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The Field.

The Grain Crop, and when it should be Harvested.

Autumn has come again with its rich store of golden grain to cheer the heart and compensate the toil of the husbandman; and from each waving field is heard the hum of the reaping machine, and the cheerful voices of the "bone and sinew" of the land engaged in securing the crops.

Our accounts from all sections of the country are very encouraging to the farmer, for while in a few districts the fall wheat is not so good, and while in the most favored sections it was partially winter-killed on heavy clay lands, yet we are assured that fall wheat all over will be considerably above an average crop, while spring grain of all kinds will be heavy. On the whole, appearances indicate a prosperous year for our Canadian farmers. Our personal observations go to show that where the fall wheat has been winter-killed it is due in a very large majority of instances to the want of shelter, caused by the indiscriminate cutting down of the woods when farms were being cleared or reclaimed from the forest; and we would fain hope that in the many new districts in which the same process is now going on, due regard will be had to this most important point, and that belts or groves of timber will be left standing to shelter the neighboring fields from the chilling northern and western winds of our Canadian winters. A farm protected by woodland from the north and west is, under circumstances otherwise equal, worth several dollars more per acre than a farm exposed in these quarters. Our American neighbors in the older settled states are becoming alive to this fact; hence we hear of an extensive amount of tree-planting in these states, and of pecuniary inducements offered from public and local funds for its encouragement.

While it is gratifying to find a steady advancement not only in the cultivation but also in the harvesting of the crops, we yet fear that a large number of farmers do not pay sufficient regard to the proper season for cutting grain. If it is true that "knowledge is power," it is no less true that knowledge in this particular is wealth. It is well known that wheat, for instance, if cut too early shrinks and becomes shrivelled, and will consequently command a less price than when well filled and plump; and it should be equally well known that if left standing uncultured too long it deteriorates in quality, and the farmer thus loses in the quality of the grain in addition to the loss from shelling out incident to over-ripe grain. It has been found that the proper time to cut is at the period when the grain can receive no more growth from the root. It then contains the largest amount of nutriment, but it is very difficult to determine when that precise period arrives, and

it varies with the different varieties of wheat, and is so much affected by a wet or dry season as well as by a moist or dry soil, that it is impossible to lay down any definite rule for it. When it is found that round the outside of the field the grain has become of a white straw color, and shells readily when rubbed in the hands, and that the kernel when crushed with the nail discloses a powdery, starchy appearance without being pasty, it is then time to cut it down. The hardening and a considerable portion of the ripening should take place in the shock. What has been said of wheat is true in a greater degree of spring grains, especially oats, in which there is a large waste from shelling out if cut too ripe.

Another noticeable feature is the extent to which, of late years, machinery has taken the place of manual labor. The cradle has, in the older settled districts, become a thing of the past, and a field which under its regime required six cradles, six rakers and binders, and a man to shock, can now be cut down in the same time by one reaping machine and five binders. We speak now of the average cradler. We have heard of cradlers who claimed to cut four acres and upwards in a day; but while we do not dispute the existence of such, they were like angels' visits, few and far between, and our experience leads us to the belief that half that quantity is much nearer the average day's work. The use of the reaping machine is an important aid to the farmer in shortening his harvest, thus enabling him to cut his crops at the proper season. In a dry hot season crops ripen very quickly, and two or three days will seriously injure them; and it was no unusual thing for a farmer to commence cutting with the cradles when his grain was in splendid condition, and yet from a scarcity of hands have a considerable portion of it too ripe before it could be harvested.

A comparison of the cost of harvesting under both systems will however show that the machine is in itself a profitable investment from a direct pecuniary point of view. Thus, in cradling 60 acres of grain, the cost would be somewhat as follows:—

5 cradlers, 5 days @ \$1 75 per day.....	\$43 75
5 binders, 5 " @ 1 75 "	43 75
1 shocker, 5 " @ 1 75 "	8 75

Or about \$1 60 per acre..... \$96 25

And with the reaping machine—

1 driver, 5 days @ \$1 75 " day..	\$ 8 75
5 binders, 5 " @ 1 75 "	43 75
1 shocker, 5 " @ 1 75 "	8 75

Or about \$1 02 per acre..... \$61 25

Showing a balance in favor of the machine of \$35, being nearly one-fourth of its cost, or an interest of about 22 per cent. on the amount invested.

PARIS GREEN in water, put on with a wisp of hay, is the method the Michigan Agricultural College is pursuing for destroying the potato bugs, and with the best results.

Destroying Weeds.

Weeds are the common enemy of every cultivator of the soil, no matter how limited or how extended his operations. They are arrayed against us as a formidable army, ready at all times to make a raid upon our fields; they come by night and by day, stealthily and almost unobserved, to pillage, plunder and lay waste our crops. A war of extermination should be declared against them, and fought out on every farm the coming season.

Weeds consist of a variety of kinds—annuals, biennials and perennials, many of which are native, but the majority are imported, and being as a general rule of a more succulent growth than most of our crops, they at once appropriate the fertilizing properties of the soil, the dew, and the air, to the manifest detriment of our crops; consequently every weed that grows is a tax upon our industry and our profits. The old maxim, "one year's seeding makes seven years' weeding," is one which it would be well to heed, and now, in making preparation for seed time, be particular that all seed grain is properly cleaned, and free from fowl seeds. Run it through the fanning mill until it is perfectly clean. The same care should be exercised with grass seed when stocking down, also to have the manure thoroughly decomposed so that as few seeds as possible may be left to vegetate from this source. Proper care in these initial matters will save trouble and expense.

Plant weedy fields with hoed crops after thorough ploughing and harrowing, and keep well tilled during the season. Pull up all weeds from the fence corners if there are any, such as thistles, burdocks, cocklebur, etc., dry and burn them. Weeds can be destroyed at a small expense of time and labor when just appearing above ground, but if suffered to grow till partially mature, the expense is very largely increased, and the damage to the crops proportionally greater. There is no work more necessary, or that pays better, than the prompt destruction of weeds, and a little labor at the right time properly directed, often makes just the difference between a crop that barely pays expenses and one that insures a good profit. Make clean work of the weeds in all cultivated fields; do not cover them up and attempt to smother them, and have them spring up in a few days with renewed freshness; but cut them up thoroughly, leaving them on the top of the soil to wit and die; remembering always that extreme vigilance is the price of good crops.

Every farmer should study the habits of weeds, so as to be able to subdue them with the least outlay of labor; this is almost as necessary as to know the habits of the crops we cultivate. Different kinds of weeds require different treatment; what will kill one only serves to spread another.—*Cor. Country Gentleman.*

Saving Manure.

It is often remarked that those who farm near large cities must have great advantages over people at a distance, in the ease and cheapness with which they can obtain manure. We are not sure that this is so. We have seen many a country town where manure may be had nearly for the trouble of hauling, while the writer has had to purchase many a load for his land near Philadelphia at the rate of two dollars a horse. That is to say, four dollars for as much as two horses could haul away. Perhaps near these large cities we have a better idea of the value of manure than in many other places. We have learned that it costs no more for labor on rich land than on poor, and labor costs far more than manure—poor and dear even as labor generally is.

These remarks are introductory to the suggestion that it would pay many people to look more after saving manure than they do. Here we find it much to our interest. As a general rule we suffer no weeds to grow, but it very often happens in the hurry of spring work that the weeds get tremendously ahead, and if we had a weed law, and malicious neighbors near us to prosecute under it, we suppose we should very often get hauled up before the court.

When the season is somewhat wet, as the present one was with us, the weeds seem to run riot for a while. Before we could put the cultivator through some of our hood crops, the weeds were in many instances a foot high, and the first time the harrow went through there was little more impression made on them apparently than if it had been dragged through a clover field. A couple of times, however, tells the story; and our practice in these cases is to have the heavy weeds dragged together, often times by hand-raking, and hauled away to the compost heap. This we have done for some years, and believe it is a very profitable item in our experience.

Many are afraid of the seeds of the weeds, but the immense mass of vegetable matter we gather together soon ferments and heats, and most of the seeds are in this way destroyed. We suppose the labor of one man for three weeks is spent on this clearing up of coarse weeds, at a cost of about thirty dollars, while the manurial value of the material collected in that time is at least one hundred dollars to us.

Not perhaps just in this way, but in similar ones, many people would find it to their interest to look well after waste vegetable matter, with regard to the manure. Sometimes it may seem that there is little if any profit over the labor expended, but there will seldom be any actual loss, while the gain very often would be great.—*Forney's Weekly Press.*

Oat and Wheat Stubble.

After harvest, on the stubble of grain crops where grass seeds were not sown in the spring, there generally arises an amazing mass of weeds, which to any tidy farmer must be an unsightly nuisance. As there is time enough for weeds to start up, grow to a great bulk, and produce seed in such quantities as to cover the ground, why should not something be grown which would be useful for live stock? Or if the farmer is one who does so little in that line that forage is of no account to him, why not grow something to sell? It seems as wasteful for any man to let his land do nothing but run to weeds through July, August, September and October, as it would through April, May, June and the beginning of July.

In England the grain crops are never harvested so early by a month, or the farmers there, instantly after the crop was removed, would plough and drill turnip seed with the drill machines which have been in universal use for fifty years, and which at the same time run into the channel some kind of artificial manure. Thus they would obtain a valuable root crop for their sheep; but as United States farmers keep none, excepting in some localities, and many of them there have so few as to make fields of turnips out of all question, it is necessary to think of some other crop to put in to prevent weeds taking possession of the soil. If the land in this country was kept up in the same high condition of fertility it is there, a crop of corn for fodder to be used through the winter could be grown; for if drilled in July, it would on rich land become of immense bulk by growing all August and September, and in early years there might be two or three crops' start in July. A crop of buckwheat, if only to plough under, would be better than nothing. There is also another crop which would be a dense mass of herbage, viz., rape, which is grown a good deal in Canada. This is in some places called colwort, or colseed.

It depends a great deal, of course, on the state of the land, on what animals there are to be fed, and

on what the land is intended to do the next year, whether one crop would be more advantageous than another, but in cases where clover or timothy have failed, a crop of something like clover would be desirable. *Trifolium incarnatum* would be a substitute, and in instances where there is not time to plough, it would be very convenient, for this seed is very sure to grow if there is only a little fine mould harrowed on the surface, just sufficient to cover the seed, which has to be sown about as thick as, or a little thicker than common clover. The finer the soil beneath the better. Between thirty and forty years ago it was introduced into England, the seed being very cheap, and it was sown extensively in some parts, to be penned off the same as vetches are, and it comes very early in the spring, and if used just as it is coming into bloom, and before the flowers fades it is exceedingly nutritious. It is extremely hardy, and grows a great weight of seed per acre, but dies away after the first crop, as peas, vetches &c. do. I have seen nothing of it in America, but it has been mentioned in one of the agricultural papers this summer, but I forgot which, and do not remember what was said about it.—*Cor Country Gentleman*

Drilling Wheat vs. Broadcast Sowing.

The subjoined statement of the comparative merits of drilling and broadcasting is taken from the *Rural World*. The writer says.—

Let me offer my experience in wheat growing for ten years past—five years broadcast and five with the drill. The wheat sown was the Swamp or bearded Mediterranean. Soil, sandy loam. Number of acres experimented on, 100.

Yield from 1½ bushels seed per acre, sown broadcast and harrowed twice:

1861, 33 acres, 14½ bushels per acre.
1865, 35 acres, 15 bushels per acre.
1866, 50 acres, 16½ bushels per acre.
1867, 48 acres, 17½ bushels per acre.
1868, 40 acres, 18 bushels per acre.

Yield from 1½ bushels seed per acre, sown with drill:

1869, 32 acres, 21½ bushels per acre.
1870, 30 acres, 20 bushels per acre.
1871, 33 acres, 23½ bushels per acre.
1872, 42 acres, 24 bushels per acre.
1873, 22 acres, 25 bushels per acre.

Sown with drill eight inches apart and two inches deep. Land in 1871-72 broke twice—all harrowed before drilling, and all for ten years sown in September, and all but twice before Sept. 25.

The above shows an average of something over six bushels per acre in favor of the drill, or about \$3 per acre. I am firmly persuaded that, were two bushels sown per acre, the average would still be better, and would pay. I am going to try two bushels this year on fifteen acres, along with one and a third bushels on thirty two acres, and mark the result. If farmers could break their land twice, I am sure it would pay, indeed, I think the better order land can be placed in, the better it will pay. American farmers desire to farm more land than they can till well, because it is fashionable and looks grand. It is to be hoped that as we grow older we will grow wiser.

Changing Seed.

A change of seed in agricultural operations is almost always beneficial. Growing the same crop in one locality from the same 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. Seed grown in the cool atmosphere and soil of northern Vermont and Canada is found to grow more luxuriantly when re-sown in the middle and western states, and uniformly turns out heavier weight to the bushel. If the same seed is sown every year in the latter states, without new importation, the produce per acre and 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 know here. Vegetable seeds should be changed frequently, and obtained from localities remote from the farms where sown. The farmers of England, who raise excellent cereals, roots and grasses, are very particular in selection of seed, and 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 farmers prefer 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 im-

ported into England, the United States, etc., from Holland and Germany; and the change is very beneficial for two or three years. Forest tree 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.*

Bogs.

Farmers well know how laborious it is to subdue a marsh covered with well developed bogs. Yet, when subdued, they make the best of mowing lands. Brain is of great value on a farm. One farmer used his brain to good purpose when he executed the process of leveling a large piece of the worst of bogs, thus. He cut a ditch through it in the dry season, then made a dam across the outlet of the marsh (which happened to be quite narrow), in this dam, near the bottom of his draining ditch, he constructed a gate for shutting off the water. During the fall and winter storms this was kept shut, until the whole marsh was flooded some three feet deep. The ice in this shallow and still pond froze to the depth of about two feet. He then opened the gate, drew off all the water, allowed the vast mass of ice to press upon the saturated and softened marsh, crushing down the bogs, and reducing the surface to the smoothness of a floor. In due season he broke it up and conquered it.

A SECOND CROP OF POTATOES.—It is said that what has been done can be done again. One of our gardeners dug his first crop of Early Rose potatoes all up by July 17, three or four years ago, and planted the same land again with old sprouted seed that had lain in his cellar. He put one eye in each hill, and when harvested, to the surprise of all, many of the potatoes weighed one pound each. Perhaps some of your readers would like to try the experiment.—*C. Spratt, Utica.*

TRAVELLING ON THE FARM.—Did any of your readers ever think of the amount of travel it takes to raise a crop of corn? I never saw an illustration in print, and I thought I would give you one. I have a 20-acre field, 40 by 80 rods. To break this up would take 166 miles, harrowing it, about 40 miles; furrowing out, 90 miles; planting, 45 miles, if with a planter, and if dropped and then covered, 90 miles. Thus you will see it takes about 800 or 900 miles of travel to raise twenty acres of corn, not counting going to or returning from the field. Besides, there are replanting, thinning, rolling, etc.—*Ind. Farmer.*

THE GRAIN COUNTRY of North America is far greater than many have supposed. The district of Manitoba, so called from a lake of that name in British America, which lies south-west of Lake Winnipeg, and is connected with it by the Dauphin River, has peculiar claims in this respect. It will soon be open for settlement. Its magnitude can be understood when we mention that the distance from the point where the Pacific Railroad will cross the Red River of the North to Lake Manitoba, is 360 miles, or about 600 from St. Paul, Minn. It is divided into thirty-two stations or places, the most of which are mostly new to the world, but will soon grow familiar by use. The included grain growing country scarcely yet entered upon is nearly 600 miles in width by 1,000 or more in length, full of prairies, navigable streams, great lakes and countless small ones, too numerous to designate on the maps of the country, and mineral wealth as yet unknown. A few pioneers only have gone into this rich agricultural country, but before many years have passed it will be the home of millions.

DIFFERENCE BETWEEN RED AND WHITE WHEAT.—It is said that the hard wheats are all natives of warm climates such as Italy, Sicily, and Barbary. The soft wheats are from more northern climates, such as England, Russia, Belgium, Denmark and Sweden. There is, however, one exception to this general rule, as the celebrated Polish wheat is hard, and for this reason it has been contended that it is not a native of Poland, but was introduced there from a milder climate. The English atmosphere is so humid that it is impossible to ripen wheat hard, but in many cases it requires artificial heat to harden it before it can be ground into flour. Different soils and climates materially change the nature and variety of wheat. The difference between red and white wheats is not in variety, but is owing chiefly to the variety of soil on which it is grown. A generous dressing of wood ashes applied to the growing wheat in the former part of the growing season will exert an excellent influence in rendering wheat of a lighter color than it would be without potash. Lime is excellent also for the same purpose.—*N. Y. Tribune.*

Grasses and Forage Plants.

Sanfoin and Clover.

We learn from the *Mark Lane Express*, that at a recent meeting of the Winfrith (Eng.) Farmers' Club, Mr Scutt read a paper on the above named grasses, of which the following is a synopsis—

I will first make a few remarks on the cultivation and treatment of sanfoin. This I consider one of the principal of our forage crops, being a perennial deep-rooting plant. It was in cultivation on the Continent long before it was introduced as a field crop into this country. About the middle of the seventeenth century it was brought from France, and was first called "French Finger Grass," hence the term "French Grass." On lands suitable for its cultivation no farmer can grow too much of it, it will grow on any soil where lime is present, but more especially on lands of light dry calcareous formation, on such it will, I think, give a greater return than could be obtained from any other of our cultivated plants. Soils which contain a large proportion of clay are unsuitable to its cultivation. There are two varieties—the giant and common sanfoin. The latter is preferred where the land is intended to be kept down some years to its cultivation, but if only for two or three years, I think the former variety preferable, as a much larger produce is obtained, and the seed is generally cheaper. The seed is grown after a crop of hay has been obtained, which is not the case with the common variety. There is a very great advantage in growing sanfoin on thin soils, in consequence of its being such a deep rooting plant. When soils have been found too close to the rock to carry the ordinary crops they have been brought into beneficial cultivation by being laid down to sanfoin for a course of years. The roots of the plant ramify through the clefts of the rocks and carry down with them the air and rain-water from above, and thus they bring to the surface large supplies of mineral food. In the preparation of the land for sanfoin great care should be taken to clean it of weeds. This is an important consideration, and cannot be too strictly attended to. The principal districts in which sanfoin is grown are Hampshire, Wiltshire, and some parts of our own county, on the chalk soils. The usual practice is to sow down the sanfoin with the barley after turnips, but in so doing we should be very particular as to the hay fed with the turnips, as seeds of the hay, if too ripe when cut, as well as those of weeds, will germinate and soon produce a foul piece of sanfoin. The yield of the crop mainly depends on the condition in which it is sustained. If mown and carried off year by year, as is too commonly the case, the plant soon becomes weaker, the indigenous plants increase and rapidly displace the others, and the land becomes a mass of weeds. If, however, it be kept regularly pastured down or mown with hay, and fed upon afterwards with corn or cake, the condition of the land will be kept up and the plants maintain a vigorous growth. I think it is important not to feed from the first year's growth, but to let the plants root themselves well in the soil. In order to protect the crops as much as possible from the natural grasses, it is a good practice to harrow the young plant in early spring, thus displacing the shallow-rooted weeds, and then, by adding manure, you encourage the growth of the sanfoin. The time of cutting for hay should be immediately it shows flower, for its nutritive value decreases as the flowering proceeds. It takes three years to arrive at its maximum of production, and if the soil be sustained by proper treatment and the crop kept clear of weeds, it will keep up its rate of production for about five years, when the increase of the natural grasses generally tells on the crop and shows that it is time to plough it up. The other part of my subject is the growth and management of clover. This plant, as well as sanfoin, we are told, was not known in this country until the 17th century. Before that time many of the clovers were known as common weeds, and no doubt in the natural pastures had furnished food for the wandering herds. There are many species of the clover plant which are cultivated in this country for forage and feeding purposes, while many of the others are met with in the natural pastures. The common red clover is the most important to us, it being a very vigorous and productive grower in suitable soils, furnishing a large amount of nutritious and sweet herbage. Clovers enter so generally into the rotation of the present system of farming that we meet with them in cultivation on every description of soil. They form large roots, which have a tendency to penetrate deep into the soil and to seek supplies of food from the lower stratum; thus they secure the

power of obtaining moisture while the more surface-rooted plants are suffering from the effects of the summer sun and drought. I consider in all cases we must endeavor to secure for clover a deep, well-tilled soil, and free from stagnant water. The proper place for clover is between two straw crops, which place it invariably occupies; and if, instead of sowing ryegrass with the clover, a mixture of clover with sanfoin and white Dutch could be relied on, it would be much more beneficial to the soil, for the ryegrass partakes of the same food and belongs to the same order as both the preceding and succeeding straw crops. The evils resulting from the continuous cultivation of the same crops on the same ground are known practically to every one. The usual time for sowing is from the middle of March to the end of April; if it takes place too early, the danger is in losing the young plant by frost; and if too late, and the season be dry, the danger lies in the seed vegetating and getting a firm hold of the soil before the heat of summer. I think it best to sow part at the time of sowing the corn and part after the corn is up, before the land is finished off with the roller. After the harvest, when the young clover covers the land, pigs are turned into it for the purpose of picking up the corn left on the land, and they will sometimes take a fancy to the clover and tear up the plant, materially injuring it. Then, perhaps, some will turn the sheep on, which are apt to eat the clover down to the crown of the root, which, if left exposed to the winter's frost, is sure to die away before the spring comes. In its early growth the clover is a very tender plant, and the less it is touched after the straw crop is cleared off the ground the better, the great object is to get it well rooted before the winter. In the following summer when the crop is mown for hay, it is desirable to wait until the plant has begun to form its flower-heads, when it should be at once cut, and the less it is handled after the better, so that the leaf is preserved. Therefore, cutting with the scythe is preferable to the grass-cutting machine, when the crop is intended for seed the best plan to adopt, I believe, is to feed off the first crop before it arrives at maturity, and then lay up the field until the seed is matured; whereas the general practice is to take the hay crop first and then let the second growth stand for seed. Our climate is certainly far more favorable to the growth of clover than to its full maturity and seed produce, and consequently the seed crop is rarely satisfactory. It is important that the seed be fully matured at the time of cutting, and that it be left out in the field until it becomes quite dry and hardened. The diseases to which our cultivated plants are liable are very imperfectly understood; the crop now before us affords a marked instance of this great deficiency in our agricultural knowledge. The clover plant is frequently greatly injured by a form of disease called "clover sickness," but the real cause of such has never, I think, been really ascertained. These are mysteries far beyond the reach of the highest human knowledge, but the veil is sometimes capable of being withdrawn, yet only when people do not rest satisfied with a foregone conclusion, but are content to keep their minds open to fresh suggestions without indolently making up their bundle of faggots and wrapping themselves up in their own prejudices.

Lucerne.

In an article in a late number of the *Prairie Farmer*, a correspondent writes, very correctly and truthfully in many respects, in regard to the above very wonderful and useful plant; but judging by our experience here (of eight years) with lucerne, he falls into two or three errors which it is important to the public to correct. It is represented that it is important to plant the crop in drills that it may be cultivated and kept clear of weeds a year or two, to save the crop from being overcome by weeds. Now we have found the lucerne to be a grower more rapid than the rankest of weeds, and that it will soon run out the most subtle and rank-growing weeds in the catalogue; that it may be sown broadcast or in drills, as best suits the taste of the husbandman.

In these mountains we seldom raise any crop, even of grass, without irrigation, consequently, we generally sow in drills about a foot apart, with water rows between, for convenience of watering; but even here many sow broadcast and flood the ground when it needs moistening.

Another error which tends to discourage the attempt to raise this crop—the writer premises that the crop or plants do not mature or arrive at a state of maximum productiveness for two or three years. On the contrary, we have sown it as soon as the ground was warm enough to plant corn, and cut three crops of hay the first year and, in this climate, four or five

hay crops annually thereafter. We know of no plant so little affected by clipping the top, or one that grows as rapidly; and we consider it one of the most useful and important and decidedly most prolific of hay crops known, readily devoured by every domestic animal and fowl as well as a first-rate bee forage plant.

