 25. Oats, 81 25 to 81 27. Corn, 81 25. Beans, 30c to 31 25. Rye, 81 10 to 81 20. Buckwheat, 81 15 to 81 25. Spring wheat flour, per 100 lbs., 82 25 to 82 50; fall wheat flour, 82 50 to 82 75; patent process, XXX, 83 25 to 83 50. Reg butter, 15c to 16c. Roll butter, 17c to 18c. Cheese, dairy, 10c to 10½. Cheese, factory, 9c to 10c. Hay, 81 to 81 6 per ton. Eggs, per doz, 14c to 15c. Wool, 35c to 36c. Potatoes, 81 to 81 50. Cordwood, 84 00.

F
VOL. X.

A few wor
able in an ag
the plow is k
with few day
bours are n
compelled to
season, and t
perative on u
seasons. W
ing, but our
spring plow
tween them.
Plowing h
culture been
strange it is
opinions and
plowing be c
fall for sprin
crops if we t
the soil, wit
furrow? W
asked.

In consid
question ar
requiring th
labour. We
obtain by pl
obtain this,
continued u
sary to loos
there would
germination
die. It is n
roots may n
plant requir
the soil; fro
tion of its
substances
and for th
have ready
during the
deeper in se
only is a lo
that the loo
deep soil—
heaviest cro
most food,
growth and
to this rule
food. This
manuring o
at the dept
hungry soil
to say that
turn the ric
a soil comp
surface soil
to plant lif
iron. If
years of g
Plowing d
the effect c
as a genera
Fall plow
to the soil,
more fall p
ditionally c
work. An
not the on
the fullest