For the benefit of those unacquainted with its cultivation, I will give our mode of propagation:—Take any land that will make good corn, plough deep and sow about the time for corn planting, while the ground is moist from ploughing—from 15 to 20 pounds to the acre, harrow well and lay flat with drag or roller. This is for regions where crops are fertilized by rains instead of irrigation. No other grain seed or crop should be planted with it. Now let it rest until it is well in bloom, then cut, let it merely wilt, then cock it up, and in a few days haul to barn or stack. When fed, it should be cut down and taken out in squares, as like other clover; there will, otherwise, be quite a loss in dropping of the leaves. This hay, when properly made, is far more nutritious than any other variety, and the animal to which it is fed will not need more than half the grain ordinarily used with other hay. For milch cows it has more the effect of vegetables, in the production of milk, than common dry hay. For summer use, to feed fresh cut, for horses, cows, calves, pigs and even chickens, there is nothing like it. We generally cut four crops in a season of two tons each from the acre, from average good soil; but like all other crops, it pays for good soil or manure. The plant has a very long tap root, often from three to ten feet in length, according to the depth and character of the soil; has a strong vitality and resists the effects of drought most wonderfully, and what is singular, it seems to feed upon that which robs no other plants, unless it be water. Thus it may be planted in young orchards without fear of injuring the growth of trees. In fact, we find our fruit to be larger and better in lucerne, than when the ground is cultivated in the orchard.

In cropping for seed, the first crop should be allowed to stand until the seed is all ripe, then cut and let it dry thoroughly; then take directly to the threshing floor and thresh or tramp it out. Only one crop of hay is generally raised after seed crop is taken off; 300 pounds of seed to the acre is considered a fair crop. We have considered it one of our most profitable crops, consequently much seed is given to supply demands at home and abroad. For keeping cows in towns and cities or in suburbs, when one has command of a sufficient plot of ground, there is no feed that equals it. Every farmer and gardener through the land should at least have a patch of lucerne near the house for feeding pigs, milch cows, calves and fowls.—*Utah Cor. Rural New Yorker*.

IT HAS BEEN SHOWN that at the Michigan Agricultural College a single bushel of plaster added a full ton of hay to the yield of an acre of ground in the five, most of it in the four mowings that followed—two crops being taken off the ground each of the two years succeeding the sowing of the plaster.

A GOOD FIELD of corn is described by *The Danville Union*, Indiana, whose editor says: We found upon actual measurement that it would average eleven feet or over, many stalks being found thirteen feet high. We had to stand on the top of a 10-rail fence to see over the field, and the tops of the corn seemed as level almost as water. We have seen many fields of corn this season, but none better than this.

SPONTANEOUS COMBUSTION OF HAY.—From the observations and experiments of Prof. Ranke, it appears that the charcoal resulting from partial combustion of hay is pyrophoric, but under what conditions the hay can so increase in temperature as to form this charcoal, has not been established. Fermentation doubtless produces the heat, which cannot be dissipated, owing to the bad conducting power of the material.

GRASS SEED.—A writer in an Eastern paper says: If farmers will look well to the subject early in the season and make their plans for it, a large majority may save their own seed, and at moderate cost too, not much above the market price, if any, without the hazard of introducing noxious weeds not already growing upon their grass lands. For eighteen years I have failed only once or twice to supply myself with seed from my own grass, and have done it much easier than I could have obtained the means to purchase it in the market. These failures have been when two seasons followed in succession, in which the drouth prevented herds-grass and clover, one or both, from heading out. I will remark that those two grasses (if clover is a grass) are mainly what I prefer to cultivate. Red-top is so natural to my soil that it comes in of itself.

Agricultural Implements.

Straw-Burning Engines.

The *Times* of May 16th describes at length the visit of the Czar of Russia, Grand Duke Alexis, the Duke and Duchess of Edinburgh and others, to the Flemish farm, to witness the operation of a straw-burning engine, the joint invention of Mr. John Head, of the firm of Ransome, Sims & Head, England, and the late Mr. Schemioth, a Russian engineer. It says: "Although it is only now that the Czar has seen it in action, it has already obtained the approval of the most competent agricultural authorities. We have already made mention of it in letters we published on the Vienna Exhibition, where it was one of the great centres of attraction in the agricultural machinery hall, and we have no intention now of entering into technical details. We shall merely say the engine is fed by a self-acting apparatus driven by a strap attached to itself. The straw is passed in between a couple of rollers, which spread it out lightly with a lateral and fan-like motion, exposing it to the full force of the fire. One man only is required to supply it, and it reduces the average consumption of straw to something like four times the weight of coal. It is exceedingly simple, and indeed its general utility must depend almost entirely upon its simplicity in a country where the laborers have been only accustomed to the most primitive implements, and where the most skilled artizan to be found within reach is probably an ordinary village blacksmith. The trial witnessed by the Czar went off most satisfactorily."

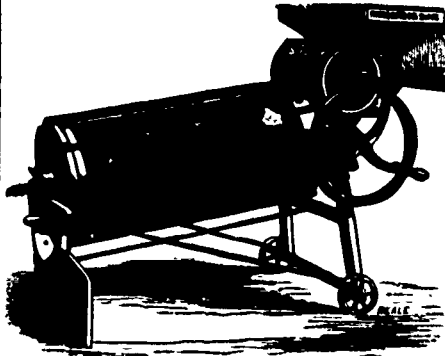
By means of this straw-feeding apparatus, it is claimed that almost any kind of vegetable product can be utilized as a fuel, and thus permit of steam being used as a cheap motive power in countries which are devoid of ordinary fuel, but which are covered with vegetable products. The apparatus for feeding the furnace with straw is self-acting, being driven by a belt from the engine; but if desired, the belt can be disconnected and the apparatus operated by hand; or, when necessary, the entire apparatus can be readily disconnected and removed, and the ordinary furnace door substituted in its place.

In getting up steam it is necessary to operate the apparatus by hand until the engine begins to work. One man can easily feed the straw to the machine, thus requiring no more men than an ordinary steam engine. It is claimed that the average consumption of straw or cotton stalks is about four times in weight to coal, and that about eight or ten sheaves of straw are required to thrash one hundred sheaves of grain. The apparatus can be adapted to fixed as well as portable engines.

New Patent Self-Cleaning and Adjustable Rotary Grain Screen.

As a general rule, farmers would like to sell the best samples of their grain, thereby securing the highest market price, and feed the poorest of it to their cattle. This, we say, is the farmer's desire, but then the great difficulty has to be overcome of picking and choosing—in other words, of separating the good and middling from the poor. It is well known that shrewd buyers are always on the watch to make the best of a bargain, and that a few, a very few samples of poor stuff in the bag or bushel are often made a pretext for classifying the whole as second or third class quality, and the price is fixed accordingly. Now any machine which would effect this "picking" process simply and well would undoubtedly prove a boon, especially if the cost of purchasing it came within a reasonable figure. Such a machine has been invented, and is now used with great success in various parts of Britain. The accompanying cut illustrates it probably better than it could be described.

This machine will separate thin and light grain from a sample of barley, wheat, &c., making a perfect sample without leaving good grain with the tail. The distances between the wires can be altered so that more or less light grain may be removed as desired, and the screen is therefore equally applicable to grain grown on different soils, or in different



climates or seasons. It is perfectly self-cleaning, so that it is always equally effective. It has no brushes either inside or outside, or any washers or cleaners passing between the wires, and is therefore free from the objections to which screens so constructed are liable, that the friction of the washers cuts the sides of the wires, and puts the screen out of gauge, so that good grains pass through with the tail grain. Its action is continuous. It is therefore subjected to less strain in working, and requires less power than those in which the action is backwards and forwards. It is sufficiently narrow to pass through a door-way three feet wide, and when fitted with a Stone Separator, it will remove substances, such as stones, etc., which may be larger than the grain.

The Patent Screen is made in three varieties, and a lad can work either of them, as they require very little power. The hand-wheel should be turned at not more than 50 nor less than 40 revolutions per minute, which is almost the speed of a common Dressing Machine. The screen will do from 1 to 1½ bushels per minute.

Forest Clearing by Steam Power.

A few years ago Mr. Gilchrist, one of the managers of the Scottish Steam Cultivation Company, conceived the idea of clearing wooded land by the use of one of Fowler's well known steam plough engines. His first essay was made on an objectionable hedge, which disappeared with astonishing rapidity by the simple contrivance of attaching the end of the wire rope to each successive stem in the hedge, and making the engine give a gentle pull. Encouraged by the success of this experiment, he next tried the efficacy of the engine on trees of various dimensions, and succeeded in tearing them from their beds with such facility as to lead him to conclude that forest land might by this simple adaptation be cleared with unprecedented celerity, cheapness and efficiency. Recently experiments on a large scale were made on a wood on the estate of Mr. Irving, of Grangemuir, near Anstruther, in the presence of gentlemen interested in the formation of a company having for its object the clearing and colonization of the soil of Canada. The engine was set to work in the morning, and by noon nearly three hundred trees, covering about an acre and a half, had been torn up by the roots. Occasionally, but very rarely, the stem broke before the roots could be dislodged, owing to the chain having been attached too far up the tree, and once or twice the rope, being of insufficient strength, snapped; otherwise the work of extraction went on with surprising smoothness and efficacy. Many of the trees were a hundred years old, and rooted in a dry, stubborn soil. With

machinery specially constructed for tree extraction, the giants of the Canadian forests may, to all appearance, be plucked up from the virgin soil as weeds from a garden-bed. It is the intention of the Canadian Land Clearing and Colonization Company, which is to be presided over by His Grace the Duke of Manchester, to clear and simultaneously colonize immense tracts of land in British America, where, in the first instance, ten powerful engines duly patented are about to be taken and set to work without delay. It is confidently anticipated that a revolution will be effected by the company's operations in the agriculture and timber trade of Canada, and that a strong impetus will be given to colonization. The labor hitherto incurred in felling trees with the hatchet in Canada has often proved too much for even stout-hearted immigrants, while the "stumps" left in the soil have been an intolerable nuisance to the farmer. The new company are sanguine that they can overcome both these valid objections of emigrants to settle in Canada, and their expectations are, in our opinion, equally well-founded and patriotic. Among the spectators of the operations on the Grangemuir estate were Mr. Irving, the proprietor; Messrs Miller, sen. and jr., of Durham, Upton and Millerton, Canada; Mr Whyte, Emigration Commissioner for the Province of Quebec; the Provost of Anstruther, the Rev. Mr. Smith, Mr. Jameson, writer; and others. Communications, regretting inability to be present, were received by Mr. Whyte from the Duke of Manchester, and from the Hon. J. S. Robertson, Finance Minister for the Province of Quebec, who is at present in London on the business of his Government.—*Edinburgh Review*.

Shall we Ever Plough Profitably by Steam?

E. N. Marengo, of Illinois, asks this question. When the expense of horse power is considered, it is no wonder that farmers are looking forward to the use of a power which shall be fully adequate to the work, and cost nothing when not in use. There seems really no practical difficulty in solving the problem of steam cultivation on all soils reasonably level and free from stone. The greatest obstacle has been in the weight of machinery necessary to obtain the power of twelve to fifteen horses, as five or six tons cannot well be carried over a yielding soil; and the English have solved the problem by using stationary engines on each side of the field, and drawing the ploughs back and forth by means of a steel cable, but this will not answer on our immense prairie fields. We must have a tractile engine which can pass over the land and draw a gang of ploughs, working a strip ten feet wide, and perhaps cultivating and sowing the grain at the same time. There have been a number of inventions, which seemed on the point of accomplishing the desired end, and had there been the same inducements offered for such an invention as for improvement in railroad machinery, we believe American ingenuity would have produced a tractile engine, capable of ploughing and cultivating, at half the expense of horse power. Farmers are the most conservative of all classes, and are not ready to take any risks. The machine must be complete, and its success, under all difficulties, certain before they will give it a helping hand. We believe steam power entirely practicable for soil culture for hauling loads, and travel on common roads. We believe the state legislatures would make a good use of \$100,000 by offering that prize for the best machine propelled by steam, which shall be successful in ploughing ordinary soils, eight inches deep, for \$1 50 per acre, the tests extending through three years. The English use five horses on a plough, and find the Fowler steam plough, above mentioned, cheaper than horse power, but we must have something simpler and cheaper.

Hoes, spades, forks, &c., not now to be used, should be carefully cleaned, oiled and stacked or put away in a dry place, and so arranged that when wanted any one could be obtained without having to overhaul the whole lot.

Rural Architecture.

Design for a Farm House.

The accompanying perspective view and plan furnish a design for a farm house of a superior character. The general form of this design is taken from an ancient example in the Old Country, the plan being, however, modified to suit modern requirements. It is provided with a large kitchen, which room can hardly be made too large in a farm house though it is often made a great deal too small. Both the front and back have verandahs, which are intended to be fitted with movable framed partitions with glazed openings, to be put up between the posts in the winter and to be taken away in the summer. In the plan the back verandah is shown as it would be in the winter and the front one as it would be in the summer. The bed-room floor would be divided into five

good rooms, with bath and linen closet. The steep pitch of the roof would give space for a store-room for fruit, seeds, &c. Cellars would be provided, and if a dairy were required, it would be placed under the kitchen and scullery, with a separate staircase leading from the latter room. This house could be built of brick, with stone basement, in the plain style which is suitable to a farm house, for about \$3,300, or it could be built of concrete with a saving in proportion to the distance at which proper materials could be obtained; of course, if built in the usual manner of framed buildings, a considerable reduction would be the result. It is to be regretted that our rural districts exhibit so many examples of the truth of the proverb which ascribes wisdom to that cobbler who does not "go beyond his last." We see too often houses which show, both by their external ugliness and their internal want of skill in arrangement, that the owners were not sufficiently aware that to design and to erect are totally different branches of the building business, each branch requiring special education and continual practice to enable them to do well. In order to meet in some degree the want of good designs, we propose to give our subscribers several more specimens of houses suitable for the rural districts.

WATERPROOF CEMENT.—Soak plaster of Paris in a concentrated solution of alum, then dry it and bake in an oven, at such a heat as is used to change gypsum or alabaster into plaster of Paris; then grind to powder and use with water like plaster. It is white, but may of course be colored; sets very quick, becomes very hard, so as to take a high polish, and is nearly as cheap as plaster of Paris.—*Manufacturer and Builder.*

Best Construction of Barns.

At a meeting of the Orleans County Farmers' Club (the proceedings of which were reported in the *Country Gentleman*), the Hon. A. Hutchinson, speaking of barns and barn architecture, remarked that previous to 1830 the very general size of barns was 30 by 40 feet. Since then, in order to shelter stock, a large increase in barn-room has been needed,

cent. to the cubic contents, making the two size compare as 3 to 4; and this only requires an addition of 300 feet to the siding. A barn 45 by 60 feet contains 48,600 cubic feet, and has a superficial area to be covered with siding of 3,780 feet. Or, by adding to a common 30 by 40 barn, 20 feet to the length and 15 to the width, and 1,240 feet of siding, the cubic contents are much more than doubled. There is also an advantage in building nearly square. A barn 30

by 60, and one 45 by 45, require an equal amount of siding; but the square one will have a storage capacity of 4,050 cubic feet more than the other. He also spoke in favor of a nearly round building, as containing the largest amount of room in proportion to the superficial area or outside covering.

In adding to barn room, it was said, where other things are equal, the cost of an addition to a 30 by 40 barn that will double the storage bears no comparison to the cost of building a new barn of the same size. Mr. Hutchinson had a barn 35 by 45 feet, to which

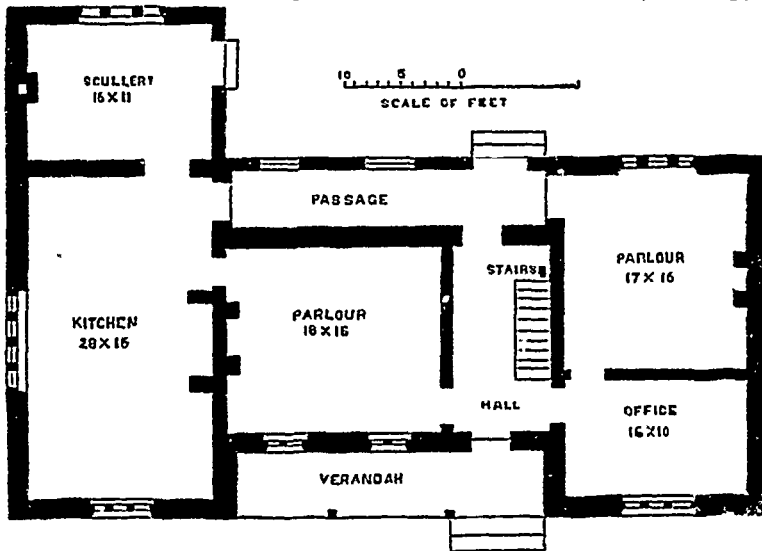


FRONT ELEVATION.

an animal well sheltered is half kept. With his present facilities, if he had to build a new barn, he would make it of stone. He would arrange it so as to be convenient to use machinery for unloading hay and grain. He favored a plain building, though every one could consult his own taste. Barn buildings should be far enough from the house to avoid all effluvia from the manure; and stables and pens should be managed and bedded so as not to taint the

he added 25 feet on one side, changing the width to the length, and making a barn 45 by 60. He then put on a hip-roof, which, with posts 18 feet high, made a very large amount of storage. Under this is a good basement, which also makes a large amount of room. The estimated cost of this improvement, including the carpentry and mason work, and new siding for three sides, did not exceed \$200. He prefers hemlock for siding; has some that has been on 57 years which

he thinks will last the century out. If siding is to be planed and painted, he would use pine; but if not painted, hemlock is a good deal cheaper than pine. He spoke very favorably of the basement as being very comfortable for stock, and as affording facilities for making a large amount of manure; he estimates the increase in the value of manure, from being made and kept under shelter, as from 25 to 50 per cent. He has no trouble from this manure. His stock are well bedded they keep all well trampled down and there is no fermentation to give off any effluvia. It has been objected to basements that the effluvia from the manure will injure hay and other fodder above; but he has no difficulty of this kind, as he can open doors and secure a draught all through; thinks no other ventilators are needed. He has no trouble in driving into the



GROUND PLAN.

air with unpleasant odors. He would build a basement to a barn, but not a cellar; he would have it well ventilated, and have large doors, so that he could drive in and out. It is a great mistake to build small barns. A barn 30 by 40 feet, with posts 18 feet long, contains 21,600 cubic feet besides the roof. The superficial area to be covered with siding is 2,520 feet. A barn 35 by 45 feet contains 28,350 cubic feet, and the superficial area is 2,880. An addition of five feet to the size each way adds 25 per

barn, as the embankment is started well back; nor is there any in backing out, as the edges are rounded off, so that a waggon can be cramped either way, and turned round when it gets out a little. His barn floor is 60 feet long, and will hold three waggons loaded with hay or grain at a time, which is a great convenience in case of a sudden storm or of her emergency.

BRICKWORK should be painted in dry warm weather.

Horticulture.

EDITOR—D. W. BEADLE, CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

THE ORCHARD.

Fruit-Growing and Forestry at the Iowa Agricultural College Farm.

After our visit to the College Farm in September last (says the *Western Farm Journal*), it will be remembered that mention was made of losses in orchard and nursery by winter killing. We now give the result of the record up to the present time, as kept by Professor McAfee, in both fruit and forestry departments:

The following are the number of acres devoted to the several divisions. Forestry 8, Orchard (containing garden products also), 8, Garden proper, 7, Nursery, 5, Small fruits, 3

The first column shows number of trees planted, the second column shows number dead.

Red June.....	20	9
Caroline June.....	5	1
Summer Rose.....	4	1
Red Astrachan.....	37	4
Early Harvest.....	13	7
Early Joe.....	2	none
Tetofsky.....	12	none
Early Red.....	16	3
Beavans Favorite.....	15	7
Sweet June.....	18	8
Sops of Wine.....	10	5
Drap De Orr.....	10	none
Lowell.....	10	3
Belle of Havre.....	10	1
Dwelling's Sweet.....	8	none
Duchess of Otenburg.....	43	1
Saxon.....	10	none
Chenango Strawberry.....	10	2
Grosse Pommer.....	10	1
Dyer.....	10	6
Ramsdale's Red sweet.....	17	10
Sweet Pear.....	5	5
Bayan's Red.....	2	1
Fall Orange.....	2	1
Fameuse.....	23	11
Coles Quince.....	20	3
Mother.....	20	3
Blue Pearmain.....	20	5
Mammoth Pippin.....	4	none
Fulton.....	1	1
Utter.....	2	none
Winter Sweet.....	2	4
Jonathan.....	45	12
Ferry Russett.....	160	10
Talman Sweet.....	5	none
Ben Davis.....	148	6
Mammoth Pippin.....	5	none
White Winter Pearmain.....	7	1
Willow Twig.....	20	5
Northern Spy.....	3	1
Plum's Cider.....	10	none
Grimes' Golden.....	102	33

(Some now living of last named are defective and will die)

Result in Forestry

European Larch—2,000 from Illinois. Drying winds in April whipped and killed 20 per cent. balance doing well.

Green Ash—10,000 from Nebraska. Frosted after being taken up last fall. Losses slight. Cost of trees up to present time, 6 mills each; one year old, 8 to 12 inches at this time.

Potomac Oaks—3,000 from Missouri river bottoms. All one-year olds, living; older ones, 10 per cent. loss.

Hedge of Honey Locust—Planted very late. Loss, 4 per cent.

Green Ash—1,000 planted in drought, 30th of May. Loss now, 2 per cent.

Catalpas—500 planted to test hardness. Loss, 7 per cent.

Bar Elder Seed—One bushel planted; 14,000 now growing from same

The Withered Branches.

Referring to the singular blight which has been discovered upon some kinds of fruit trees since the great storm of about six weeks ago, Mr. Shull, of Ilion, writes to the *Utica Herald* as follows:

I send you by this mail branches of the apple and pear tree, withered and dead as you find them, taken from the trees in the village of Mohawk. All through the village the singular phenomenon is presented. The apple and pear trees have isolated branches, varying, say, from three inches to three feet in length, scattered all through many of the trees, some trees

containing but a few and others hundreds of these branches. The parts of the trees not affected appear perfectly thrifty—the fruit full size for the time in the season. This state of things was noticeable immediately after the great storm of the 7th of June. I attribute it to the effects of electricity. The whole locality must have been highly charged to have been so uniformly affected. It is not the effect of a bolt or chain, or the whole of the trees would have been killed. In one case, a small pear tree, standing sheltered by two large cherry trees, at least one-third of all the branches were killed—branches containing small pears, as seen by the sample sent you. The cherry trees were not affected, as I could find. Many of those branches have the appearance of being exposed to a fire. While the whole tree was exposed, certain portions only were injured and killed.

There is much wonderment and speculation as to the cause of the dead branches so suddenly, so mysteriously, and so extensively appearing in the apple and pear trees. I have thought it a proper subject of inquiry, as to the cause, and of its prevalence, and of its local character. It certainly is not caused by insects—it must be atmospheric, according to my belief. A year or two ago, branches of apple trees similarly affected were exhibited at a meeting of the Central New York Farmers Club, but in that case, I think, no definite conclusion as to the cause was arrived at.

THE APPLE TREES are dying off in Jackson county, Wisconsin, in an unaccountable manner. Some of the trees are completely killed.

THE FRUIT GARDEN.

Overbearing of Grape Vines.

Most grape growers, and in fact the growers of all kinds of fruit, are ambitious to raise the largest possible crop, without reference to the permanent good of the vine or the tree. They overlook the fact that the vine or the tree is capable of doing about so much and no more, and aim for the highest immediate profit rather than a prospective one. It is true that the amount which a strong and healthy grapevine is capable of bearing depends a little upon the character of the season, but we cannot always tell what the season is to be. It is wisest therefore to thin the fruit somewhat early in the season, in order that it may not draw too heavily upon the vitality of the plant.

This matter is so important and so apt to be neglected, that we are glad to quote the judicious remarks of Dr. Fisher in his address before the State Board of Agriculture at Fitchburg in December last as given in the last report of the Secretary of the Board.

He said, "Grapes from a vine that is overloaded are only purple, not when they are ripe, but when they have got as ripe as they can get, they have little or no bloom, and they are acid; they will make a man's stomach ache if he eats many of them, but if the vine is not overloaded, the berries are large, the grapes are black, the bloom is a very deep blue, and the quality is such as will make people deny that you grew the grapes out of doors, they will say that it cannot be done, that you cannot get so much sugar and so much high quality into a grape out of doors. A grape-vine can do a certain amount; it is just like everything else, and just like everybody else. If an ordinary man attempts to spread himself out very wide, he will necessarily become very thin."

If the public would make no discrimination in the quality, of course you would grow the larger quantity, but the public know better especially in the matter of luxuries. It is largely the beautiful things that people are induced to buy. If clusters of grapes are large, if they are handsome, people will buy them, if they are sweet they will go for them again, and are willing to pay the difference in cost. Grapes have been sold in the market this year, tons and tons of them, that were not fit to eat, but the public bought them, as being the best they could find.

Another thing. A great many people do not wait until grapes get ripe before picking. Some of them never would get ripe if they did wait, but they do not wait to let them get their best quality, as quick as they get half colored they are sent to market, and people eat what comes to market, asking no questions. They may say they are not very good, but they buy them nevertheless.

I do not begin to market my grapes until after first of October. Perhaps you may say it won't do

for me to do that, because my grapes would freeze up before that time. It is not so with me. Ordinary frosts do not hurt the grape at all. It is not hurt a particle until you make ice in it, and after the grape has got ripe, it will not freeze, ice will not make in it, until the temperature is as low as twenty-nine degrees. I dislike to have frost come upon a vineyard, because it will retard the ripening by its action on the leaves, but if grapes are nearly ripe, I care nothing for the frost, so far as the grapes themselves are concerned. —*Massachusetts Ploughman.*

STRAWBERRY BUSINESS.—Mr. W. J. Scrimger, who lives near Galt, has done a large strawberry business this season. He has disposed of about 330 bushels of 10,000 quarts, and this quantity drew him an average 8¢ per quart, footing up the snug little sum of \$340. After all expenses have been paid, he will have cleared close upon \$700, and all of three acres of ground.—*Reformer.*

FAVORITE CHERRIES.—Where the delicate sweet cherries will succeed, and the area appears to lessen every year, I say plant Coe's Transparent, Delicate, Belle de Chigny and Champagne; here is a quartette that for quality cannot be surpassed. There are many others of larger size, and which are produced more abundantly, but for richness, delicious flavor, and an abundance of refreshing juice these four are decidedly superior to all else. I know well whereof I speak, for in former years they were the choice dainties at the feast, small in quantity, like all rare dishes, yet the one prize to which all eyes wandered and all tastes desired. I do not wish to detract from the merits of the Governor Wood, Black Tartarian, and other choice varieties, for if I were to be restricted to but one or two, the latter should have the preference. My remarks are merely intended for the cherry grower who has sufficient room for an odd tree or two for his own table, apart from the profits of his marketable fruits.—*JOSIAH HOOPES, Chester County, Penn., in New York Tribune.*

WINTER-PLANTED STRAWBERRIES.—We published late last Autumn, says the *Country Gentleman*, a detailed description of the method by which strawberry beds might be planted in a small way, late in autumn or early in spring, so as to bear freely the same or following season. We have now an additional proof of the success of this method, in a row thirty feet long, planted on the 12th day of January last, or in the depth of winter. The place was a spot in the garden well sheltered in the north and east by tall evergreen screens. The winter was remarkably open, and the ground was nearly unfrozen at the time of the planting. Square holes were first dug, the breadth and depth of a single stroke of the spade, and in these holes were then placed blocks cut out of a matted bed of the Charles Downing strawberry, with masses of earth just large enough to fill the holes even to the surface. They were then covered very slightly with evergreen branches. We have already had a number of pickings of fruit from this row, the plants are as vigorous as any in older set beds, and have already begun to throw out numerous runners. This mode of planting cannot be rapidly performed, but there are cases where it may be found quite convenient to have new beds on a small scale, that shall come speedily into full bearing.

BLACKBERRIES.—A M Purdy, Palmyra, recently showed us a plantation of an acre or two of the New Rochelle blackberry, densely loaded with berries and promising a very heavy crop. The bushes had stood seven years upon the ground, and the only cultivation to which they are subjected is a shallow ploughing between the rows early in spring, and mowing the grass in which they are enveloped. They are pinched back so as not to grow more than about three feet high. This treatment keeps them partly in a dwarf condition, and insures productiveness. If cultivated more the growth would become too rank on this rich soil, and they would bear less, become more straggling, and be more liable to winter-killing. This is now well understood by blackberry planters, and is in accordance with the remark which we have heard from boys who gather wild blackberries, "that if they find a bush which the cows have browsed, it is always sure to be full of berries." Mr. P. says that with this treatment, the New Rochelle proves more productive on his grounds than the Kittatiny, and that the winter-killing, from which the former suffers, does not prove a serious difficulty. He is sometimes troubled with the yellow rust on the leaves, and his remedy, which is to remove the affected plants on its first appearance, proves effectual.

THE VEGETABLE GARDEN.

Gardening in the Town.

Gardening in the town may be said not to have been sufficiently pronounced upon. We have gardening in the country described and analyzed, and described again till our eyes weary and our imagination becomes bewildered, on turning over page after page of matter, telling the same tale, dressed up in goodness knows how many ways, to look fresh and readable to those who care for such things. We have this variety of cauliflower, and that variety of hen-and-chicken daisy described so gloriously, and their needs as to cultivation pointed out with so much circumstantiality, that the best informed of us are trained to believe that so much repetition is an almost absolute necessity in this stirring, bustling, elbowing age. The latest thing in calceolarias, peargoniums, nasturtiums, viols, &c. is carefully examined into and taken in hand with as much eagerness in proportion to their respective devotees, as the latest thing in bonnets, and hats, and shirt collars. Indeed, we might as well try to stem the tidal waves as the force of public opinion.

We are not concerned in endeavoring to stem what some might call the vagaries of others in their admiration of flowers and fruit; we are rather pointing out what is more conspicuously neglected than any other branch of gardening lore. The people themselves, who decorate their own tenements, are far ahead of the popular or professional writers on the subject. The *multum in parvo* is better exemplified in the decorative gardening way about suburbs of busy, opulent London than in any other single place we have seen. Take even some of the most tastefully decorated windows and gardens along the Camden Road, which is not the most aristocratic suburban locality, and the reader will find some exquisite examples of decorative gardening, devised and carried out in such a style as would make some of our great professional gardeners stand in wonderment, and feel, if they did not give voice to it, that they had something important to learn. And if it be so with the practical handicraftsman, it is more so with the Argus-eyed writer on such subjects who has failed to bring the matter with sufficient prominence before the horticultural reader. There is so much of interest, so finely conceived and brought out so admirably, about many of these gardens, which do not of themselves measure above 12 square yards, that we intend giving a place to some descriptive articles on the subject. Meantime, let us impress upon all those who can spare the time and the means to imitate as much as possible some one or other of the modes adopted in suburban London for beautifying their residence. Money spent in this way, where one has money to spend upon pleasure, it need scarcely be said, is well spent. Better spend a few pounds in getting good healthy plants than having starved-looking articles from city glass-houses. A well-managed beautiful bit of garden in a town is about as fine a luxury as could be conceived, because it not only imparts beauty and commands delight to the sense of its owner, but to thousands upon thousands of his less fortunate fellow-men. On seeing such things increasing in elaborateness and beauty year by year, we can thoroughly endorse and appreciate Cowper's sentiment, when he says:—

"Where has Commerce such a mart,
So rich, so throng'd, so drained, and so supplied,
As London—opulent, enlarged, and still
Increasing London?"

—Farmer (England.)

A PEACH ORCHARD in Maryland contains 1,013 acres. At the height of the past season 600 hands were employed in picking, packing and canning the fruit, and the daily work was about 1,000 baskets, or 30,000 cans.

TRANSPLANTING.—Many farmers imagine if they can plant the seeds of vegetables in the hills where they are to grow, that they will gain some time which is lost in transplanting. But in some vegetables this is a mistake. Lettuce, cabbage and tomatoes are especially benefited by transplanting. And if they are carefully transplanted twice they are improved. It makes them more stalky and robust in their growth. Florists have also found that it improves some kinds of flowers to transplant. And trees, especially evergreens, are benefited by yearly removal for two or three years. In this removal we do not intend to imply that careless bruising and breaking of plants or trees of any kind will improve them. Plants and trees must be removed with dirt adhering to them, protecting the fibrous roots. Celery, cabbage and

tomatoes should be cut around with a knife, from one to three inches from the stem, according to age, and carefully transplanted without checking their growth. Garden vegetables do not grow wild, and without labor, but when carefully nursed they always pay the bill. It is all wrong to permit a bed of cabbage plants to grow up so crowded that they produce so slender a stem that it would be folly to ever look for them to bear large heads. So soon as they produce the second leaves they should be set out at least two inches apart, and the ground cultivated between them, which will insure strong and vigorous plants.

CURE FOR WEEDS ON WALKS.—Where paths are very bad, the best plan is to hoe them up, and then rake off the weeds as far as possible. Then a good dressing of salt or sulphuric acid may be given, the former thickly strewn over the surface, the latter in the proportion of 1 lb to 20 lb of water—but it ought to be prepared in a glazed earthenware pan, and the ground just wetted with it, using the rose from a watering-pot; but the acid should not touch the grass edges, or any plant growing by the side of the paths, as it kills wherever it touches. It not only destroys any growing weeds, but also the seeds that have not yet germinated. In a day or two afterwards well roll the walk, and it will have quite a fresh and bright appearance. In all small gardens the paths should be kept free from weeds by means of hand-weeding.—"Q" in *The Garden*.

THE FLOWER GARDEN.

Tea-Scented Roses.

Of the beautiful sweet tea-scented roses we can say, with mild justice to their many good qualities, that while the rose finds devoted cultivators, this class will rank highest, among really fine kinds, in many respects, this particularly is true of the exquisite, deliciously fragrant varieties, which in the estimation of cultivated tastes, are without exception and attractive above any flower in our collections, and they are all so perfectly adapted for pot cultivation in the window or conservatory, being of fine habit, rich foliage and very productive. In our own experience in cultivating these in greenhouses (conservatories), where the varieties Sofrano, Isabella Sprunt, and Bon Silene are grown largely for our cut-flower trade, the plants never fail to produce a constant daily supply during winter and almost continually through the entire year. To show their appreciable value, we will state that these find ready purchasers all through cold weather, at the uniform price of fifteen cents per bud, just as cut from the plants, which is nearly twice the money realized for other roses at the same time. True the entire class are more susceptible of injury from cold than most roses, nevertheless their general habit is healthy and vigorous, and when growing in the open ground they are amazingly prolific of buds and flowers; and by carefully lifting the plants in November, giving protection in a cold pit or cellar, and returning to the open ground in spring, they will thrive from year to year the same as any other class of tender roses. Some of the tea-scented roses are too double to be classified as bud varieties—a few of which are not fully double when open. These produce large flowers of the unapproachable tints, shades and colors, and possessed of the tea fragrance for which this class is peculiar.—*Long Bro's Home Florist*.

DO NOT USE fresh manure for bulbs: old, thoroughly decayed compost is preferable. Plant deeply, especially the tuberose. If the soil is naturally very stiff, remove it, place a few stones at the bottom of the bed for drainage, and fill in with light, sandy mould. Stake at once, and tie up the stem as it lengthens. Neat, plain painted supports make the flowers appear to better advantage. Green is the best color, with a small white space at the top on which to write the name. A shade of heavy muslin or paper spread over the flowers during the heat of the day helps to retain their beauty.

THE RUST ON VERBENAS has possibly done more to discourage their cultivation than we are generally aware of, and yet it is weakness to be cast down by such trifles. A friend, especially successful in their culture, never uses cuttings for increasing his stock of this plant, but goes back to first principles and raises them directly from seed. If a good strain is procured, and seed saved from none but the very best color and finest trusses of bloom, one can, he says, at all times have as showy a bed as Neighbor Highflyer, who wants "only the named varieties; seedlings are too common, Sir."

A SPLENDID SIGHT.—Upon the grounds of John R. Boyd, Ballymacool, in North Ireland, there bloomed the past year a monster rhododendron (*R. lanceifolium*). It is about 16 feet high, 50 feet in diameter of branches, and expanded upwards of 400 splendid scarlet trusses of flowers. Mr. Boyd says the brilliancy of its color, the admirable shape of its blossoms, and the way in which the foliage falls down about the trusses, so as to set them off to the best advantage, render this the most beautiful rhododendron ever seen in this kingdom.—*Horticulturist*.

ARTISTIC NOSEGAYS.—The ball bouquet of the period is of long-stemmed flowers, loosely yet most artistically put together, and is made up of but two or three kinds of flowers that must not only match the floral garniture of the dress with which they are worn, but must also be of odors that do not conflict. For instance, with a dress of white gauze, fringed with lilies of the valley, the hand bouquet is of real lilies of the valley, pink rosebuds, and glossy green smilax, with a pinkish-yellow salmon silk dress. The round bouquet is half of tea-roses and the other half of pink buds. Sometimes the entire bouquet is of double violets with a smilax wreath; deep red Agrippina roses are alternated with pale yellow ones, and so on. Violets and geraniums neutralize their odors. Heliotropes and pink rosebuds blend well both in color and perfume.—*Horticulturist*.

FLOWERS IN MEXICO.—One thing which strikes one pleasantly in Mexico is the wonderful abundance of flowers. All the year round crowds of Indians sit at the street corners, in the early morning, making and selling for a real (sixpence) bouquets, which in London or New York could not be got for a guinea. Roses, verbenas, heliotropes, and carnations grow like weeds, and besides the made up bouquets, the Indians bring down on their backs, from the mountains, loads of the Flor de San Juan, (bougardia) a flower like a white jessamine, and for a quartilla (three half pence) you can buy an armful of it, which will scent a whole house for a week. Our rooms were always fragrant with the bouquets which came in fresh every two or three days, and sometimes round the hanging-baskets in the windows a lovely humming-bird would hover, and dip his long bill into the flowers for honey.—*The Garden*.

A NEW EVERGREEN.—It is always a pleasure to record an addition to our list of really hardy new plants, and especially so, when they are very beautiful and desirable in all respects. We now urge the claims of a new evergreen from Japan, which as yet has no common name, but which is called by botanists *Retinispora obtusa*. For the past five years—two of which have been more trying to our hardy plants than any within the recollection of our oldest horticulturists—this lovely tree has succeeded equally as well as the Norway spruce. It grows rapidly and forms a very graceful tree, with drooping, silvery-green branchlets; and appears equally indifferent to the extremes of heat and cold. So far as we have been able to judge, it is not affected by any particular soil or situation, but succeeds well wherever placed. So many of the newer evergreens have been injured of late years that our horticulturists have been about ready to give up the whole family in despair, as too fickle for this climate; but we think a fair test with this charming plant will assure them that one, at least, will prove desirable.—*N. Y. Tribune*.

LAWN TREES.—The *Country Gentleman* (England), in discussing lawn trees, says that in small places of two acres or less, growers should avoid all trees that litter leaves, nuts, flowers and other cast-off garments which become scattered over lawns and flower beds to the disgust of the owner of a well-kept garden. Of course, it depends somewhat upon the kinds of trees adjacent to the garden, as some, like the chestnut, are constantly contributing something in the way of litter during the entire summer. First, the long catkins, like huge yellow worms, are scattered over walks, out-buildings, and lawns, followed by more or less early ripening leaves in July and August; then September brings down the prickly husks, which tumble about to the discomfort of feet encased in thin shoes, or the "sit down" of the lounge in the shade. A deciduous tree that will drop its leaves all at one time, is far preferable to one that keeps on a continual scattering through the season. There are several species of oaks which belong to the latter class and for this reason are well worthy the attention of all villa gardeners.

Poultry Yard.

Andalusians.

Andalusians are a variety of the Spanish breed of fowls, and are very superior for hardiness and laying qualities, wilder in their habits than the black Spanish, and more precocious, the chickens feathering early, and are hardy, young cocks crowing at the age of six weeks, they are also very pugnacious, but not sufficiently so to give trouble. Pullets hatched early in March have commenced laying in August. They are of the non-sitting class, but instances have occurred of incubating propensities, in which case they make good mothers. They are moderate eaters, and their eggs never fail in hatching. Great uncertainty as to the color of the chickens prevail, many coming black with upright combs, much care is therefore required in selecting the breeding stock so as to keep the yard true to feather, but as a safe useful profitable fowl, they can hardly be surpassed. In the exhibition pen some latitude is allowed in the color it may vary from a pale dove color to a deep slaty blue, and the facing may be black, or dark blue, or purple, in many fine specimens it can scarcely be observed at all, the blue ground being almost uniform in tint. The cock's hackle and upper plumage should, however, always be very dark in color to look well, the rich contrast of color being required. Sometimes this portion of his plumage is nearly if not quite black, which looks handsome, but a very deep and lustrous purple is the color which harmonises best with the general type of plumage altogether. As to the origin of the Andalusian there is some diversity of opinion. That the original birds came from Spain there can be little doubt. But whether they can lay claim to be a distinct variety is doubtful. In England they have been bred separately for about twenty years, and after all that time it is exceedingly difficult to obtain birds which will breed true to points, which would lead to the belief that they are the result of a cross. It is known that in several instances the crossing of white and black tows, and even of black with black of different races, or white with white, has produced stay birds very similar in color to the slaty blue of the Andalusian, and therefore it is reasoned that the latter may have originated by a cross between black and white Spanish, or rather Minorcas, since nearly all the birds found in Spain have red faces with white ears.

Mr. Wright, in his Book of Poultry, publishes the following description of Andalusians by Mr. Lee worthy, a breeder of these fowls. He says.— I have possessed birds of this variety ever since January, 1856, and I know that some at least of the last specimens were imported from the Province of Andalusia, in Spain. I obtained my own first stock of the late Mr. Coles, who, I have been given to understand, purchased them from Mr. Richardson, an importer of foreign cage and other birds, at Portsmouth. The latter obtained them in the first place from a Spanish trader, who landed at Portsmouth in 1851. This information I obtained by letter from Mr. Richardson himself, who afterwards sold the imported tows to Mr. Coles. These two gentlemen crossed them with the white-faced black Spanish, in order to improve the variety, as many of the original hens had small stand-up combs like game hens, and I fear it will be some years yet before the effect of the cross disappears, and we get really a settled original type, many of the chickens at present coming black. They are excellent table birds, the cocks weighing about seven pounds and hens five to six pounds each. They are very precocious, feathering fast and kindly, and very prolific indeed as layers. Mine average five eggs per week each, and I find the eggs larger than those of any other fowl, even Spanish not excepted. In fact, taking weight as well as number of eggs to be a

criterion, I think them the most productive birds of any I know. One of my first hens commenced laying in January 1856, and up to the end of the year she had laid 220 eggs. I may also mention that their eggs are of an exquisitely delicate flavor. The comb of the cock resembles that of the undubbed game fowl, but is rather larger, the hen's comb lies over on one side of the face, as in the Spanish, though many



hens even yet are bred with comb erect, as in the original birds. The wattles are in proportion to the comb. The face is red but earlobes pure white, and showing up very distinctly from the face, very much as in the Minorcas. The head should taper with as little red skin as possible over the eye. The cock's neck is long and hackle rather short; the breast full and round, tail large, and carried very high, the legs are long, the general plumage is a bluish shade or slate color, clear all over the ground color, laced round the edges with black. The hackle feathers of the cock are a very good blue for the artificial flies used in trout fishing. The plumage of both sexes is alike except the hackle and upper feathers of the cock which are many. There is also a Pile Andalusian, in which the ground color is silver, thinly covered with light blue, which forms the pile. These are very beautiful birds but are rarely seen."

Poultry Notes—No. 15.

Treatment of Exhibition Chickens.

Early pullets have now attained to that age which requires judicious treatment to prevent laying too soon, it intended to be shown at the fall exhibitions, it hinders their growth, besides, going daily on the nest ruffles their feathers and detracts from their good appearance. At no period of her life does a pullet look so well as just before she lays her first egg. A great point then in the management is to commence preparing chickens for the fall shows in the nick of time, and which can only be done by helping them up by judicious treatment so as to arrive at their very best when wanted. At the age of about four months all stimulating food should be discontinued to the pullets, except in the case of very late hatched chickens, in which case there need be no apprehension of too early laying, and these therefore should be rather pushed on than otherwise. In ordinary cases meat, milk, and any condiments which may have been used heretofore should be withheld, and every three or four weeks the pullets should be removed to a strange run. This latter course has a great effect on retarding the commencement of laying, but it should not be continued too long, and after about seven months they should be let take their natural course. The best ages for showing pullets is

between six and seven months old in most breeds, and breeders of exhibition birds should endeavor to hatch the chickens intended for this purpose with a view to the time of holding fall shows. For instance, our provincial exhibition usually is held the last week in September or the first week of October, so that if possible pullets intended for this exhibition ought to be hatched out in March or the beginning of April; indeed, as all our fall shows of note are held somewhat about the same time, pullets should be all hatched about the time mentioned. It is different, however, with cockerels. They are generally bred at from eight to nine months. As far as possible, then, cockerels should be hatched in the early broods, and the knowledge of mating mentioned in one of our earlier notes will be of service to the breeder at that season. All birds intended for exhibition should be hatched out not later than April, they generally make the finest birds, especially those big, raw lanky looking brutes, only half fledged when others are nearly mature, those which appear to the unpractised eye as the very ugliest of the lot, unfit for any purpose whatever according to their idea, yet these are the birds which eventually make the giants of the poultry pen, and carry away all the first prizes at exhibitions when they arrive at maturity.

The next consideration for the breeder of prize poultry after rearing his chickens is to manage their dietary scale so as to keep them in good condition. We have already hinted at the treatment pullets should receive in respect of food, let us now consider plumage. The chief cause of injury in this respect is too much sun, dirt, or wet, or injury to the feathers, or wear. A dry house with a covered run is the very best possible arrangement, with if possible a grass run attached, and in the early morning, and again in the afternoon when the sun is low, are the best parts of the day to allow fowls their liberty on it. If, however, the grass run is well shaded with trees, it will not do them much harm to let them have access to it at any part of the day, as they will naturally seek shade, but as our Canadian sun plays sad havoc with plumage, great care is necessary in allowing them their liberty in the middle of the day. We remember once examining some feathers of a bird, the property of an extensive and experienced breeder, which had been allowed its liberty during the entire day all through the summer, by reason of an accident which it received, and comparing the feathers with those of the same breed and color of birds which had been kept in the shade, the faded appearance of that exposed to the sun was so great, that when placed side by side one would not believe the birds were of the same breed, much less of the same hatching, as they really were. Wet weather with us is not of so much consequence; we are but seldom troubled with long continuance of rain, the covered run will meet the want in this respect, and should be well strewed over with clean dry earth, sand or ashes. The holes by which the fowls enter their house must be of good size, to freely admit them without injury to the tail or other feathers, so also must the perches be placed at such distance from the walls of the roosting houses, that the tails of the cocks cannot touch them, neither should the wings of light colored fowls be permitted to touch the sides of the house. None of the birds should be allowed to sit or squat on the ground at night lest they get soiled by the others on the roost. Of course, where necessary to keep them all from roosting no perches should be placed in the house, the floor well littered with clean straw, shaken up daily, and removed when found necessary. Neither should the birds be frightened or driven too rashly about, as this may cause the loss of tail feathers. In the case of white birds, still greater care is needed to prevent them getting too much sun than with birds of other colors, as nearly all white birds when exposed to the sun rapidly turn more or less yellow. To es-

establish a good relationship between birds intended for exhibition is also a matter of importance. When possible, birds should also be fed by the same person, and patted and petted whenever an opportunity presents itself; at night, coming on towards exhibition time, they ought to be carefully lifted off their perches and slightly handled and then put back again; this makes them tame, and will be of much benefit subsequently in the show pen. Some special treatment should now be given to the birds selected for exhibition; they should have a little more flesh on them than is necessary in an ordinary run, but yet not so much as would render them liable to injury. There is a proper amount of flesh which greatly sets off a bird in point of appearance, while it is consistent with the most perfect health, and allows the fowl to be returned to the breeding pen undeteriorated. Many fowls will be found quite fat enough if taken from the ordinary run, and if chickens have a wide range, in most cases will be found fat enough without the addition of any extra food. We have found that a little linseed or hemp seed given once a day for about a fortnight before exhibition time had a wonderful effect on the plumage, in making it look glossy. The linseed should be stewed gently in a moderate quantity of water, till it forms a jelly, and with this, seeds and all, soft food should be mixed two or three times a week and given to the fowls, either in the morning or evening, or even occasionally in the middle of the day. A little hempseed given in the evenings instead of the grain, and a little sulphate of iron in the water, will bring out the red in the combs and wattles, and make the birds all they ought to be. Most birds will require to be washed before sending to exhibition; for this purpose, a tub or tin sufficiently large to hold enough water to cover the bird all over will be the most convenient for this purpose. Clean soft water, a little warm, should be used, then with white soap and a sponge commence the operation. First make good suds by rubbing enough soap into it, then with the sponge rub the bird well over, especially the dirty parts, and keep syringing it until quite clean, which when the bird is wet is easily seen. During this process one hand should be held across the bird's back and wings to keep it quiet. To wash the head rub it well between the balls of the hands. When the bird is quite clean rinse it thoroughly with clean cold water, taking care to wash out all the soap. After allowing a little time for the water to drain off, place the bird in a cage or box with wired front before the stove or in the hot sun to dry. Some judgment and practice as to the necessary heat for drying is required, the heat should not be too strong from the fire, else the bird will be injured, nor yet too little. The feathers should be dried off quickly, clean straw should be placed in the basket or box before putting in the fowl to dry.

Don't count your chickens before they are hatched. —Enumerate not your adolescent pullets ere they cease to be oviform.

A LITTLE GIRL sent out to hunt eggs came back unsuccessful, complaining that "lots of hens were standing round doing nothing."

A TERRYVILLE (Conn.) Farmer, who keeps thirty-five hens, gives the following answer to the question, "Does it pay to keep hens?" Total product of the hens from January 1 to July 1, 2,595 eggs, bringing \$60 24; total cost of feed, \$23 44; net profit, \$36 94, or over one dollar per hen for six months.

The combs of Spanish and Leghorn fowls are utilized in some parts of Europe as choice delicacies for the palates of those who sigh for fresh appetizers. Under the name of *Crestes de Coq*, a supply of these morsels has been recently imported hither from Paris. The combs are of large size, both single and rose, and are put up in white vinegar in long tubular glass bottles holding about a pint, sealed with black wax. When we say that these small bottles cost at wholesale in Paris more than a dollar in gold each, the reflection is forced that many a large combed rooster may in future be sacrificed to mammon, as many were offered up to Esculapius.

The Dairy.

Coagulation of Milk without Souring.

(To the Editor of the CANADA FARMER.)

SIR.—I have observed of late that the family supply of milk furnished each morning by our city milkman invariably thickens or coagulates within a few hours after being received, and neither heating nor scalding appears to have the slightest effect in checking the process. The milk does not become sour as in cases of ordinary curdling, but assumes the taste and consistency of sweet curds. Would you kindly inform me what the probable cause of such coagulation is, and the remedy, and at the same time state whether you consider the substance a perfectly safe and wholesome article of food.—I am, &c.,
A CITY SUBSCRIBER.

[New milk always contains more or less of the coagulating agency that exists in rennet. This agency is in the form of a yeast, and is in fact the yeast which the housewife renders available when she makes bread with which she calls "milk rising." This yeast is also identical with that which is used to coagulate milk in cheese-making obtained from rennet. The yeast becomes slightly modified by the different circumstances under which it is developed. Like all other yeasts this one is capable of rapid expansion, in accordance with what is written—"A little leaven leaveneth the whole lump. At ordinary temperatures this yeast multiplies so rapidly that it would soon thicken all milk whether sour or not. The rapidity with which milk loppers under the influence of this agency depends on the treatment of the milk, and the amount of yeast there is in the milk to start with, for the amount varies greatly when it is first drawn from the cow. A feverish condition of the cow invariably increases the quantity of yeast in her milk. Keeping milk covered hastens the growth of the yeast. Take the milk of any cow and place one-half in an open vessel and the other in a closely covered one, both at the same temperature, and the milk in the covered vessel will thicken much the sooner, though both will sour about the same time. The cows of milkmen often become feverish from a great variety of causes, such as overeating, drinking bad water, worrying with dogs, or by any fast driving, by the oppressive heat of the sun, &c., &c., to say nothing of disease. When the milk of such cows is put into closely covered cans and taken to market warm, it is surrounded with all the circumstances necessary to a hasty development of the yeast, which soon occurs to an extent sufficient to produce coagulation. It is a very common occurrence, though not very often noticed, that milk loppers before souring, as most people take it for granted that milk is always sour when it becomes thick. Last summer the milk of some of the cows that supplied a large cheese factory in Erie county, N. Y., became so much affected by an increased quantity of yeast, that a large vatful curdled during the night. The foreman having it was not sour, ordered it to be made into cheese in the usual way, which was done. When cured it was not distinguishable from the rest of the cheese which was made with rennet, and was sold with it at the same price, which was at the very top of the market.

The identity of the cause of this premature coagulation with the active agency in rennet affords a sufficient guarantee that there is nothing very dangerous about it. I am not aware that any harm has ever occurred from the use of such milk, though I should very much prefer milk in its normal condition. This tendency to premature thickening may be prevented by heating the milk when new to 140° Fahrenheit, a temperature at which the yeast in the milk is killed, and of course rendered inert.—
L. B. ARNOLD.]

Production as an Art.

We are firmly of the opinion that the farmer who would be successful in the future must crowd more skill, more art, more brains into his productive operations. Instances are continually coming to notice in which producers greatly increase their receipts by devising and employing what may be called the high arts of production. Of course the art and genuinity, to produce lasting results, must rest upon an excellent quality in the product. Using this for a foundation, it is difficult to place limits beyond which artistic arrangement and intelligent presentation of the material cannot advance the receipts. Butter-makers can greatly increase their profits by action of this kind. Every city is now supplied, to a greater or less extent, by the manufacturers of these skilful, artistic operators. Many dairymen in the vicinity of Boston, New York and Philadelphia, so adapt their butter to the wants of the people, and so shape and adorn it to please the tastes of the consumers, that they receive twice or thrice as much per pound as their neighbors who pack and sell the product in the usual way. Of course these caterers serve a limited demand, but the demand is elastic, and we believe will expand, within certain limits, if more consumers are brought under the influence of the artistic product. We have lately learned of a dairyman who is serving the Utica market in this way, and whose method, we doubt not, will prove interesting to our readers.

Mr T. A. Cole, a dairyman living near Solsville, in Madison county, has been for a number of years breeding as carefully as possible to develop the milking qualities of his herd. He has grade Holstein cattle, and those who have seen them praise them and the excellent farm establishment of their owner. We propose to speak of these things from inspection in the future. At present we wish merely to state what Mr. Cole has done in the Utica market and the way he has done it. He began three years ago, serving one of our leading grocers with a fine article of butter, made up in one-pound balls, and during the first year received thirty cents a pound, the second year thirty five cents, and now he is receiving forty cents a pound for all delivered. Mr. Cole's idea was that if sweet, fresh butter has a charm in the country, it would have a charm in the city as well, and that when city people learned that they could procure the delight of the farm, they would be willing to pay more for it. This the event has proved. He made arrangements with the grocer to ship him the whole make of his dairy every week, and this he has continued since, until the weekly receipt of Mr. Cole's butter has become a feature of his trade. The butter reaches the city in a large board box, nicely painted and securely hinged and fastened. The size of the box is about three feet and a half long by about two feet wide and high. The box contains three tin boxes inside. The centre box is filled with ice, which preserves the butter during the transit by railroad to the city. On each side of the ice-box are tin boxes. Each contains four tin shelves, and upon each shelf rest eight one-pound balls of butter. Each ball is wrapped by itself in a square of white muslin. It is in this fresh, sweet and inviting form that the butter comes to the consumer. All about it is fragrant and suggestive of the country a luxury which few city people know—but many talk about.

Mr. Cole has found that his production of this kind of butter has been very profitable. The margin above the market price for fine butter, as it is usually placed before the consumer, which he has obtained returns him a large per centage for his care and labor. The secret of the matter lies in the fact that he has studied and practised production as a fine art. He has carried into the working of his dairy that ingenuity and intelligence which merchants are always employing when they strive to tickle the popular fancy by some tasteful presentation of their wares. There is no reason why dairymen and producers generally should not be as wise in their generation as the shopkeepers are. Indeed, there is every reason why they should be, and much of the success of the future will be obtained in this way. Improve your product and present it in such a way that consumers will be drawn willingly to it. There is a heap of wisdom in these words and a heap of profit in acting upon the truth which they contain.—*Utica Herald.*

A keen-witted servant girl in Troy told the milkman the other day that he gave his cows too much salt. "How do you know that?" said the lacteal-ist. "Sure I kin tell be the milk, that they drink too much water intirely!" said the girl. The milkman drove off in a hurry.

SALT TO A POUND OF BUTTER.—At a recent meeting of the Fulton Farmer's Club, Pa., the question was asked, "How much salt should be put in a pound of butter?" One member answered, half an ounce—another gave the receipt of Sharpless, the noted dairyman of Chester county, which is one ounce of salt to three pounds of butter.

GEORGE MERTON, a prominent cheese manufacturer and dealer, communicates with the Kingston papers in these terms:—"I take this early opportunity to acquaint all cheese factory men and all dairymen, that the Dairymen's Association of Ontario purposes holding at Belleville this fall, in connection with the Hastings Agricultural Society, a cheese show, at which large cash prizes will be offered for July, August and September make of cheese, particulars of the whole to be published and distributed shortly by the society." This communication is designed principally to have factory men keep over some July and August cheese.

TO ASCERTAIN WHETHER BUTTER IS ADULTERATED.—When butter is mixed with tallow, it may usually be detected by melting a little of the butter in a spoon, and smelling it, when the smell of the tallow may at once be perceived. Another way to learn whether this substance has been added, is to melt a small piece of butter at a heat not exceeding that of boiling water, and pour it into a wine glass. Then immediately pour over it two fluid drachms of commercial nitric acid (aqua fortis), and shake them slightly. If the butter employed was pure, it will rise to the surface and not become opaque for some minutes, but if it contains much tallow, it will quickly become a more or less opaque white mass, the nature of the change and the time required depending on the amount of fat present in the adulterated article. Sometimes butter is adulterated with horse-bone oil. In this case, the butter is to be shaken up with hot water until melted, and allowed to collect upon the surface. Remove five drops of this and place them on a watch glass, and immediately add ten drops of strong sulphuric acid. If the butter has been adulterated with horse-bone oil, a deeper color will be produced than if the butter did not contain that substance.—*Cassell's Household Guide for June.*

SETTING MILK.—At a recent meeting of the Chateaugay County Dairymen's Association, Mr. O. C. Blodgett read an exceedingly interesting paper on handling milk for butter and cheese, in which he strongly advocated Mr. Arnold's theory, that the best way to treat milk in warm weather is to heat it up to 140 or 160 degrees before setting, and then to set it without any artificial cooling whatever. Mr. Blodgett believes that the methods of dairymen must be revolutionized, and that the cooling process must give way. The heating theory is certainly gaining ground. We remember that a Massachusetts butter-maker, who gets first prices in Boston, said at the Vermont convention, last winter, that he had gained good results by heating, and he had no apparatus, but heated the milk in pans upon the kitchen stove. But if heating is to solve the purifying question, of course there must be means devised for applying the heat in a more workmanlike manner. Mr. Blodgett is going to heat all his milk this summer, and his experiment will be interesting. But the Chateaugay county dairymen do not agree concerning the value of the heating process. It certainly keeps the milk longer, but the effect upon the quantity and quality of the butter is still debatable, and we hope full experiment and observation will be speedily enlisted in the consideration of these points.—*Utica Herald.*

The *Huntingdon Observer* states that 18 months ago there was not a dairy factory in the county. Now there are 5 cheese factories, using daily 21,600 lbs. of milk, out of which 2,220 lbs. of cheese is made, and 3 butter factories, using daily 13,980 lbs. of milk, out of which 520 lbs. of butter is made. It is stated that the high price of butter last fall is working against the cheese factories this season, as more of the milk is being retained to make butter of. But it is averred that with present comparative prices a farmer will actually realize more by sending his milk to the factories, besides the saving of his wife's labor, which, however, it is to be feared is not so much taken into account as it ought to be. The figures as to the product are only approximate, for none of the factories have yet completed their returns, so as to give correctly the number of pounds of milk to the pound of butter or cheese. The average for May and June, the poorest months in the season, it is thought will be fully ten pounds for cheese and twenty-five for butter. The factories in Huntingdon make weekly over thirteen thousand pounds of cheese, worth in Montreal nearly \$1,500, and 3,500 pounds of butter, worth at least \$850. It is estimated that these eight factories will distribute among our farmers this season forty thousand dollars in hard cash.

Correspondence.

The Crops in West Elgin How to Construct a Fish Pond.

(To the Editor of the CANADA FARMER.)

SIR—In reading a late number of the CANADA FARMER, I notice a good deal said about the abundant crops throughout the country, and the frequent showers with which many localities have been recently blessed. In West Elgin the case is quite the reverse. Pastures got a fine start in the early part of June, but they are now drying up. Oats will be very short. Barley looks better, but cannot be called promising. Wheat was badly winter-killed, and what remains will scarcely be half a crop. Hay is very light, hundreds of acres will not average half a ton to the acre. Peas are doing well. The fruit crop is an excellent one.

There is a deep ravine extending angularly through my farm which it is exceedingly difficult to cross with a loaded wagon, and at the head of the ravine there is a living spring yielding sufficient water for a large stock of cattle in the driest weather. During eight months of the year the water from this spring flows in a small but constant stream along the whole bed of the gully, and during the other four months the greater part of the channel is perfectly dry. My intention is to construct a fish-pond by damming the ravine at a point 80 rods from or below the spring, and conduct the water in tiles, planting at the same time a number of trees along the route, which will eventually prove a beneficial shade. What is your opinion of the project?—I am, &c., PIONEER.

[The distance between the spring and the point at which our correspondent proposes building the dam is so great that we doubt much whether the supply of water will prove sufficient. A stream that exhausts itself within a course of eighty rods must be a meagre one at best, and even though the dam were formed, the loss by surface evaporation, not to speak of the leakage and filtration that are to a certain extent absolutely unavoidable in reservoirs of this kind, would prove a heavy drain on the supply.]

In trout culture, a constant running stream is indispensable, and the supply of water should be sufficient to insure perfect sweetness throughout. Foul or partially stagnant water may suit the grovelling taste of cat-fish and some other low bred representatives of the finny tribe, but your speckled back aristocrat breathes a purer air, and moves in a better class of piscatorial society than these, and must be treated accordingly.

If, after careful consideration, our correspondent decides to make the venture, we shall be most happy to publish the results, whether successful or otherwise, in the CANADA FARMER. Meanwhile, the following hints on dam building by Dr J H Slack may prove serviceable:—

Use no wood whatever. I have had an extended and expensive experience in regard to fish-ponds, and have always found that stone or brick is cheapest in the end. In building a dam I first lay up a line of buck extending to within an inch or two of the line of the top of the dam. Now pile your dirt on each side of the wall and you can bid defiance to the musk rats, which have often in one night destroyed the accumulated fish of years. Do not trust to plank, the vermin seem rather to enjoy eating their way through them.

The proportions of the dam should be as follows. Let the breadth on the top equal the height, and the base be three times the height. Thus if your dam is ten feet high, let the width of the top be ten feet, and that of the base be thirty feet. Face the sluice way with stone or brick, and let it extend to the bottom of the pond. Place at the outlet two sets of screens of galvanized iron wire, the uppermost being for the purpose of catching any leaves, sticks, &c., which may find their way into the pond, the lower to prevent the escape of the fishes. One inch mesh for the upper and one-half inch for the lower will be about right. Arrange these so that they can be removed and cleaned, and then keep them clean.—*Ed. C. F.]*

The Provincial Exhibition.

(To the Editor of the CANADA FARMER.)

SIR—Please let me know in next number of the CANADA FARMER the regulations relating to the entry of cattle, &c., for the forthcoming Provincial Exhibition at Toronto.—I am, &c., EXHIBITOR.

We extract the following particulars from the Journal of the Agricultural and Arts Association:—All entries must be made on printed forms, which may be obtained of the Secretaries of Agricultural and Horticultural Societies, or of Mechanics' Institutes throughout the province, free of charge. These forms are to be filled up and signed by the exhibitor, enclosing a dollar for membership, and sent to Mr. Hugh C Thomson, the Secretary of the Association, Toronto, previous to or on the following named dates, viz:

Horses, Cattle, Sheep, Swine, Poultry, Agricultural Implements and Machines.—Entries in these classes must be made by forwarding the entry form, as above mentioned, filled up and member's subscription enclosed, on or before Saturday, August 22nd, four weeks preceding the show.

In the classes of Blood Horses and pure bred Cattle, full pedigrees, properly certified, must accompany the entry. No animals will be allowed to compete as pure bred unless they possess regular Stud or Herd Book pedigrees, or satisfactory evidence be produced that they are directly descended from such stock. In the class of Durham Cattle particularly, no animals will be entered for competition unless the pedigree of the same be first inserted in the English, American, or Canadian Herd Book, or in the Canada Stock Register, kept at the office of the Association, Toronto.

Grain, Field Roots, and other Farm Products, Machinery for other than Agricultural Purposes, and Manufactures generally, must be entered previous to or on Saturday, August 29th, three weeks preceding the show.

Horticultural Products, Ladies' Work, the Fine Arts, &c., may be entered up to Saturday, September 12th, one clear week preceding the show.

Exhibitors are particularly requested to take notice that it is absolutely required that the entries be made at the dates above mentioned, in order to afford sufficient time to examine the entry papers, and to correspond with parties, when necessary, for the correction of errors and omissions; and no exception will be made to this rule on any consideration whatever.

About Thermometers.

(To the Editor of the CANADA FARMER.)

SIR. In reading the CANADA FARMER and other agricultural and scientific papers, I am frequently at a loss to comprehend the results of valuable experiments on account of the different gradation marks on the several thermometers in use. Can you suggest any rule or rules by which the degrees on any scale can be reduced, say to Fahrenheit?—I am, &c., READER.

[There are three different kinds of thermometers in use.—1. Fahrenheit's, which is used chiefly in Britain, portions of the continent of Europe, and North America, the freezing-point on which is 32°, and the boiling-point 212. 2. The Centigrade thermometer, used throughout France, &c., the zero or freezing-point on which is 0°, and boiling-point 100°. 3. Reaumur's, which is still used in Spain; the freezing-point is 0°, and the boiling-point 80°. Hence to reduce degrees of temperature of the Centigrade, and of that of Reaumur, to degrees of Fahrenheit's scale, and conversely.—Rule 1. Multiply the Centigrade degrees by 9, and divide the product by 5; or multiply the degrees of Reaumur by 9, and divide the product by 4, then add 32 to the quotient in either case, and the sum is the degrees on Fahrenheit's scale. Rule 2. From the number of degrees on Fahrenheit's scale subtract 32, multiply the remainder by 5 for Centigrade degrees, or by 4 for those of Reaumur's scale, and the product in either case, being divided by 9, will give the temperature required.—*Ed. C. F.]*

Line Fences.

(To the Editor of the CANADA FARMER.)

SIR:—A dispute having arisen in this locality about the location of a line fence, and no one appearing to be very clear as to what the law really is on such matters, would you oblige myself and others interested by stating your opinion on the subject through the medium of the CANADA FARMER.—I am, &c.,

BRUCE.

[Our correspondent has neglected to state the exact nature of the point in dispute, a knowledge of which is of course indispensable to a correct and definite solution of the difficulty. The following is a synopsis of the Line Fence Act, passed at the last session of the Ontario Legislature:—

Section 1 repeals all previous enactments on the subject.

Section 2 provides that owners of occupied adjoining lands shall make and keep in repair a just proportion of the boundary fence; and owners of unoccupied lots which adjoin occupied ones shall upon their being occupied be liable to the duty of keeping up such proportion, and be in the same position as if their land had been occupied at the time of the original fencing.

Section 3 provides that in case of dispute either owner may notify the other or the occupant of the land, that he will cause three fence-viewers of the locality to arbitrate in the matter. Such notice shall be in writing, shall specify the time and place of meeting for the arbitration, and shall be served not less than one week before the day appointed for such meeting. In case the owner or occupant notified objects to any or all the fence-viewers notified within a week, or in case of disagreement, the Judge of the County Court shall name the fence-viewers who are to arbitrate.

Section 4 defines the duties and powers of fence-viewers. They shall examine the premises, and if required by either party, shall hear evidence—any one of them being authorized to administer the oath or an affirmation as in courts of law.

Section 5 defines that the arbitrators shall make their award in writing, signed by any two of them. The award shall specify the locality, quantity, description, and the lowest price of the fence—it orders to be made, and by whom the cost of proceedings shall be paid. In making such award, they shall regard the nature of the fences in use in the locality, and pecuniary circumstances of the persons between whom they arbitrate, and the suitability of the fence ordered to the wants of each party. Where, by reason of streams or other obstructions, it is found impossible to locate the fence along the line, it shall be lawful for the fence-viewers to locate it on either side.

The award shall be deposited in the office of the clerk of the municipality, and the person desiring to enforce it shall serve a notice in writing on the opposite party. If the award is not obeyed within one month the party so desiring to enforce it may do the work so directed, and immediately recover the amount of valuation and cost by action in any division court having jurisdiction in the locality. The award is a lien and a charge upon the land respecting which it is made, provided that it is registered in the registry office of the county in which the lands are.

Section 11 provides that any person dissatisfied with the award made may appeal therefrom to the county Judge, first serving upon all parties interested a notice in writing of his intention to appeal; and the Judge's decision in the matter shall be final.

Any written agreement between owners respecting line fences may be filed or registered, and enforced as if it was an award of the fence-viewers.

This Act is not to affect any proceedings under former acts.]

Chapman's Colorado Potato-Bug Destroyer.

(To the Editor of the CANADA FARMER.)

SIR:—Perhaps some of your readers are not aware that Chapman's Colorado Bug Destroyer kills the potato vines with which it comes in contact. I put about two thirds of a package in half a peck of land plaster; dusted the mixture on the vines in the usual way, and it effectually killed both vines and bugs.—I am, &c.,

J. TROTTER.

Harriston, July 13th, 1874.

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The Canada Farmer.

TORONTO, CANADA, AUGUST 1, 1874.

Interesting Experiments with Dynamite

On the afternoon of Saturday, the 18th ult., we had the pleasure of witnessing, for the first time, a series of experiments with this comparatively new substance. The scene of operations were the stone quarries near the mouth of the Humber, about five miles from this city, and the experiments were conducted by Mr. Miller, of the firm of Young & Miller. On reaching the landing at the quarry, the party disembarked, and Mr. Miller at once proceeded to business. The first test was made with the view of showing the harmlessness of dynamite under concussion. This was satisfactorily demonstrated by placing a piece of cartridge on a wooden block, and striking it with a heavy sledge hammer. It only flattened the substance. Mr. Miller then took a cartridge, a piece of the preparation about two and a half inches in length and half an inch in diameter, and weighing one and a half ounces, wrapped about with paper, and with an ordinary friction match set it on fire, occasioning a rapid backward movement of the scientific men of the party. There was no danger, however; it burned with a sparkling but low flame, like that produced by cotton in combustion, showing that even when set on fire the terrible force of its nature was not let loose. Its explosive character is eliminated only when fired by one of Noble's patent detonators, which is similar to the cartridge for a breech-loading rifle, that is, in containing the explosive material, which is fired by a fuse communicating with the dynamite, and produces the result desired in its sudden and irresistible expansion. The experiments to show the safety of its handling being over, Mr. Miller proceeded to make preparations for its real use. First, four cartridges were placed in a crevice where the shale predominated. There was a heavy report, but the result was trifling, indeed, the flimsy rock offered no sufficient resistance to the giant. Second, on a step in the quarry, projecting about three feet, and all solid below, three cartridges were placed; just laid on the surface of the stone, and covered with two shovelfuls of rubbish. The effect of the explosion was to split the stone downwards to the depth of about a foot, and for several feet laterally.

It was noticed with surprise that the force seemed to expend itself in a downward direction. Third, a hole was drilled about six inches in the face of the perpendicular rock, four feet from the bottom and twelve feet from the top. This was not a good test; it was impossible for the power, even of dynamite, to move the hill side behind it, or to produce a fracture in any direction. But the terrible power of the explosive was seen in the gaping hole, torn and rent, that was left in the solid wall of stone. Fourth, a charge of three ounces shook and shattered a projecting side of the lower quarry, measuring six feet in depth and ten feet wide and as many long. This was the most convincing and surprising proof of the incalculable force of dynamite. For blasting purposes it was pronounced incomparably superior to gunpowder. Some of the gentlemen remarked that from the tendency to spend the force downwards, it would be a capital explosive for large surface stones, or boulders, rending them to pieces so that they could be removed. For submarine operations, Mr. Young gave the party an example of its efficacy. He threw a cartridge with a lighted fuse into the river. It sank, and in about twenty seconds there was an explosion. Instantly following the explosion, for a distance of a quarter of a mile up and down the river, the fish came swarming to the surface in hundreds, leaping into the air and swimming about in the wildest consternation. But it did not need the evidence of the finny monsters to conclude the evidence of the great value of this substance where blasting is required to be performed. The rules for its management, too, appear to be extremely simple, and only the grossest negligence could contrive to render it dangerous. It is only proper to say that the experiments on Saturday were not conducted with the skill which experience gives, but enough was done to demonstrate that dynamite is both greatly safer in handling than gunpowder, and immeasurably more powerful in its operations. It is probably the most used of any blasting material in the old country at present; during the past two years, 12,000 tons have been manufactured and used in Scotland alone.

International Ploughing Matches.

We have in this country our "Curling Bonspells," our base ball and cricket matches, and other manly games and sports calculated to develop physical muscle and dexterity, and to raise these respective games to the rank of sciences. We feel a pride when any of Her Majesty's loyal subjects succeed in carrying off the palm from the citizens of another country, no matter how unimportant in itself the test of skill. We take still greater pride in vanquishing all opponents in matters of production or manufacture. A first prize won at one of our Industrial Continental Fairs, open to the world, is justly an object of national congratulation, and the happy winner becomes for the time being rather an enviable and distinguished personage. That these international competitions have done, and are doing, incalculable good to almost every branch of industry, admits not of a doubt. They stimulate emulation, and consequently industry, ingenuity and invention the three essential elements of a nation's progress. They afford opportunities for an interchange of opinion, suggest new thoughts, new ideas, new aims, and cannot but result in mutual benefit to all who take an active interest in them. But does it not seem strange that with all our progress in this direction, the idea has seldom if ever been mooted of an international trial of skill in the arts of husbandry? True, we have our township, or county, and our provincial ploughing matches, and inestimable has been the boon they have proved in raising the character and enhancing the perfection of that pursuit which, of all others, is essentially the main stay of America. But let us give this matter a wider scope, a more exalted platform; let us give it

an international character, and the boon cannot fail to be still greater.

We are glad to observe that this idea is beginning not only to strike our American neighbors, but to be very favorably entertained by them, as is that also of another subject, which becomes blended with the former, and must eventually prove of the utmost importance to agriculturists, viz., the breeding of horses exclusively for agricultural purposes. Both of these questions have recently been raised by Mr. Crozier, of Beacon Stock Farm, who writes to the *Country Gentleman* as follows:

"Looking over the *Country Gentleman*, I find quite a good deal concerning horses raised for stall, but far less for the horse which produces the stall of life for man and beast. Please turn the attention of your readers occasionally to horses bred for agricultural purposes—a class which should have a prominent place. Give him a chance to rise in the estimation which he well deserves, as meriting greater attention from farmers than the swift trotter.

Next, give us a ploughing match next fall—prizes to be awarded as follows: 1. For the best ploughed acre under the rules of the Highland and Agricultural Society of Scotland, large gold medal, worth \$100. 2. Silver medal or cup, worth \$75. 3. Silver medal or money, \$50. 4. Cash prize, \$25. 5. Cash prize, \$10. I will pledge myself to raise the necessary funds (\$260) to pay the prizes on the day of the match. Give an open field the first year. I hope you will consider this over, and not drop it. If carried out successfully, it will accomplish more for the young men of the state than all the horse trots that can be got up."

Commenting on these remarks, the journal referred to says:—

We fully appreciate the importance of the subjects brought forward by Mr. Crozier. In England, the horse "for agricultural purposes" has come to be a distinct and well defined class, which takes a leading place, as it properly should, at all the agricultural shows of the country. This is also true to a considerable extent in Canada. But whether because our farmers raise horses to sell rather than to use, or for some other reason, we have little competition in this direction at the agricultural exhibitions of the United States. Even when it comes to the matter of use, it seems common to place about as high an estimate on a team that will spin briskly over the road, as on one that will do its work arid or in hauling, with the greatest economy. Although such are the facts, we might well wish that the case were different.

If our correspondent, Mr. Crozier, or any one else, can suggest some method of promoting the increased popularity of "agricultural horses" among our farmers, he shall have our most earnest co-operation.

With reference to the second portion of Mr. Crozier's letter also, other writers are taking it up in the very best spirit, as may be seen from the following extracts:—

"I notice in a late number of the *Country Gentleman*, an article by Mr. William Crozier, Beacon Stock Farm, who appears anxious to have a grand ploughing match after the rules of the Highland Agricultural Society. Should it be decided to hold such a match this fall, and open it to all comers, you may expect young Canadians over to try their skill. I feel confident that the work done will be no disgrace to any country, by selecting for the match a good cutting soil (soil), and plenty of time to accomplish their work. I will throw in my mite with you, and Mr. Crozier's, say \$25. Wm. RENNIE, Toronto."

"I have been reading my friend Wm. Rennie's letter in the last *Country Gentleman*," says another writer, "and heartily join with him in wishing that a ploughing match, open to all, might be held, under state fair or other favorable auspices, this fall. From personal knowledge, I am well aware that such contests have been productive of the utmost good in Canada and Great Britain, in promoting thorough ploughing on the farm, and in stimulating manufacturers to produce ploughs that will do the very best of work with lightest draught. If it should be considered worthy of acceptance, I will be happy to give as a prize for competition one of Colton's all iron and steel cultivators, worth \$32. If won by a Canadian, will deliver it to him at Toronto."

Let us by all means have an international ploughing match this fall, say early in November, after the autumn rains are over, and when the soil is in the best possible condition for the display of: to borrow

a dairyman's expression "gut edged" work. Our cordial co-operation may be relied upon in the matter, and the columns of the *CANADA FARMER* are open for any suggestions that may be offered as to the best method of working out the details.

The War on Birds.

Never make war on the birds that apparently rob our fields and orchards. They are not robbers but rather conservators of our crops, for their natural food is worms and insects, and it is in pursuit of these they flock around our farms and about our barns and orchards. Even the stately old crow, against which such a persistent warfare is waged, is a greater friend to us than he is an enemy. True he pulls our corn by wholesale, but nevertheless corn is not his natural food but the voracious grubs and insects by which it is surrounded, and which if left to themselves, would do much more damage than the poor crow. This has been repeatedly proved by smearing the corn over before planting with a very slight coating of tar. The crows will continue to hover about as before, and peck away with all their former assiduity, but their attention is exclusively confined to the grubs—not a gram of corn will be molested.

The birds which are deserving of special protection at the hands of agriculturists are snipes, robins, swallows, orioles, rails, wrens, creepers, nut-hatches, titmice, blue-birds, fly-catchers, whip-poor-wills, swifts, humming-birds, woodpeckers, cuckoos, owls, &c.—all insectivorous. The English sparrow is regarded by some as an inveterate enemy, and pursued with the utmost malignity, but if the following statements by Dr. Brewer regarding the valuable services rendered by this bird to insect-stricken Boston are true—and we have no reason to doubt them—it follows that the poor little sparrow has been the unconscious victim of a vast deal of nonsensical slander. The Doctor says:—

"If you will turn to your Harris's "Insects Injurious to Vegetation" (ed. 1862, p. 356-57), you will see there given in full the dangerous character of the moth known as *Orgyia leucostigma*. It is in the larva form pretty nearly omnivorous, devouring alike the smaller shrub and the stately elm. The larva are very voracious. In 1828 great injury was done by them to the apple trees about Boston. In the summer of 1848-49 and 50, these insects were very numerous in Boston, both in private yards and on the common, where the horse chestnuts, and many other trees which wholly escape the ravages of insects, were entirely stripped of their leaves. Every possible effort was made to destroy these insects that human ingenuity could devise, and for a while with partial success. But their peculiar habits make them a very difficult foe to contend against. They spin their cocoons on the branches, trunks and larger limbs of the trees on which they have been feeding, and often in inaccessible places. There, if undisturbed, the insects come forth in their adult state. The female is wingless and lays her eggs on the top of the cocoons, protecting them with a covering of frothy matter which dries into a white and brittle shield, successive broods of these devastating insects are produced throughout the summer from May to September, and when they swarm in great numbers two seasons are enough to destroy for ever the beauty, vigor and life even of our largest trees. This insect cannot be attacked to advantage in our large elms, there are always so many that cannot be reached.

This was our condition in Boston in 1867 and 1868. This insect was in full possession of our shade-trees everywhere in the city and vicinity, and the case seemed well-nigh hopeless. In 1869 hundreds of dollars were expended by our city government in reducing their numbers on the common and public garden. Our first importation of sparrows nearly failed, and there were so few surviving that we did not put much faith in their ability to help us, and all hope of saving our noble elms was by many given up as impossible.

But we were better off than we supposed. The few sparrows that escaped had thriven wonderfully, and, increased by others privately imported, numbered in 1869 and 1870 about twenty pairs. These were attracted to our deer-park both for food and shelter, and there they spent the winter in the very centre of the insectous district. I soon noticed that

they were busy among the trees, and was rejoiced to find that they were searching out and devouring the cocoons and the eggs of the *Incostigma*, and it was a curious sight to witness how readily the sparrows could adopt all the habits, postures and performances of the creepers and woodpeckers. They climbed about the trunks, hung themselves head and back downward from the branches, and once having got a good taste of cocoons and eggs, they did not desist from their destruction until they had made pretty clean work of them. A few moths escaped so far as to be hatched out, but it only postponed their fate. In a single season about one hundred and fifty sparrows did a work which all Boston could not have done by any expenditure of money. These pests were about annihilated. I do not believe you can find in Boston, except in a cabinet, with a pin through it, a single specimen of this moth. Our gardens are exempt from their ravages. Our shade trees everywhere are green from May to October. And we owe all this to these interesting little strangers. Well may Boston make much of the sparrows, build them houses for shelter and nesting, and feed them through our inclement winters. They have richly earned it all. And let us place fairly on the record, while it is fresh in our memories, this great beneficence they have done our city, and let it never be forgotten. The time may come when their increasing numbers will swarm into our rural places, where they may be tempted to partake of our oats and other grain, and where, too, they will be very likely to exterminate the canker worms and the cureshous as they have already done the measure worms of New York and Philadelphia and the caterpillars of Boston. Let us bear with their trivial misdeeds and not forget their great benefactions.

Already the carping penny-a-liners of our newspapers, for want of better occupation, are railing against our sparrows with false charges. "They never," says one wisecracker, "touch a hairy caterpillar." Suppose it be true and I very much doubt it—what does it prove? Does not this Solomon know that a hairy caterpillar has four forms, and if the sparrow devours the insect in three of these forms, ought we not to be satisfied? The sparrow eats the eggs, the cocoons and the mago, both of the measure worm and of the orgya. I have seen them do it, and I very much doubt if very many of the latter escaped in the larva form to test the capacity of sparrows in this direction, in Boston. But then the sparrow drives away our own birds! Does it? I would very much like to know when, where and how. Will some one please produce the evidence, and till he can do it stop this idle story, which I utterly discredit? It is certainly not so with us. Each year shows an increasing number of birds, apparently drawn to our public gardens by the presence of these birds. The little chipping sparrow seeks out the company of these foreigners, joins their flocks and feeds with them unmolested and with mutual good-will. Other birds, such as the king-bird, the Maryland yellow-throat, the summer yellow-bird, and several other species never seen here before, may now be seen in our public gardens. Instead of driving away other species, I maintain that they attract them."

The Grasshopper Pest.

Reports of the Devastation Greatly Exaggerated.

The reports respecting the amount of damage done by the locusts in Minnesota were so conflicting, and the statements so contradictory, that the *New York Tribune* determined to send a special reporter to the scene of the reported devastation to ascertain the precise truth. The following is the result of his observations:—

St. James, Watonwan Co., Minn., July 20.—"The cows have long horns a great way off" is a homely New England proverb, as true on the Minnesota frontier as on a Yankee farm. "The wheat crop of Minnesota has been destroyed by grasshoppers" was the doleful story that I heard in Washington, to justify the prayer of Gov. Davis for aid from the United States Government to save the people of this stricken region from starvation. "Half the state is overrun," said the Chicago and Milwaukee wheat traders, but whether they believed it or were attempting to "bull" the market I did not ascertain. "One-twelfth of the wheat crop is gone," says *The St. Paul Press*, desiring to remove misapprehension and to correct exaggerated reports. The actual fact is that in no one of the dozen counties invaded by locusts has the crop been entirely destroyed. In some townships two-thirds of a crop of wheat, flax, and corn will be gathered, in others half, in some enough for bread and seed while upon a few farms everything is absolutely destroyed. But the whole crop of this

region is not one-twentieth of that in the state, and the present promise is that Minnesota will have as much wheat to sell this year as last, when the surplus crop, after saving enough to feed her own people and for seed, was about 25,000,000 bushels.

The Region Ravaged.

The region of the state visited by the grasshoppers this year comprises about a dozen counties in the south-western corner of Minnesota, lying almost entirely west of the Minnesota and Blue Earth Rivers, and penetrated by the St. Paul and Sioux City and Winona and St. Peter Railroads. It is a rich, rolling prairie, traversed by frequent streams and dotted here and there with beautiful clear water lakes, but is entirely destitute of timber, except in the river bottom and on the borders of the lakes. Four years ago there were no settlers here except a few hardy pioneers who pushed out from the frontier the year before and preempted lands under the provisions of our homestead laws, and even they were so widely scattered that from the little hills on which they generally build they were rarely able to see the shanty of their nearest neighbors. With the completion of the railroads a tide of immigration set in from Sweden and Norway and from the older states to the East, and now all the land within the railroad limit and not granted to those corporations has been absorbed, although a very small part of it is as yet under cultivation. Large tracts of the prairie are held by speculators who have either "proved up on an eighty," and then gone elsewhere to repeat the operation, or have bought out the rights of the original preceptors, and are now making no improvements. Even the land held by actual settlers is probably not one-fourth yet broken up.

Such is the character of the country in Minnesota which the locusts have this year invaded—a country which, despite the length and severity of its winters, will eventually yield the palm to none in the production of wheat and flax, and is sure, within a few years, to be converted into valuable farms. But like other new countries, South-Western Minnesota has met with great calamities. Two years ago the crops were full of promise, when a terrific hail-storm passed over these counties and destroyed them in an hour. Enough grain was saved for bread and seed, but very few of the farmers had much to sell. Many of them mortgaged their places and began again.

Privations of the Farmers.

Last year the locusts came down upon the fields and stripped many of them clean, and laid the eggs from which this year's pests have been hatched. Those who still saved enough for bread and seed, or whose means were not exhausted, prepared their ground for another crop, and by the strictest economy lived through the winter; others were dependent upon charity for food and seed, and many who could not get wheat borrowed flaxseed from the Mankato Oil Company. In the fields that were devastated last year the "hoppers" hatched out this spring by the millions, and destroyed the young grain before they developed their wings, and before the wheat was a foot high; then, having grown fat and strong on the tender crops, they mounted in the air in clouds, and have since settled upon and greatly injured or destroyed nearly every field that was before untouched.

St. James is a village not quite four years old, just half way between St. Paul and Sioux City, and at the point where the two divisions of the St. Paul and Sioux City Railroad come together. It is about 20 miles south of the northern limit of the grasshopper invasion, and is the best point in this section from which to observe their ravages and study their habits. I arrived here on Saturday, and in the afternoon drove out upon the prairie about eight or ten miles in a south-easterly direction from the railroad. I passed through in that distance about a dozen farms, all of which had been attacked by the locusts.

Tactics of the Locusts.

The first field I visited contained about 130 acres of wheat. The crop on this field had been partially destroyed last year, and the locusts then deposited some of their eggs upon it. The grain came up this year very thick and thrifty, and although the young locusts stripped off nearly all of the tender leaves from the stalks, they did not attack the heads of the wheat until the berry was well formed. Then they came in a cloud and covered the field, and in a few days had entirely destroyed it. Looking over the field from the road, it appeared as though a light crop of grain might be gathered from it, but on walking into the lot and examining the heads of the wheat, I found that there was no grain there. When the locusts attacked this field they came in such great numbers that from three to five, and in some cases six or seven, alighted on each stalk. If there were

any green leaves left they ate those first and then attacked the head. The lower grains of the heads, which are the largest and the best of the wheat, they generally devoured husk and all. As they worked up and their hunger became satisfied, they seemed to penetrate the husk and take out the berry, very rarely leaving a single grain of wheat in the head. This field, the owner assured me, had the "hoppers" let it alone, would have yielded more than an average crop. I don't think there is left a bushel of wheat to the acre. The owner will not cut it at all. On the same farm there had been planted a few acres of corn and potatoes. Of the former the locusts had destroyed about one-half, and from the latter they had eaten a portion of the leaves, which had, however, since they left, begun to grow again, so that a partial crop will be secured. Garden vegetables of every kind were utterly destroyed.

The next farm I visited was about two miles further from St. James, containing several hundred acres, and was very well subdued when we consider that it has been broken up only three or four years. A large field of oats on this place had been treated about as the wheat I have already described. The owner intends to cut the straw immediately, before it gets dry, and cure it for fodder. On a small piece of the field where the locusts had done a little less damage, enough grain may possibly be saved to partially replace the seed. On this farm I saw the first field of wheat that had been completely destroyed. Here the locusts had settled last year, and, beside eating up a good portion of the grain, had deposited their eggs from which this year's crop of pests hatched out. This season they began on this field early, and so thoroughly was the destruction that, standing ten rods from the field, I was unable to discover anything to indicate that wheat or any other grain had been planted on it. On driving into the field and looking carefully among the grass and weeds, I found the ground covered with a fine stubble eight or ten inches high, but on the whole piece I did not find a single head of grain or a single stalk of wheat that had not been cut off and killed.

Ninety per cent. of the Crops destroyed in this Region.

On this same farm the grasshoppers, after finishing the wheat, attacked the corn. It stood at the time about 12 or 18 inches high, and some of the locusts cut it off near the roots while others devoured the leaves. From 10 to 20 per cent. of the crop was left in isolated hills standing here and there, the fields looking very much like those I have seen in New England that had been nipped by a June frost.

A greater breadth of flax was planted in this region this year than ever before. Many of the farmers were without seed wheat and were unable to obtain it, while the oil company at Mankato offered to lend them flaxseed and purchase their crop. Some fields of flax which I visited last Saturday were as utterly destroyed as the wheat I have described, it was almost impossible to find any traces of the crop. The best I saw will probably yield one-fourth of a crop. The manner in which the locusts have destroyed the flax when then attack upon it has been late has been peculiar. They have no particular liking for the seed bolls, and of course they cannot eat the tough woody fibre of the stalks; but they can strip off the leaves and then they bite off the slender stalk just under the boll, causing the latter to fall to the ground. In some fields I examined, the ground was actually covered with the seed-boll, two-thirds or three-fourths of the entire crop being spilled and lost in this way. And the bolls that were left I found to be very poorly filled, the destruction of the leaves causing the seed to shrivel up.

The district I visited on Saturday is, I am told, the worst damaged of any in this country. I should think that, taken altogether, not ten per cent. of the crops of every kind will be saved.

Immigration.

We publish the following circular by request of Mr. D. D. Hay, General Immigration Agent for Ontario.—

DEPARTMENT OF IMMIGRATION,
Toronto, June, 1874.

The arrival is expected in a few weeks of a considerable number of laborers with families, chiefly from England, and of the agricultural class.

It is important to find places for these people without delay on their arrival, and farmers and others needing laborers, and possessing accommodation for families, are requested to forward applications to the

Department at once, stating post office telegraph address nearest railway station, and number of laborers wanted.

Such applications will, on the arrival of the emigrants, receive, as far as practicable, prompt attention.

The question of providing cheap, comfortable houses for families is one of great importance to our agriculturists. Until this is done the labor supply in our rural districts cannot be placed on a permanent and satisfactory footing.

Married laborers are likely to take root where they locate. Their families, by furnishing domestic servants and other assistance on the farm, would supply a want always felt in our rural districts. This class, moreover, when comfortably located, become the most effective emigration agents we can have. The demand for laborers is this season far in excess of the supply, but for obvious reasons application for this class is not large.

A condition of permanent service, though accompanied by all reasonable social comforts, is not a leading inducement held out to emigrants from the old lands, but to be able to say in the old countries to the old country workmen that he will find on his arrival on our shores ready employment and reasonable wages, with a cottage and garden equal, if not superior, to those he has to leave, will remove a serious practical objection to emigration, and will be a strong inducement to his making the experiment. In some of our districts this subject is receiving partial attention, and farmers and employers are reaping corresponding advantages.

It is hoped that a matter so intimately connected with the prosperity of our leading industry will henceforward receive all the attention which it merits at the hands of our farmers generally.

Mr. E. Richardson, a delegate from the National Agricultural Laborers' Union of England, has lately arrived in charge of a number of families. More will follow. All that is wanted to secure an increased immigration of the very class best suited for our wants, is the assurance of good arrangements for the immediate employment and reasonable comfort of the immigrants as they arrive here.

The late arrivals are chiefly from the lock-out districts of England, and are the cream of the English agricultural laboring class.

Mr. Richardson is highly pleased with our country, and with the condition and prospects of his people. On his return to England he will be able to speak with authority on what he has heard and seen to his fellow working-men.

DYNAMITE—See advertisement of Messrs. Young & Miller.

A **PROVINCIAL PLOUGHING MATCH**, under the direction of the Provincial Board of Agriculture, is to be held in the vicinity of Bowmanville some time this fall.

THE **ANNUAL EXHIBITION** of the Fruit Growers' Association, and International Show Society of Nova Scotia, will be held this year at Wolfville, on Wednesday and Thursday, September 16th and 17th.

TALL OATS.—Mr. Charles S. Small, 1st con. Township of York, brought to this office on Wednesday morning last several stalks of the "Black Tartar" variety of oats, the shortest of which measured 5 feet 10 inches, and the longest 6 feet 3 inches.

FINE LETTUCE.—Mr. Wm. H. Doel, "The Cedars," Chester, brought to our office a day or two since, three heads English Co.'s lettuce, two of which weighed 4½ lbs. each, and the third 5 lbs. They were grown in the open air from seed of Mr. Doel's own raising, and he just wishes to ask, "Who can beat that?"

THE Highland and Agricultural Society of Scotland intend to memorialise the Committee of the Privy Council on Education on the propriety of establishing agriculture as a branch of the system of physical science taught under the superintendence of the Department of Science and Art. They also intend to offer a premium for the best text-book for such a course, including the application of botany, geology, chemistry, and animal physiology to the art of agriculture and the management of farm stock.

Agricultural Intelligence.

Royal Agricultural Society of England.

MEETING AT BEDFORD

From our English exchanges, received as we go to press, we gather some particulars of the opening of the above show at Bedford, on the 13th ult. The attendance of visitors was very large. The show of agricultural horses and hunters was good, and the shorthorns were a grand exhibition. Sheep and pigs were superior to any that have appeared at the "Royal" for a number of years. The Crown Prince of Prussia and England's beloved daughter, the Princess, visited the exhibition. The Prince devoted much attention to the horses, and Her Imperial Highness took much interest in the domestic department of the yard. The Duke of Bedford introduced the Prince to Mr. Holland, President, Lord Cathcart, ex-President, and to Lord Bradford, President elect of the Royal Agricultural Society of England, and others connected with the association. The judges were long over their work in some cases, owing to the number and excellence of the stock in one or two classes on account of their general inferiority.

The following is a list of some of the principal awards:—

Horses.

Agricultural stallions foaled in the year 1872 (not qualified to compete as Clydesdale or Suffolk) 1, G. Ekins, Daintree, Fenton, Huntingdon; 2, C. Golden, the Grange, Ramsey, Hunts; 3, T. Russell, Lower Shuckburgh, Daventry.

Agricultural stallions, foaled before the 1st of January, 1872, (not qualified to compete as Clydesdale or Suffolk) 1, T. Briggs, Bramham, Cambridge; 2, T. Statter, Stand Hall, Whittfield, Manchester; 3, do.

Short-horns.

Bull, above three years old.—1, R. Bruce, Newton-Struthers, Forres, Morayshire; 2, The Marquis of Exeter, K.G., Bughley Park, Stamford; 3, A. H. Brown, Doxford, Chathill, Northumberland.

Bull, above two and not exceeding three years old.—1, W. Linton, Sherriff Hutton, York; 2, W. H. Dudding, Pantom House, Wragby, Leicestershire.

Yearling Bull, above one and not exceeding two years old.—1, J. Outhwaite, Bamesse, Chatterick, Yorkshire; 2, Lieut.-Col. R. Loyd-Lindsay, V.C., York; 3, Lady Pigot, Banches Park, Newmarket; 4, W. G. Garne, Broadmore, Northleach, Gloucestershire.

Bull calf, above six and not exceeding twelve months old.—1, Lieut.-Col. R. Loyd-Lindsay, V.C., M.P.; 2, J. Outhwaite; 3, W. G. Garne. Highly commended—Earl Spencer, K.G., Althorp Park, Northampton; Commended—C. J. Webb, Elford, Tamworth, Stafford; Sir G. O. Wombwell, Bart., Newburgh Park, Easingwold, Yorkshire.

Cow, above three years old.—1, John Outhwaite; 2, G. Garne; 3, T. H. Hutchinson, Manor House, Chatterick, Yorkshire.

Yearling heifer, above one and not exceeding three years old.—1, Rev. R. Kennard, Marshull, Bradford, Dorset; 2, T. Slatter; 3, Lord Sudeley, Taddington, Winchester, Gloucestershire.

Sheep

LEICESTER.

Shearling ram.—2, G. Turner, jun., Thorpeclands, 2, do; 3, do. Commended—W. Brown, High Gate House, Holme on Spalding Moor. Ram of any other age.—2, G. Turner.

COTSWOLDS.

Shearling Ram.—3, T. Brown. Ram of any other age.—1, P. Brown; 2, R. Swanwick, Royal Agricultural College Farm, Cirencester; 3, T. Brown.

Pen of five Shearling Ewes of the same flock.—1, R. Swanwick; 2, T. & S. G. Collett, Kilkenny Farmingdon; 3, do.

Pigs.

Boar above six months and not exceeding twelve months old.—1, The Earl of Ellesmere, Worsley Hall, Manchester; 2, R. Elmhurst Duckering, Northorpe, Kinton-Lanscy, Lincolnshire.

SEVERAL WHITE BREEDS.

Boar above six months and not exceeding twelve months old.—1, J. Dove, Hambrook House, Hambrook, Gloucestershire.

Boar above twelve months old.—1, G. Mumford Sexton, Wierstead Hall, Ipswich, Suffolk; 2, C. R. N. Beswicke-Royds.

Pen of Three Breeding Sow Pigs of the same litter, above four and under eight months old.—1, The Earl of Ellesmere; 2, C. R. N. Beswicke-Royds.

Breeding Sow.—1, The Earl of Ellesmere; 2, R. E. Duckering, Northorpe, Kinton-Lanscy, Lincolnshire.

The Royal Counties Agricultural Society's Show.

The annual exhibition of the Hants and Berks Agricultural Society was this year held at Reading, and attracted a large concourse of visitors. The display of stock was more than usually fine. In the aged short-horn bull class, Mr. Stratton's "Protector," winner at the Bath and West of England show, again carried off the first prize, the second going to Col. Lloyd Lindsay's Rob Roy. The Colonel was also awarded first prizes for yearling and bull calves. The cow and heifer classes were well represented both in number and quality. In the former class Mr. Joseph Stratton's well known cow "Euphemia" stood first, and in the latter the ribbon went to Mr. Robert Stratton's "Nectarine Bud." In the yearling heifers, Her Majesty had to be contented with a third prize. The Herefords and Devons, though few in number, were admirable specimens of their respective breeds, the Sussex particularly so.

The show of sheep was remarkably good. In Hampshire Down Shearlings there were eighteen entries, the first prize going to Mr. Morrison, Fonthill, for the same stylish ram that carried off first honors at Bristol. The Prince of Wales beat all comers in Southdowns, and Mr. Russell, Sanwick, did the same to all others in Cotswolds.

There was a good display of cart stallions, the entries in the aged class numbering nine. A fine Clydesdale belonging to Mr. Stanford, bred by the Duke of Hamilton, gained the principal award. The cart mares were very good. There was nothing particular about the hunters; but there were one or two good ponies.

Poultry formed a good show, particularly the Hamburgs, Brahmas, and Dorkings. The ducks were not first-class, neither Rouen nor Aylesbury. There was a good exhibition of pigeons. The dog show was well arranged, and there were some fine specimens sent in of the various breeds, but along with them a lot of mongrels.

The Bremen Agricultural Exhibition.

The judges in the sections of agricultural produce and manufactures have recommended the Council to grant honorable mentions for valuable objects sent to the Exhibition by the President of the Venezuelan Republic, by Messrs. Gildemeister and Co., of Lima, and by the Mercantile Society of Bremen. A silver medal has been granted to Dr. Ernst, of Caracas, for his scientific arrangement of Venezuelan produce. The first prize for the best steam plough and the first prize for the best steam machinery for ploughing waste lands have been awarded to Messrs. John Fowler and Co. The gold medal for agricultural machinery and implements has been awarded to Messrs. James and Frederick Howard, of London; Walter A. Wood, of Hoosick Falls, New York; Messrs. Marshall, Son, and Co., of Gainsborough; Messrs. Clayton and Shuttleworth, of Lincoln, England; Messrs. Hansomes, Sims, and Head, of Ipswich, England; and Messrs. D. M. Osborne and Co., of Bremen. The silver medal for the same objects was granted to the Malton Ironworks Company, of Malton; Messrs. Rennie and Co., of Lincoln, England; Messrs. Richmond and Chandler, of Saltord; Aulmann, Miller, and Co., of Akron, Ohio; the Reading Ironworks, of Reading, England; Messrs. Nalder Nalder, of Wantage, Berks; Mr. G. O. Gooday, Stanstead, Essex, England; Messrs. Samuelson and Co., of Banbury; Messrs. Davey, Paxman, and Co., Essex; Messrs. Woods, Locksidge, and Co., of Stowmarket; Messrs. James Smyth and Sons, of Peasenhall; Mr. Charles Burrell, of Thetford, Norfolk; Messrs. Willsner, and Co., of London; Messrs. Richard Hornsby and Sons, of Grantham; Messrs. E. R. and J. Turner, of Ipswich; and the Johnston Harvester Company, of Brockport.—Times.

SHORT-HORN SALES.

Sale of the Waterbury Short-horns.

The sale of Mr. Lency's herd at Waterbury, Kent, England, came off on the 2nd ult., and may be classed among the best English Short-horn sales of the present season. The attendance was large. "Short-horn breeders," says the Field, "turned up at every turn, coming up the roads, or between the alleys and the hedges—a gathering as miscellaneous and as enchanted as that which Mr. Riviere has painted bewitched by the music of Apollo, and for a moment forgetful of all ancient strifes."

First came the examination of the lots for sale. These were arranged in 'lean-to' sheds, or under the cherry trees laden with fruit, from which many a visitor plucked a furtive berry or two, and fancied himself a boy once more robbing an orchard on a holiday. The two famous bulls were introduced for the visitors to examine. Eighth Duke of Geneva is kept poor for work; but he has a fore arm grand as a lion's paw; a front like Jove's, awful. The nine months old Duchess calf, for which a new Short-horn breeder, Mr. Loder, was content to give \$10,500, was certainly not the most sightly of the lot. Still, taking them all together, the calves by Eighth Duke of Geneva were an improvement on those by the sires employed before; whether by Grand Duke of Oxford (28,764), who seems to have been a failure, or Grand Duke of Kent (26,259), who (better than his predecessor) was not so good as the American, whose odd lopping ears, vast bulk, and thick muscles (the hind legs were especially good) are not likely to be forgotten. And striking as he must be allowed to be, his colleague, Sixth Duke of Oneida, was in most respects a better bull. The following is the sale list:—

Cows and Heifers.

Lactea Oxoniensis, roan, 1867, Mr. E. H. Blundell	\$1200
Lily, white, 1867, Duke of Devonshire	893
Knightley Grand Duchess, roan, 1867, Mr. Larking	1601
Thornedale Duchess, red roan, 1869, Mr. P. Higg	525
The Queen, rich roan, 1869, Lord Chesham	840
Primrose, roan, 1871, Mr. A. Brogden, M.P.	1759
Charming Lady 2nd, white, 1872, Sir C. Phillips	1182
Oxford Eastley 4th, white, 1872, Sir C. Phillips	2100
Columbia's Duchess 3rd, roan, 1872, Mr. Larking	1704
Twin Duchess 6th, roan, 1872, Mr. Sheldon	1680
May Duchess 5th, roan, 1872, Mr. T. Rigg	368
Beauty 2nd, roan, 1873, Mr. T. Rigg	577
Rosy, 1873, Mr. Larking	1417
Queen of Garlands, roan, 1873, Rev. R. R. Kennard	682
Columbia's Duchess 4th, rich roan, 1873, Mr. G. Fox	1575
Lady Louisa's Duchess 5th, roan, 1873, Mr. H. H. Brassey, M.P.	1312
Baroness Fawley 4th, rich roan, 1873, Mr. M. Staveley Hill	1522
Sweetheart, roan, 1873, Mr. T. Rigg	1522
Fourth Grand Duchess of Geneva, roan, 1873, Mr. R. Loder	10500
Surprise 3rd, red and white, 1873, Lord Faversham	1050
Baroness Fawley 5th, red, 1874, Mr. Robinson	630
Wellington 4th, roan, 1874, Rev. W. Sneyd	1565
Oxford Fawley 6th, roan, 1874, Mr. R. Loder	1182
Lady Hudson's Duchess 4th, red, 1874, Mr. Robinson	446
Lady Bates 2nd, rich roan, 1874, Duke of Devonshire	630
Fawley 15th, red, 1874, Rev. W. Sneyd	551
Thornedale Duchess 2nd, red roan, 1874, Rev. W. Sneyd	525
Surprise 4th, red and white, 1874, Mr. M. Staveley Hill	525

Bulls.

Young Knight, red and white, 1872, Rev. J. Storer	315
Charming Prince, roan, 1873, Mr. Larkworthy	425
Young Thornedale, red roan, 1873, Mr. Deuchfield	341
Duke of Kirkcubright, red, 1873, Mr. Godwin	348
March Duke, red and white, 1873, Mr. T. Rigg	262
Nestor, white, 1873, Mr. Bentall, Brecon	186
The Young Knight, white, 1873, Mr. Harey	268
First Lord, red roan, 1873, Mr. Larkworthy	1102
Wild Duck 2nd, white, 1873, Mr. G. Collard	761
The Royal Duke, roan, 1873, passed	
The Royal Prince, red, 1873, Mr. Larkworthy	735
White Fawley, white, 1874, Mr. A. P. Clear	236
The Friar, red and white, 1874, Mr. J. Thornton	304
Calliph, red roan, 1874, Mr. Staveley Hill	236

Summary.

28 cows and heifers	Average, \$1,427	Total, \$94,961
13 bulls and bull calves	421	6,467
41 head	\$1,102	\$45,481

Great Short-horn Sale at Lexington, Kentucky.

The sale of Messrs. Hughes and Richardson's Short-horns came off at Lexington, as announced, on the 22nd ult., and may be fairly classed as one of the most successful sales of thorough-bred stock ever made in Kentucky. Below we give the list of all animals sold for over \$500, with the price, name of purchaser, &c.:

Louan, of Elkhill, L. Combs, Lexington, Ky.	1055
Louan 5th, of Elkhill, J. H. Kiscener, Missouri	1100
Louan 6th, of Elkhill, John Burgess, Kentucky	875
Louan 4th, of Elkhill, William Obit, Kentucky	1100
Mazaruka, of Elkhill, John Nichols, Bloomington, Ill.	1525
Second Mazaruka, of Elkhill, F. B. Bedford, Paris, Ky.	929
Treble Duke, Belmont Bros., Winchester, Ky.	575
Mazaruka Belle, G. T. Bates, Washington, Mo.	1000
Mazaruka Belle, G. A. Gano, Kentucky	650

Woodbine 2d, W. Handy, Kentucky.....	575
Lady Newham 10th, F. Bates, Missouri.....	1005
Lady Newham 11th, F. Bates.....	1100
Lady Newham 6th, B. Groom, Winchester, Ky	650
Candidates Duchess 2nd, Gen. Meredith, Cambridge City, Ia	1425
Candidates Duchess 3d, Mr. Hamilton, Ind.....	725
Sidonla 2d, D. Kennard Lexington.....	750
Sidonla 4th, D. F. Dorsey, Ky.....	725
Sidonla 5th, Frank Behard, Paris, Kentucky	600
Goodly Two Shoes; Mr. Gilham, Logan County, Ill	1110
Grand Commander, L. Davison, Springfield Ky.....	600
Bertha, A H Hampton, Winchester, Ky.....	1640
May Lass 2nd, Gano & Hill, Kentucky	825
Wilda, Gen. Meredith, Cambridge City.....	1200
Red Duchess, J. T. Williamsoc, Thornton, Ind...	60
Lady Oxford, 8th, B. T. Dorsey, Ky.....	610
Lady Bates 3d, L. P. Muir, Paris, Ky.....	2150
Lady Bell, L. P. Muir, Paris, Ky.....	1525
Geneva Gwynne, L. P. Meers, Paris, Ky.....	1075
Oxford Gwynne, B. B. Groom.....	1000
Minna 3d, Dr. Whitney, Lexington, Ky.....	900
Minna, of Elkhill, a five months' calf, to William Vanmeter, Winchester, Ky.....	1905
Vestris, William Lowry Kentucky.....	825
Julietta, Gano Hill, Ky.....	800
Moss Rose 3d, James Kennard, Lexington, Ky	610
Moss Rose 2d, L. Combs, Lexington, Ky.....	810
Lady Seaham, of Elkton, Thomas Wendell, Lincoln, Ill..	560

A number of young bulls, and a few aged cows sold at prices ranging from \$200 to \$500.

Summary.	
64 females.....Average, \$277 00..... Total, \$40,528	
21 bulls.....".....220 00.....".....5,200	
88 head.....".....\$598 72.....".....\$51,803	

Short-horn Sale at Bloomington, Illinois

The first sale of short-horns under the auspices of the McLean County Stock-Breeders' Association, was held on the Fair Grounds at Bloomington on the 16th ult. The sale was conducted by Col. J. W. Judy, and the attendance of prominent breeders and others was large. Sales were made from the herds of J. W. R. Duncan, of Towanda, C. M. Niccols, of Leroy, and Josiah Chorn, of Towanda. The following is the sale list:—

HERD OF W. R. DUNCAN.	
Cows	
Rosamond 7th, red roan, 6 yrs., S. Meredith & Son, And. \$1025	
Cambria 1st, red, 6 yrs., Pickrell Bros.....	245
Cinderella's calf, 5 mos., Bloomington.....	115
Ada Leslie, red, 5 yrs., Pickrell Bros.....	410
Alva, red, 5 yrs., C. C. Parks, Waukegan.....	700
Cynthia 2d, roan, 3 yrs., N. Franklin, Lexington.....	240
Minnette 2d, red, 2 yrs., E. L. Hupp, Shipman.....	175
3d Queen of the Meadows, red, 2 yrs., N. Jones, Towanda.	225
Rosamond, 10th, red, 2 years, Geo Otley, Neponset.....	1500
Mazurka 34th, roan, 2 yrs., P. A. Coen, Washburn.....	1000
Senator's Miss Leslie No. 1, red, 2 yrs., P. A. Coen.....	515
Duchess of Oxford, r. & w., 4 yrs., H. Ludington, Milwaukee	425
Senator's Miss Leslie No. 2, red, 2 yrs., N. Jones.....	230
Cherub's Gem, red, 19 mos., J. H. Pickrell.....	1509
Miss Wiley 30th, red, 15 mos., J. H. Kissinger, Mo.....	950
Minnetta 3d, roan, 11 mos., E. L. Hupp.....	155
Lady Bates, red roan, 3 yrs., J. H. Pickrell.....	1500
Imp, Maid of Thornhill, red, 2 yrs., John Niccols, Bloomington	1100
Fannie Grigsby and calf, J. H. Pickrell.....	220
Fannie Grigsby 2d, E. Hicks.....	89
Bulls.	
Fidalgoo, r., 23 mos., Ed. Ryburn, McLean Co., Ill.....	\$300
Governor-General, roan, 1 yr., Win. Bullock, Secor.....	105
Young Professor, roan, 9 mos., R. A. Dunham.....	100
Bishop Leslie, red, 6 mos., A. Harrison & Son.....	109
Count of McLean, roan, 6 mos., W. S. Bullock.....	100
21 do.....".....N. Jones.....	95
Minnetta 2d's b. c., B. W. Tompkins.....	70
Summary.	
29 cows and heifers.....Average, \$815 50..... Total \$12,310	
7 bulls and b. calves.....".....135 70.....".....950	
27 head.....".....\$491 11.....".....\$13,260	
HERD OF JOSIAH CHORN.	
Cows.	
Miss Wiley 14th, red, 9 yrs., Wm Smith.....	\$815
Bright Eyes 17th, white and calf, 5 yrs., C. C. Parks.....	600
Caroline 4th, 6 yrs., C. C. Parks.....	530
Caroline 7th, red, 7 mos., C. C. Parks.....	375
Almira, roan, 9 yrs., Wm. Smith, Lexington.....	300
Medora 7th, red, 7 yrs., Mrs. A. P. Pickrell.....	505
Medora of Maple Grove, red, 4 mos., J. H. Pickrell.....	500
Meadow lark, red, 3 yrs., W. M. Smith.....	420
Highland Lady, red, 2 yrs., Pickrell Bros.....	205
Marietta, roan (not breeding), 9 yrs., S. Hicks.....	95
Maggie Prewitt, r. & w., 3 yrs., E. Hicks.....	90
Lucy Prewitt, r. & w., 2 yrs., E. Hicks.....	90
Maggie Prewitt 2d, r. & w., 4 mos., Mr. Hicks.....	65
Lily, roan, 2 yrs., S. M. King, Bloomington.....	145
Lily 2d, roan, 11 mos., P. Flannigan.....	160
Myra, roan, 2 yrs., W. F. Baird, Bloomington.....	130
Christmas Day, red, 8 yrs., Wm. Seigler.....	160
Queen of Maple Grove, r. & w., 3 mos., Wm. Seigler, Michigan, Ill.....	65
Perfection, red, 3 yrs., S. Houghton, Bloomington, Ill.....	170
Nettle 3d, red, 3 yrs., E. Hicks, Ill.....	109
Magnet, red roan, 2 mos., C. Jones, Cal.....	160
Sunnette, red, 4 yrs., N. Franklin, Ashland.....	170
Morgan Sunnette, red, 5 mos., E. Hicks.....	70
Bulls.	
Duke of Greenwood, red, 4 yrs., H. C. Quisenbury, Logan Co., Ill.....	\$215
Paragon of the West, red, 9 mos., Thos. Foster.....	110
Prince, red, 8 mos., J. Y. Calhoun.....	105
Ernesty, 1 yr., red, J. Waltham.....	160
Messenger, roan, 3 mos., J. Bishop.....	50

Summary	
23 cows and heifers.....Average, \$254 79.....Total \$5,860	
5 bulls and b. calves.....".....124 00.....".....620	
28 head.....".....\$231 42.....".....\$6,480	

HERD OF C. M. NICCOLS	
Cows.	
Sultana 2d, red and white, 9 yrs., Mr. Bosworth.....	\$325
Starlight Bloom, roan, 8 yrs., Thos. Shoethose.....	195
Duchess 7th, red and white, 7 yrs., apparently a sound udder, but has never given any milk, Wm. Noel, Paxton.....	500
Lady Paley 10th, red, 7 yrs., N. N. Jones, Normal.....	200
Laura Ann, red, 6 yrs., E. Hicks.....	200
Prairie Queen, roan, 5 yrs., N. N. Jones.....	175
Laura Ann 5th, red, 5 yrs., N. N. Jones.....	150
Enchantress, red roan, 6 yrs., D. Holder, Bloomington.....	120
Cam 20th, roan, 5 yrs., C. C. Parks.....	570
Geneva 3rd, red roan, 4 yrs., P. A. Coen, Washburn.....	950
Savannah 6th, red, 4 yrs., W. L. Bosworth Bloomington.....	650
Martha 5th, red, 4 yrs. (not breeding) E. Hicks.....	50
Maggie Stevens, red, 4 yrs., N. Franklin.....	225
Dainties, red, 3 yrs., Mr. Hicks.....	115
Myrtle, red and white, 3 yrs., B. Baird.....	80
Rose, white, 3 yrs., C. C. Parks.....	250
3d Duchess Louisa, red, 3 yrs., Robert Otley, Kewanee.....	2025
3d Louisa of Chesterfield, B. F. Funk, Bloomington.....	1000
6th Duchess Louisa, red, 9 mos., C. C. Parks.....	1325
4th Louisa of Chesterfield, red, 8 mos., C. C. Parks.....	180
Martha Muscaton, red and white, Wm Smith.....	200
Aldrio Maid, 2½ yrs., N. Franklin, Lexington.....	900
Mary May, red and white, Wm Smith, Lexington.....	550
Countess of Oxford, red roan, N. Jones, Towanda.....	190
Viola, roan, 1 yr., C. C. Parks.....	320
Princess, roan, 1 yr., Pickrell Bros.....	260
Savannah 7th, red roan, 1 yr., Mr. Bosworth.....	375
Camella, red, 1 yr., W. B. Jones, Towanda.....	70
Prairie Queen 2d, red, 1 yr., W. F. Baird.....	70
Fancy 2d, red and white, 1 yr., C. C. Parks.....	180
Duchess 11th, red and white, 10 mos., Wm Smith.....	425
Laura Ann 6th, red, 10 mos., A. H. Moore, Bloomington.....	175
White Rose, white, 6 mos., C. C. Parks.....	150
Prairie Queen 3rd, red, Jas. Bishop.....	115
Bulls.	
Marquis, red, 6 mos., M. Fisher, Tazewell Co.....	\$90
Pearl, red, 4 mos., W. H. Dooley, Bloomington.....	40
Red Bird, red, 3 mos., E. Hicks.....	55
Noble, red, 6 mos., N. N. Jones.....	55
Sultana's Napier, H. B. Karr.....	125
Summary.	
34 cows and heifers.....Average, \$411 76..... Total \$14,000	
5 bulls and b. calves.....".....71 00.....".....350	
39 head.....".....\$388 08.....".....\$14,350	
Aggregate of the three Herds.	
77 cows and heifers.....Average \$417 80.....Total \$32,177	
17 bulls and b. calves.....".....113 24.....".....1925	
94 head.....".....\$382 71.....".....\$34,095	

The Warfield Sale.

The joint sale of Messrs. Warfield, Davidson, Couch, Smith and Kinnaird came off at Lexington on the 23rd ult., and was in every respect a decided success. Want of space prevents us from giving the result in full. The following were the principal sales made:—

Cows and Heifers.	
Grace 4th, and calf, S. Meredith & Son, Cambridge City, Ind.....	\$1610
Louan of Waveland, Walter Handy, Kentucky.....	1150
Louan of Waveland 2d, Meredith & Son, Indiana.....	950
Mazurka 30th, 1 year old, S. Meredith & Son, Indiana.....	1775
Mazurka 37th, J. R. Shelly, Shannon, Ill.....	1250
Willis 6th, Robert Miller, Canada.....	410
Lady Muscaton, Jr. A. Talbott, Lincoln, Ill.....	440
Peachblow, S. Meredith, Cambridge City, Ind.....	400
Kate Fairfax, Mr. McGoodwin, Danville, Kentucky.....	410
Garcia 3d, J. R. Shelly, Shannon, Ill.....	420
Rose 9th and calf, J. R. Shelly, Shannon, Ill.....	1725
Nannie Sharp, John McCastle & Sons, Franklin, Ind.....	400
L'Illegree 12th, C. M. Nichols, Bloomington, Ill.....	1110
Reubenia 2d, Sol Van Meter, Lexington, Kentucky.....	600
Annie Page, J. T. Williamson, Kentucky.....	400
Gem of Grassmere, J. R. Shelly, Shannon, Ill.....	400
Princess Gwynne, 8 months old, S. Meredith & Son, Ind.....	925
Amelia Townley, B. P. Goff, Kentucky.....	200
Medea 4th, J. R. Shelly, Illinois.....	210
White Maggie 1st, B. B. Groom, Winchester, Ky.....	210
Hacilla 5th, S. Meredith & Son, Indiana.....	310
Alice 4th, J. Smith, Kentucky.....	360
Forest Queen 2d, Mr. McGoodwin, Ky.....	275
Atelia, S. Meredith & Son, Indiana.....	375
Maria Woods 4th, A. Hampton, Winchester, Kentucky.....	290
Adrienne 3rd, J. R. Shelly, Illinois.....	210
Mary Chilton 2d, William Bramlette, Virginia.....	360
Eva, L. P. Muir, Paris, Kentucky.....	250
Gold Elsie, J. W. Bass, Columbia, Mo.....	300
Garcia, J. R. Shelly, Illinois.....	420
Lavinia 3d, S. Spangler, Muscatine, Ia.....	340
Lucy 4th, J. R. Shelly, Illinois.....	240
Prarie 7th, W. H. McMurphy, Lincoln, Ill.....	325
Callie 4th, R. A. Talbott, Lincoln, Ill.....	275
Bulls	
Louisa Duke 3d, J. F. Jones, Clarke County, Kentucky.....	650
Luminary, Dr. Sprague, Des Moines, Ia.....	345
Alexander, William Ray, Lebanon, Ky.....	400

SALE OF J. V. GRIGSBY'S SHORT-HORNS:—At Mr. J. V. Grigsby's sale at Winchester, Ky., on the 25th ult., the highest price of the day was \$800 for Cambria 2d, sold to N. H. Robnett, of Columbus, Mo. The entire sale made an aggregate of \$9,810.

Sale of Messrs. A. and B. Vanmeter's Short-horns.

This sale came off at Winchester, Kentucky, on the 23rd ult., and resulted fully as successful as any of its predecessors. The cows and heifer averaged over \$600. Below we give the price of most of the females, with the name of purchaser, &c.:—

Oxford Beauty Duchess, D. B. Groom, Winchester, Ky..... \$1100
Julie Morton, G. W. Gaines, Ridge Farm, Ill..... 1700
Lan Logan 2d, S. Meredith & son, Indiana..... 480
Maggie Stone, J. H. Kissinger, Clarksville, Mo..... 1725
Miss Airden, C. Nicolls, Bloomington, Ill..... 610
Avalon Duchess, C. Nicolls, Bloomington, Ill..... 450
Duchess Cadenza, B. Groom, Winchester, Kentucky..... 1700
Geneva, Duchess of Avalon, C. Simms, Ill..... 1125
Grace Rose 4th, one of the Roses of Sharon, E. Cobb, Kan-lakee, Ill..... 1400
Mayflower, of Stoney Point, L. P. Muir, Paris, Kentucky..... 1725
May Rose, R. Spar, Lexington, Kentucky..... 925
May Rose, S. D. Spurr, Kentucky..... 925
Rosebud 2d, James Farr, Lexington, Ky..... 680
Red Ridinghood, Robinson Bros., Winchester, Kentucky..... 520
Isabella Sovereign, William Lowry, Lexington..... 1500
Kate Arnet, H. T. Thompson, Kentucky..... 650
Miss Margaret, S. Meredith & Son, Indiana..... 740
Irene of Avalon, J. H. Kissinger, Clarksville, Mo..... 1050
Roan Bell, A. Stratton, Ottawa, Ill..... 625
Nellie Wildwood, W. E. Simes, Kentucky..... 625
Beck 7th, C. M. Nichols, Bloomington, Ill..... 575
Beck 6th, C. M. Nichols, Bloomington, Ill..... 400
Beck 5th, C. M. Nichols, Bloomington, Ill..... 575
Beck 4th, C. M. Nichols, Bloomington, Ill..... 475
Beck 3d, A. Stratton, Ottawa, Ill..... 400
Calf a few days old, A. Stratton, Ottawa, Ill..... 335
Beck 2d, Mrs. William McCann, Lexington, Kentucky..... 475
Calf, Mrs. William McCann, Lexington, Ky..... 310
Illustration 2d, S. Meredith, Ind..... 360
Illustration, A. H. Davapont, Lexington, Ky..... 350
Mrs. Washington, S. Meredith & Son, Ind..... 610
Mrs. Washington 2d, Wm. Sudduth, Winchester, Ky..... 850
Gem 2d, H. Childs, Lexington, Kentucky..... 850
Pattie Lewis 2d, Hampton & Bush, Winchester, Ky..... 410
Hope 8th, James Farr, Lexington, Ky..... 410

LARGE SALE OF SHORT-HORNS.—D. M. Flinn, of Iowa, has recently sold 36 short-horns to S. W. Jacobs, West Liberty, Iowa, for \$10,000.

THE BOGUS \$14,000 BID.—“BELL'S MESSENGER” is authorised to give an explicit denial to the statement that Mr. Robbins had a commission from the Earl of Devoive to buy “Second Duke of Hillhurst” at Col. King's sale.

AT THE SALE OF Messrs. Warnock and McGibbon's Short-horns, Lexington, on the 28th ult., sixty-five cows and heifers made an average of \$520 each. We shall endeavor to give full particulars in our next issue.

SALE OF AN ESTATE IN THE NORTH.—Lord Clifford has purchased from the Earl of Dunmore the south part of Harris in the county of Inverness. The price paid is said not to be less than \$600,000. Mr. Scott, a London banker, purchased three years ago from the Earl of Dunmore the northern part of Harris for \$750,000.

“BELL'S LIFE” of July 4th says: Mr. Stafford having resigned the editorship of *Cootie's Herd Book*, a meeting of noblemen and gentlemen interested in short-horn breeding was held at Willis's Rooms on Wednesday, under the presidency of the Duke of Devonshire, and it was resolved to form a company for the purchase and publication of the book, the value of which is estimated at £5,000. At the same time it was agreed to constitute a society of short-horn breeders on the model of the Jockey Club.

THE BELGIAN AGRICULTURAL EXHIBITION.—This exhibition was inaugurated by His Majesty the King of the Belgians, who was attended by several officials in full uniform. His Majesty, who was well received, proceeded in the first instance to inspect the show of horses, which, taken altogether, was very good, one horse in particular, a beautiful dark bay gelding, which obtained the first prize. There were several splendid specimens of the old Flemish breed. Passing from the horses, His Majesty proceeded to inspect the various agricultural implements exhibited by Belgian and other makers, in all of which he took great interest. In the cattle department there were some splendid specimens of bulls. Sheep, rabbits, and poultry were also exhibited. Messrs. Ruston, of Lincoln, have obtained the first-class gold medal. Several other English firms have also obtained first-class medals. Altogether the exhibition has been a most complete success.

THE GRASSHOPPERS have now reached Columbus, Nebraska, and are rapidly moving eastward

A HEAVY HAIL-STORM recently did much damage throughout the fruit regions of Illinois

PRAIRIE GROUSE are said to be great devourers of the potato bug.

CATERPILLARS are denuding the fruit and forest trees of Indiana.

CALIFORNIA GRANGERS have started a bank with a capital of five millions of dollars

THE CINCINNATI brewers are buying large quantities of tobacco stems, but won't tell what for

IT IS SAID that the whortleberry crop is an immense one throughout Michigan during the present season.

THE CALIFORNIA GRANGERS have shipped their first vessel load of new wheat to Europe.

A GREAT EXCESS OF RAIN has fallen all along the Pacific coast, north and south of Panama this year

THE RIVERS from Assam to Oude in India have overflowed their banks, flooding the country and causing great damage.

A BREAK IN A CANAL near Glasgow (Forth and Clyde), is said to have flooded and damaged property to the extent of £500,000.

KENTUCKY is still suffering from drought. In some counties not a drop of rain has fallen since the first of May.

MOWING MACHINE ACCIDENT.—A boy aged eight years, son of Mr. Andrew Clark, Erin, had his right foot cut off by a mowing machine on the 16th ult

A CORRESPONDENT of the Scotsman states that the Tweed has not been so low since 1826, in which year the corn was so short in the stalk that it had to be pulled by hand.

FROGS have appeared in vast numbers at Lone Tree, Nebraska. The Courier says that hundreds are crushed by wagons on the streets, and that people cannot step without treading upon them

LAST year the farmers of Guthrie county, Iowa, burned their corn because they couldn't sell it. Now they travel miles to purchase it, and pay half a dollar a bushel for it to feed their horses.

THE TWENTY-SIXTH ANNUAL EXHIBITION of Domestic and Fancy Poultry and Pigeons, under the auspices of the Birmingham Agricultural Society, will be held at Bingley Hall, Birmingham, on Saturday, Nov. 28th, and following days. The aggregate of money prizes for the different classes amounts to a little over \$4,500, and the entries close on Saturday, the 31st October.

M. DECROIX, principal veterinary surgeon to the French army, states that the number of horses, mules and asses in Europe is 30,750,000. France not included. Russia figures for 1,800,000 head, Austria for 3,100,000, England for 2,666,200, Germany for 2,500,000, Turkey for 1,100,000 Spain for 650,000 Holland for 3,000,000, Belgium for 2,600,000, Switzerland for 110,000. France, including Algeria, possesses 4,000,000

CONSUMPTION OF HORSEFLESH IN PARIS.—The horse-butchers, during the first quarter of 1874, sold 2111 horses, mules, and asses for food. In 1872 the numbers were 1275, and in 1870, 950. The same progress is making in the provinces. The Society for the Propagation of the Sale of Horseflesh has just decreed a medal to M. Carder for his mode of preserving horseflesh. Some of this which was prepared by him in February 1871, and examined in April, 1874, was found to have presented every analogy to beef preserved by the best methods

THE BRITISH BEE KEEPERS' ASSOCIATION instituted in May last, for the encouragement, improvement and advancement of bee culture in the United Kingdom, particularly as a means of bettering the condition of cottagers and the agricultural laboring classes, as well as the advocacy of humanity to the industrious laborer, the honey-bee—will hold their first great exhibition of bees and their produce, hives, and bee furniture, at the Crystal Palace, on September 8, 9, and 10, being the days of the autumn fruit and flower show.

Breeder and Grazier.

Value of Skim Milk for Calves.

"Understanding," says a correspondent of the Livestock Journal, "that several experiments were to be tried to determine the value of skim milk for feeding calves, and that the calves were to be weighed each week, and the milk as fed to them each day. I have experimented with twelve different calves, No. 1 only a single week, but this calf had been previously fed upon skim milk, and shows what full feeding will do. The calves were weighed 15 hours after feeding. I send this as a contribution to these experiments:

	Calf. No.	Age, days.	Weight, lbs.	Milk, lbs.	Gain, lbs.	Milk to 1 lb. gain
1st week	1	16	140	249	20	12 15
"	2	9	65	124	8	16 "
"	3	7	19	148	14	10 37
"	4	6	63	132	10	7 30
"	5	6	80	104	2	52 14
"	6	7	73	152	15	10 14
"	7	6	69	137	4	31 25
"	8	9	72	134	4	8 50
"	9	11	109	123	10	12 30
"	10	9	79	139	11	14 1
"	11	3	74	147	11	13 36
"	12	15	99	105	9	11 66
2d week	2	16	76	163	17	9 39
"	3	14	81	165	10	16 70
"	4	14	75	183	15	12 20
"	5	13	88	139	17	9 33
"	6	14	82	169	12	14 98
"	7	11	64	129	2	60 88
"	8	16	76	117	0	91 66
"	9	15	85	152	13	10 23
"	10	16	81	149	9	23 33
"	11	16	85	102	7	14 57
"	12	23	105	158	9	17 55
3d week	2	23	94	169	9	17 77
"	3	24	93	188	10	18 80
"	4	20	90	137	15	9 23
"	5	20	102	174	8	26 17
"	6	21	100	149	10	14 90
"	7	21	106	136	4	34
"	8	24	82	139	5	27 80
"	9	26	100	139	19	8 12
"	10	23	87	104	2	59 50
"	11	17	92	165	8	20 62
"	12	30	105	131	9	14 55
4th week	2	30	102	113	14	10 21
"	3	28	105	139	5	21 41
"	4	27	109	170	14	12 13
"	5	27	113	164	10	16 10
"	6	28	119	189	17	11 12
"	7	28	79	169	1	160
"	8	30	87	134	8	16 75
"	10	37	89	120	2	69 66
"	11	24	100	139	15	8 66
"	12	37	114	115	4	28 75
5th week	3	35	105	175	11	12 30
"	6	35	123	156	8	19 50
"	7	35	71	113	7	20 12
"	8	37	95	120	6	20
"	10	38	91	95	3	31 66
"	11	37	115	129	4	39
"	12	44	117	130	8	16 25
6th week	5	42	141	226	10	115
"	8	44	101	105	3	35
"	10	44	94	159	4	36 59
"	11	48	119	142	6	21 41
7th week	5	49	146	283	24	11 70
"	8	51	104	150	13	14 43
"	10	51	98	169	12	15 33
8th week	6	59	179	299	8	25
"	8	58	117	160	11	14 71
"	10	58	110	190	2	90
9th week	5	63	175	250	20	12 50
"	10	65	162	129	6	40
10th week	5	70	193	279	9	21 22
"	5	77	207	250	12	21 60

Calf No. 2 ate 594 lbs. milk in 4 weeks, and gained 48 lbs., being 12 37 lbs. to the 1 lb. gain in live weight.

No. 3 ate 806 lbs. milk in 5 weeks, and gained 53 lbs., being 1 lb. live weight for 15.20 lbs. milk.

No. 4 ate 614 lbs. of milk in 4 weeks, and gained 54 lbs., or 1 lb. live weight for 11.75 lbs. of milk.

No. 5 ate 2,183 lbs of milk in 11 weeks, and gained 134 lbs. live weight, or 1 lb. gain to 16.56 lbs. of milk.

No. 6 ate 600 lbs. milk, and gained 54 lbs., or 1 lb. to 12 22 lbs. of milk

No. 7 ate 636 lbs., and gained only 18 lbs., or 1 lb. to 35 66 lbs milk. This calf got hurt

No. 8 ate 1,054 lbs. of milk, and gained 76 lbs., or 1 pound gain to 13.75 lbs. of milk. This calf never ate well, and does not indicate the real value of skim milk.

No. 9 ate 410 lbs milk in 3 weeks, and gained 41 lbs., being 1 lb. gain to 10 lbs milk. This calf on being dressed showed that it took only 11.83 lbs. milk to 1 lb. dressed veal.

No. 10 ate 1,125 lbs in 9 weeks, and gained 45 lbs., or 1 lb. to 23.73 lbs. milk. This calf was puny from the start, but was kept because the dam was so good a milker.

No. 11 ate 624 lbs milk in 5 weeks, and gained 13 lbs., 1 lb. gain to 14.51 lbs. milk.

No. 12 ate 639 lbs. milk, and gained 39 lbs., or 1 lb. to 16.39 lbs. milk.

The whole 12 calves ate 9,691 lbs. of milk, and gained 607 lbs. live weight, being an average of a lb. live weight to 15.96 lbs. of milk. If we estimate this live weight as worth 6 cents per lb., it amounts to \$36.42, or 37-hundredths of a cent per lb.; and if we add the live weight of all the calves but No. 1, (as they have no value before being fed), which is 802 lbs., making 1,409 lbs. after feeding, we shall have, at 6 cents, \$84 54, or nearly one cent per pound for the milk fed.

A second experiment was made with three calves to ascertain the pounds of skim milk required for a pound live weight. They were accurately weighed at the end of each week, with all the milk fed each day. They had new milk for one week before experiment began:

	Calf. No.	Age, days.	Weight, lbs.	Milk, lbs.	Gain, lbs.	Milk to 1 lb. gain
1st week	1	7	95	126	13	9 69
"	2	7	67	112	7	10
"	3	7	80	120	11	10 59
2d week	1	14	108	171	12	11 08
"	2	14	74	140	16	8 75
"	3	14	91	138	14	9 14
3d week	1	21	120	149	14	10
"	2	21	90	110	10	11
"	3	21	105	130	13	10 40
4th week	1	28	134	147	12	11 25
"	2	28	169	117	12	12 25
"	3	28	118	115	14	10 25
5th week	1	35	146	147	4	36 75
"	2	35	112	147	14	19 20
"	3	35	132	148	15	8 73

Calf No. 1 consumed 650 lbs. of milk, and gained 55 lbs., or 1 lb. live weight to 12.36 lbs. of milk.

Calf No. 2 consumed 686 lbs. of milk, and gained 59 lbs., being 1 lb. gain to 11 61 lbs. of skim milk.

Calf No. 3 consumed 677 lbs. of milk, and gained 67 lbs., or 1 lb gain to 10 10 lbs milk.

All three calves consumed 2,043 lbs. of milk in five weeks, and gained 181 lbs., averaging 1 lb. gain to 11 28 lbs. milk. If we estimate the gain in live weight as worth 6 cents per lb., or \$10 86, then I obtained more than one-half cent per lb. for skim milk, but the increase in the value of the calves was more than that.

A third writer says.—"I had two calves dropped March 15th. They were fed five days on new milk, then five days on skim milk. At five days old, No. 1 weighed 97 lbs., No. 2, 98 lbs. They were then fed for 23 days on 22 lbs. of skim milk each per day. No. 1 gained 43 lbs., No. 2, 39 lbs. At this age I sold them. Both calves consumed 1,012 lbs. milk, and gained 82 lbs., or an average of 1 lb. gain to 12.31 lbs. of skim milk. This makes skim milk worth nearly half as much as new milk brings in working up into cheese."

Death among the Bovines.

During the past few days, says the *Guelf Mercury*, there has been some suspicion caused among owners of cattle running at large from the fact that several cows have suddenly died, apparently from poison. Mr. Little, baker, has had two valuable cows running in this way for some time past, as good pasture was not easy to be had, and as the animals always returned home of themselves in the evening. On Saturday last, however, the most valuable of the two—worth about \$80—came home alone, acting very strangely and showing every symptom of having taken poison. Medicine was administered, but shortly after taking the dose the animal died. Search was then made for the other cow, and she was found down on the Waterloo Road unable to get home. She exhibited the same symptoms as the other one; her spine gave evidence of weakness and the hind legs had lost their strength. On being urged homeward the animal would fall at times from utter exhaustion. After considerable time she arrived home, where Mr. Little gave her nourishing food, and she revived somewhat, and now seems likely to recover.

On Saturday night or Sunday morning, a cow belonging to Mr. Ralph Gore was found lying dead near the mill shed. We also learn that Mr. O'Connor, who lives in the west ward, has lost a cow. About a week ago Rev. Mr. Ball's cow died suddenly, but whether from poison or not there is no means of determining. Mr. John Hewer, tavern keeper, lost a valuable cow on Tuesday morning. She had been pastured in a field near Piesant's mill, and on Monday evening was driven home as usual, but on the following morning was found dead. Death is supposed to have resulted from eating Paris Green.

It is more than likely that these deaths have been caused by eating weeds and potato stalks which had been thrown out of gardens, and which have been sprinkled with Paris Green for the purpose of destroying the potato bugs. To prevent the repetition

of similar occurrences, there are two courses open; let the owners of cattle keep them at home if possible, and thus avoid any danger; or let the keepers of gardens be careful in throwing danger in the way of the bovines, by tempting them with poisoned esculents. If this is not done, we may expect to hear of more cases of this kind.

Grapes for Hogs.

The *Ohio Farmer* mentions Mr. R. A. Hunt of Euclid, Ohio, as having fed his hogs on culled and rotten grapes from his vineyard, that they did as well as if fed on corn, and that they ate the grapes with a relish truly wonderful; indeed, so passionately fond of fruit did they become, that corn would be left when grapes could be reached. The swine grew fat very rapidly, and made most excellent pork. Cows will also eat grapes, he says, either rotten or sound, and appear to do well upon them.

We might have concluded without a test that grapes would be an excellent food for fattening animals. The fattening properties of corn arise from the large percentage of starch or carbonaceous food it contains. The sugar of the grape is carbonaceous food in a more soluble form, and more easily digested and assimilated. Thus if grapes were not too expensive, they might be used with great effect in fattening swine or cattle. It was Liebig's opinion that starch turned into sugar in the process of digestion, and here we find starch advanced to the sugar stage, and ready for assimilation. The sugar of all kinds of fruits has a rapid effect in laying on fat. Sweet apples, pears and pumpkins are well known as rapid fatteners. We think an acre of fruit will lay on more pounds of fat than an acre of corn, and that farmers could afford to raise fruit simply as food for animals.

Walking Horses.

One of the most desirable and valuable gaits for a horse is a walk, and it should be the aim to first develop this gait in the handling of the colt. The good walker will always make good time on the road when a day's journey is to be made, without wearying himself, while the slow moper must be constantly kept on the trot if time is to be made. A horse that will walk five miles per hour will go as far in a day, confined to this gait, as an ordinary horse can be driven when kept half of the time to the trot, and with much greater ease to himself. If one-half the pains were taken by farmers' boys to make fast walkers of the youngsters on the farm that is usually taken to make them trot, the result would be much more beneficial, and we would find plenty of teams that could do their five miles an hour with ease. But instead of this, as soon as the colt is bridled, the sole aim of "the boys" is to make a trotter of him, and both gaits are spoiled.

Make the colts walk, boys; make them extend themselves in a long, sweeping, square walk, and don't be satisfied with anything less than five miles an hour. When he gets to trotting he will go all the faster for this preliminary training to the walking gait, and if he cannot trot fast enough to beat Dexter, or Goldsmith Maid, or Occident, he will have a gait that is invaluable for business purposes. We hope to see more attention paid to fast walking than heretofore, and we respectfully urge upon agricultural societies the importance of offering liberal prizes for walking horses at the fairs for the coming year.—*National Live Stock Journal*.

Watering Horses After Meals.

A full drink of water immediately after being fed, should never be allowed to horses. When water is drunk by them, the bulk of it goes directly to the large intestines, and little of it is retained in the stomach. In passing through the stomach, however, the water carries considerable quantities of the contents to where it lodges in the intestines. If, then, the food of horses' stomachs is washed out before it is digested, no nourishment will be derived from the feed. In Edinburgh, some old horses were fed with split peas, and then supplied with water immediately before being killed. It was found that the water had carried the peas from fifty to sixty feet into the intestines, where no digestion took place at all.

Mr. Cassie is quite correct in the views set forth regarding the injurious effects of large quantities of water swallowed immediately after eating. A small quantity of fluid swallowed along with, or immediately after dry food, beneficially softens it and assists in its subdivision and digestion. An inordinate supply of water, or of watery fluid, on the other hand, proves

injurious. It dilutes unduly the digestive secretions; it mechanically carries onward the imperfectly digested food, and thus interferes with the proper functions of the canal and excites indigestion and diarrhoea. These untoward effects are especially apt to occur where horses freely fed and too liberally watered, are shortly put to tolerably quick work. There is no more infallible method of producing colic, diarrhoea, and inflammation of the bowels. The horse is not peculiar in this effect; dogs, and even their masters, similarly suffer from copious draughts of water immediately after eating much solid food.—*N. Y. Herald*.

MR. RICHARD PRATT, of the township of Scott, county of Ontario, in 1873 clipped 102 pounds of good saleable wool from 12 Leicester sheep, being an average of 8½ pounds from each sheep. This year the same gentleman clipped from 16 sheep of the same breed 156 pounds of fleece wool, being an average of 9¾ pounds for each sheep.

A CORRESPONDENT of the *Ohio Farmer* says that a neighbor who for several years past has practised scattering a small quantity of ground plaster (gypsum) behind his cattle, after bowing them up for the night, for the purpose of absorbing their urine, informs him that he has found the manure much more fertilizing than it was previously to his adopting this plan for saving the liquid voidings of his stock. The plaster not only saves the liquids, but retains the ammonia in the manure heap.

A PHILANTHROPIST COW.—The *Tuolumne (Cal.) Independent* says: Mr. D. McCormick, of Sonora, has a little cow which will weigh about 300 pounds, but her motherly instinct is largely developed, as the following will show: Last week Mr. McCormick had occasion to wean a pig from its mother, and it was about this time it was noticed it sucked the cow—and they both seemed to take up with each other in the most affectionate manner—the little fellow standing in his hind legs to get his regular meals. A few days after a litter of six pigs were weaned, and they, too, "fell in" for their "rations"—making seven that never miss a meal, although they cannot all eat at the first table. This is recorded as being one of the many singular things in nature.

Veterinary Department.

Diseases of the Horse's Eye.

Cataract.

A very common result of periodic ophthalmia is a disease known as cataract, which consists in opacity of the crystalline lens, or its capsule, which prevents the passage of the rays of light, and either partially or completely precludes vision. Cataract is the result of periodic ophthalmia generally, but it may occur independently of any previous inflammation. We can point to several cases of cataract in horses in this city where we are perfectly confident the disease was developed without any inflammatory action taking place. A cataract may be further defined as capsular or lenticular, or *capsule lenticula*, according to the situation of the opacity, or involving the lens, its capsule, or both lens and capsule, and these may be called true cataracts, in contra-distinction to a deposition of lymph in the posterior chamber close to the crystalline lens, and which has been designated a false or spurious cataract. Symptoms. If the cataract is large, it is easily detected by its pearl white appearance, and according to its size and situation, there is either part or a complete loss of vision. In some cases the pupillary opening is dilated, presenting an amaurotic condition, whilst in others it is contracted, the latter condition of the pupil is usually seen when the cataract is small. A small-sized cataract in some instances is difficult of detection, and in the examination of the eye might easily be overlooked. In all cases, if the eye appears unnaturally small and the pupil contracted, it is a suspicious symptom that something is amiss, and a more thorough examination should be made. This is best done by placing the horse in a darkened stable for a short period, and then bringing a lighted candle near to the eye, when any alteration in the structure of the lens can be noticed, and the action of the iris may be observed. We do not purpose recommending any mode of treatment for this disease, as it cannot be removed without an operation which is altogether inadmissible in the horse for various reasons, although beneficial in the human subject.

Amputation of the Leg of a Heifer.

Mr. J. Barton, Bu. kland, Dover, has favored us with a short description of a case of a heifer, in which he successfully amputated one of the fore limbs. The animal met with an accident by which a compound fracture of a most serious kind was caused. The limb had to be amputated above the knee joint. The case went on well, the heifer being soon enabled to lie down and to rise with a facility almost equal to any other animal. About five weeks afterwards she had gained as much flesh, and was in such good condition as to enable her owner to sell her with good advantage to a butcher.

Balky Horses.

The Society for the Prevention of Cruelty to Animals puts forth the following rules for the treatment of balky horses, which will bear reproduction:

1. Pat the horse upon the neck; examine the harness carefully, first on one side and then on the other, speaking encouragingly while doing so; then jump into the waggon and give the word to go; generally he will obey.
2. A teamster in Maine says he can start the worst balky horse by taking him out of the shafts and making him go round in a narrow circle till he is giddy. If the first dance of this sort doesn't cure him, the second will.
3. To cure a balky horse, simply place your hand over his nose and shut off his wind until he wants to go, and then let him go.
4. The brum of a horse seems to entertain but one idea at a time; therefore continued whipping only confirms his stubborn resolve. If you can by any means give him a new subject to think of, you will generally have no trouble in starting him. A simple remedy is to take a couple of turns of stout twine around the fore leg, just below the knee, tight enough for the horse to feel, and tie in a bow knot. At the first check he will probably go dancing off, and after going a short distance, you can get out and remove the string, to prevent injury to the tendon in your further drive.
5. Take the tail of the horse between the hind legs, and tie it by a cord to the saddle-girth.
6. Tie a string around the horse's ear, close to his head.

HOW THEY GET A HORSE UP.—When a horse falls down, fourteen men put their hands in their pockets and ask each other why they don't do something. Fifteen other men advise the driver until he is half mad, and two small boys stand by, with their hands clasped, and an expression of determination written on every lineament. Then several men ask why somebody don't hold his head, until one old gentleman volunteers to hold it. He steps forward calmly, bends over the prostrate animal and puts one hand gently on his ear. The horse, getting tired, raises his head suddenly, the crowd laugh, and the old gentleman seems to take no further interest in the proceedings. Then the horse, having had all the fun he can have, rises like a tidal wave, and the crowd disperses.—*Forest and Stream*.

HOW TO DESTROY WARTS IN HORSES.—When the growth of the wart proves of the fixed cartilaginous kind, no time should be lost in its removal. The excrescence should be thoroughly excised, being sundered at the base. Some bleeding will follow; this may be readily promoted by having at hand a saucer of water boiling on a small fire. Into the heated liquid a budding-iron should be placed, by which means sufficient heat is obtained to stimulate the open mouths of the vessels when the instrument is applied to the bleeding surface, without any danger being incurred of destroying the living flesh. The next best remedy is the use of caustic. Strong acetic acid, only to be obtained as aromatic vinegar, is the mildest caustic; the next in strength is butter of antimony, after that ranks nitrate of silver, or lunar caustic, and lastly sulphuric acid, made into a paste with powdered sulphur, and applied by means of a flat piece of wood. Any remedy used will require time, in proportion to the mildness or strength of the means employed. Ligatures are objectionable because the process is slow, the pain continuous, and the ligatures become filthy. The wart, when large, is liable to turn putrid before it falls off, when small, the slight projection and breadth of base renders a ligature impossible.—*Turf*.

The Apiary.

Successful Bee-keeping in a Nut-shell

The great secret in successful bee-keeping consists in knowing how to keep all stocks strong, or having them strong, with brood in all stages, nursing bees and outside laborers, at the commencement of the honey harvest. To illustrate this we will suppose that A and B both have the same resources in their respective localities, or we will say that they both reside in the same locality, and their honey harvest commences on the first of June. The last half of July and the first half of August there is no forage for bees, but June and the first half of July are good, and the last half of August and the month of September are good. A commences in spring to stimulate, equalize, etc., and replaces all other queens, or queens that do not come up to the standard of fertility, with young, prolific queens, allowing but little increase—that is, provided surplus honey is the object. Here I would remark that with young prolific queens, and with abundance of room, there is very little danger of increase. On the first day of June, when the harvest commences, he has every stock completely filled with comb, brood in all stages, nursing bees in abundance, less than sixteen days old, and they are in the very best possible condition to commence storing surplus honey immediately. Then during the scarce time in the last half of July and first half of August, he stimulates and keeps up the fertility of the queens until the harvest again commences, in the middle of August. His bees are then ready to commence storing surplus honey again as soon as the harvest commences. The consequence will be that A receives a profit in surplus honey, pronounces the season a good one, and is well satisfied that bee-keeping pays.

On the other hand, B commences with the same number of stocks, in the spring lets them manage themselves, and on the first day of June they are not in condition to store surplus, or at least but very few of them, and those few he allows to swarm themselves to death, or what amounts to the same thing. When the honey harvest commences, his stock commence breeding very rapidly, and by the time they get in condition to store honey the harvest is done, or nearly so; for it takes twenty-one days to hatch out a worker, and sixteen days more, or thereabouts, before they commence laboring outside. Now the scarce time comes on again, and B has no surplus honey, but perhaps has a number of extra swarms, the queens stop breeding or nearly so, especially if the forage is nearly dried up or cut off, and when the harvest commences in the middle of August, his stocks, instead of being in a condition to commence storing, have to go to raising brood again to replenish their stock of workers, for recollect that the brood hatched in June and July is very soon used up with old age, for the life-time of a working bee is only from six to eight weeks. Now, you can readily see that B's stocks are expending all their force and energy to replenish numbers again, and by the time they are ready to commence storing the harvest is past, and B has many quantities of stocks that he has to feed in order to carry them through the winter, or he has to double up stocks, etc., and when he comes to sum up the season's operations, he has received no surplus of honey, and his surplus stock, or a large portion of them, have either to be fed or doubled up in order to winter them. His conclusion is, that the season has been a poor one for bees. He has certainly had bad luck, and he is ready to attribute his luck, as he calls it, to anything but to his own neglect or carelessness as regards the season has been a poor one for bees or his climate is not adapted to bee-keeping, etc. A., with his management in the same locality mind you, has had good luck, as it is called, his stocks are in excellent condition for wintering, no doubling or breeding in winter being required, as he has fed at the proper time to feed, for I hold it to be a fixed fact that spring and summer is the proper time to feed. Keep your bees in the right condition to store honey, and when the harvest comes they will store it. There may be seasons and localities where bees have to be fed in winter, but I never have seen such when they are properly taken care of in the summer. The whole secret of successful bee-keeping is contained in the above nut-shell.—*Flouha Gallup, before American Bee-Keepers' Association.*

The Sale of Honey.

Has it never occurred to your mind that one very important branch of the honey interest has been strangely neglected; i. e., its sale? To me it seems unaccountable that this part of the business has received so little attention. I have been more impressed with this fact since reading, recently, the circular of a dealer who says that when he commenced business eight years ago honey was a drug in the market, with no quotable value, and since he has taught the people how to use it, its production and consumption has increased tenfold, etc. While it is not necessary to endorse his statements, they go to show how shamefully neglected the honey market has been when people's ignorance of it will permit such an assumption. It is said that the pickles, etc., produced by Cross and Blackwell have made an hundred millionaires, and that Bass's ale has made an army of rich men, and yet here is an article, a taste for which does not have to be cultivated, but is liked by almost every man, woman, and child because of its genuine toothsome qualities, whose sale one man can dare to claim a monopoly.

We want more "exclusive" dealers, if one man can do so much, why shouldn't the exertions of a thousand rebound to the apianian's interests. Surely the old adage holds true in this case, that "there are as good fish in the sea as were ever caught." Honey is an article of merit, and should command not by for a price. *Cur Bee Keepers' Magazine.*

A GOOD RECIPE FOR FEEDING BEES.—Take at the rate of five pounds of refined or white sugar, two gallons soft water, one tablespoonful of salt, ten grains cream tartar; put all together, bring to a boil, skim, and when cold add eight ounces pulverized slippery elm bark, or fine oatmeal, stir it well, then feed it in the hive. During the summer use but four pounds of sugar.

POISONOUS HONEY.—A large swarm of bees having settled on a branch of the poison ash—*Rhus Vernix*—in Westchester Co., N. Y., was put into a hive and removed to the stand where it was to remain. Next morning the bees were dead, swelled to double their usual size, and turned black. A few were alive, yet torpid and feeble, and died soon after exposure to the air. This was attributed to the poisonous effluvia of the ash upon which they remained for a short time.—*Nicholson's Journal.*

BUTLER'S "FEMININE MONARCHIE."—This work on bees was published in Oxford, Eng., in 1631. As a specimen of the English language at that period, we give the following extract, verbatim. He is speaking of robbing—"But not any one of these, nor all these together, doo half so much harm to de bees, as de bees. Dey mak de greatest spoil bot of bees and of hoomie. Dis robbing is practised all de year. In winter soom will bee prowling abroad; and soom are so teevishly inclined, dat all de soomer long, when abundance of hoomie is every wcr to be had, dey will get bee filcing, dowg (though) dey die for it."

INSECT LIFE.—Insects must generally lead a jovial, happy life. Think what it must be to lodge in a hly! Fancy a piece of pearl and ivory, with pillars of silver and capitals of gold, all exhaling such a perfume as never arose from a human censer! Imagine the fun of tucking themselves up for the night in the folds of a rose, rocked to sleep by the gentle sighs of the summer air, nothing to do when they awake, but to wash themselves in dew drop, and eat their bed clothes for their breakfast. Then take a stroll—or rather a fly—in the bright, blue ether, and frolic and play with their companions!

A GREAT TAKE OF HONEY. A tree was felled the other day at sandy creek, Wa. ggs. Wagga, for the purpose of procuring honey, which it was known had been collected there by a rather large swarm of bees. When the tree was cut down, there was found in the hollow one of the most astonishing collections of honey ever known, or that probably has ever been gathered by one swarm of bees. There were several immense layers of comb, ten feet in length, and of great density, extending along the inside of the trunk, and almost clothing the hollow of the tree entirely. After it had been carried home (having been wasted considerably by the fall of the tree and the primitive mode in which it was collected) the comb yielded over 200 lbs. of the purest quality.—*Melbourne (Austr.) Argus.*

Poetry.

The Rain.

The country sadly wanted rain,
It had come none too soon.
O' droutht the farmers did complain
Till nigh the end o' June
We hadn't scarce had nare a drop
Not since the fast o' May,
And things looked ugly for the crop
O' turnips and the hay.

The dry wind like a stubborn beast,
To move too fat and big,
For days together, north and east,
Stuck stiff as a pig.
And when a' shifted fur a bit,
In West or South to bide,
The sky sim'd cloud-bound; could but spit,
What times to rain it tried.

For want o' wet the grass runs short,
And fodder 'ool be dear,
Unless we be a gwain' to cart
An arter-math this year.
O'er early pass was parched w' sun,
O'er early 'tatured late
Two-thirds I mark'd there wuzunt none
Fur loonatics to eat.

No frogs nor slugs nor snails about,
Which they bloushes devour
But now the molitur' brings 'um out,
As well as yarb and vlover.
I loves to see 'um creep and crawl,
Though mischiefull they be,
To stand and watch the gurt drops fall
A cumfurt 'tis to me.

Well plazed I hears the thunder crack,
And sees the lightning play
Athure the sky all plichy black
A pepperum' hardy.
About the thipity fields I thinks
To harvest w' an eye,
Consider n'ow at last they drinks
So long that wuz a dry.

I hopes, though, that o' storms and showers
We shan't get more than due
"It never rains but what it pours."
Med them words not come true
Med it rain hard enough to grow,
Not lodge, the bladed corn
Doan't let Saint Swithun prove a foe,
By 'in by, to rick and barn.

Such is my thoughts when I survey
Thim clouds adust 'is towers,
Like mountains, or I sometimes says,
Like monstus colly flowers,
But no was yct for many a drench
The land wun't be, no fear?
Meanwhilst, our own thirst what's to quench?
Let's try the effect o' beer.

—Punch.

Miscellaneous.

The Hardship of Work.

Murat Halstead, one of the most practical of American journalists, gives as his recipe to make a capitalist—Sixteen hours of work per day for sixteen years; and it may be considered infallible. The good, indefatigable worker is sure, some day, to become a capitalist, to a greater or less extent. All our great men are great workers. No man ever achieved eminence who commenced by reducing his hours of labor to the smallest number per day, and no man ever worked very hard and attained fortune who did not look back upon his working days as the happiest of his life. The fact is, work is the best thing we have got, and the more we can do the better it is for us; not in a money point of view alone, but from a moral and intellectual point of view. Work is not a hardship, it is the want of it that is the hardship. How good work is to us! how many good things it brings us! It lightens our griefs, soothes our disappointments, and brightens the darkest day as nothing else can. It gives us home, friends, good things to eat, clothes to wear, pleasant objects for the eye to rest upon. It makes us able to gratify the wishes of those nearest and dearest to us, and it constantly makes the world better to look at, better to live in.

Let us magnify work then, love and honor work, not whine over it and complain of it. Let us sing its praises, rejoice over it, and show our real appreciation of all it is and all it does for us, by doing our share of it well, by putting the best that is in us into our work, and leaving it as a memorial of which, we shall not be ashamed.—*Hearth and Home.*

Driving his Olover to Market.

From a late number of the *San Francisco Bulletin* we extract the following:

Jackson Wilcoxon of Yolo county lately sold 120 fat steers, for \$50 a head. We met him while driving about one-third the first instalment to Sacramento. The purchaser received them at Wilcoxon's farm, but Mr Wilcoxon helps to drive them to Sacramento, where they will be put on the cars for Oakland. The cattle bring the seller the nice little sum of \$6,350, and the delivery will cost him three trips to Sacramento on horseback. In these three Mr. Wilcoxon was driving his alfalfa to market. He has for the last ten years been raising alfalfa, and driving it to market in this way. His trips to Sacramento will probably cost him about \$5 each, making the expense of getting \$6,350 worth of alfalfa to market but \$15. If we reckon his alfalfa at \$10 a ton, the steers will carry in a condensed form 635 tons to market, at a cost of \$15. It would have cost to deliver the same in its original bulky condition, at least \$5 per ton, or \$3,175, half what the steers came to. We mention the fact as an illustration of the great advantage of reducing bulky materials produced on the farm to a more compact form before marketing the same; and another consideration, while these steers have been growing up they have been enriching and improving the land from which they have obtained a living. The man who sells his hay in bulk, carries away with each crop a part of the fertilizing properties of his farm, and will finally exhaust that fertility which alone makes it valuable. Let our farmers reflect on the lesson conveyed in the above facts.

A novel Cheese Show.

The literary public of the old college town of Hudson, which is in the county of Summit, State of Ohio, was advised that Will Carleton, the author of "Farm Ballads," &c., would have something to say on Saturday night. The author of "Farm Ballads," &c., is very popular with the lecture-going people of Hudson, so they all determined to give him a rouser. As the lecturer was to speak upon domestic themes, it was thought best by the committee, out of compliment to the subject and the leading industry of the place, to make a splendid display of our leading domestic product. Accordingly, as there were no chairs in the hall, it was seated with a thousand large-sized cheese boxes, tastefully arranged in quadruple rows; the platform was garnished in like manner; and to cap the climax of domestic appropriateness, a pyramid of solid old cheese was improvised for a table, and a seat for the speaker and officers of the evening; also for the band. This arrangement gave a peculiar pungency to the atmosphere in that part of the hall, and was suggestive of sharp ideas and strong sentiments. At the appointed hour the lecturer stepped lightly upon the platform. At the conclusion of his lecture the speaker responded to a deafening encore by repeating the following poem, which has never before appeared in print:

OUR DOMESTIC INDUSTRY.

Let landmen talk of mountains high,
And sailors talk of seas,
But listen unto me, while I
Talk of your Hudson cheese.

The cows which roam the pastures free
Are competent for these,
Oh! how my eyes delight to see
Such mighty stacks of cheese!

And so in all their breadth and length,
Mellifluous as bees,
Arrayed in beauty and in strength
These golden disks of cheese!

And I shall go, a wiser man,
From sights and smells like to you,
And carry back to Michigan
The boom of Hudson cheese.

Causes of Dew.

If dew fell, it would fall for the same reason that rain falls; but dew does not fall—it is simply a deposit of moisture, always contained in the air to a greater or lesser degree, and which, when there is enough of it, will always form on any cold body exposed to the moist air, in precisely the same way that a cold bottle or stone, taken from a cold cellar and suddenly exposed in the shade to the moist, warm summer air, will become wet. This is not sweating, nor does the moisture come out of the bottle or stone, as many people believe, but from the air. It is for the same reason that moisture will condense against the window panes when the air is cold outside and moist inside, the moisture slowly freezing, while its deposits form crystals of ice, which we so

often admire in winter. When the weather is cool enough, the moisture deposited will even freeze on plants and grass, and then we call it hoar frost; if it does not freeze it is simply dew. The only point left to be explained is, why does the ground become so cool during the night, so much cooler than the air above it as to cause the latter to deposit its moisture? This was for many years a vexed problem, till Wells first suggested the radiation of obscure heat, which takes place from the surface of the earth through the clear atmosphere in the space above, and so causes the surface to become much cooler than the air itself. He demonstrated this by means of thermometers placed at different heights, and also by the fact that dew is only deposited on cloudless nights. When there are clouds, they reflect the heat, or prevent it from escaping. The surface of the earth thus being kept from cooling, no dew is deposited. *Manufacturer and Builder.*

THE farmers are the founders of civilization.—*Daniel Webster.*

THE IRRIGATION WORKS of India are so extensive that in the fourteen districts of the Madras Presidency there are 43,000 native tanks with 30,000 miles of embankments.

A SINGULAR EXHIBITION is to be opened in the Palais d'Industrie, at Paris, on September 15, of all the useful insects and their products, and of the noxious insects and the depredations they commit.

A DOG AND RABBIT FRATERNISING.—In the village of Kennoway, in Fife, a shoemaker, named James Dallas, has a dog and a rabbit living in close companionship. The rabbit, which was brought when young from a field and reared up with the dog, is his favorite friend. They lie together on the hearth, and the fantastic gambols of the rabbit seem to please the dog. A piece of bread cast at the one is invariably shared in by both.

TO CLEAR A ROOM OF MOSQUITOES.—Take of gum camphor, a piece about one-third the size of an egg, evaporate it by placing it in a tin vessel and holding it over a lamp or candle—taking care that it does not ignite. The smoke will soon expel the mosquitoes. One night, not long since, I was terribly annoyed by them, when I thought of and tried the above, after which I neither saw nor heard them that night, and next morning there was not one to be found in the room.

A RED BUG, not half as large as the potato bug, says the *Waynesburg Republican*, is beginning to make its appearance in the potato tops, and is a deadly foe to the Colorado bug. We are informed that these new bugs follow up the potato bug and finally drive them out by destroying their eggs. They can now occasionally be seen in the potatoes and should not be harmed, as by examination of eggs deposited by the old striped backs, it will be seen that the embryo has been extracted therefrom, and only the shell of the egg is remaining.

A VORACIOUS OX.—A flesher, at New Maud, in opening up the carcass of a four-year-old ox the other day, says the *Bunfshir Journal*, found in the animal's stomach a very miscellaneous assortment of articles that must have proved rather trying to its digestive organs. First there were found the enormous number of 108 stones of various sizes, the largest weighing 4½ ounces. There were also found two pieces of what turned out to be parts of a glass bottle, the edges of which were worn quite smooth by the action of the gastric juices, and probably friction amongst stones. The rest of the contents were of a varied kind, such as iron nails, and other small articles that had been probably picked up in grazing.

RAIN AT THE ANTIPODES.—The earth, on our part of it, is dry and parched, but the Australian mail brings accounts of plenty of rain on the other side. At Melbourne as much as 10 5/4 inches had fallen this year up to the middle of April, the average for the period being only 6 4/10 inches. Five inches of rain fell in a fortnight in March. People on their way to the new Palmer diggings in Queensland were shut in between swollen rivers, unable either to proceed or return. They killed their horses for food, and were in danger of starvation. When the first steamer made its way up, a number of miners thus delayed at Cooktown got on board, unshipped the staging, cut off communication with the shore, and "rushed the steamer for a free passage." Constables were procured, but it was only after a long struggle that the ringleaders were arrested and order was restored.—*Times.*

OATMEAL AS A PREVENTATIVE OF SUNSTROKE.—Sunstroke may be prevented by mixing oatmeal with the drinking water of persons employed in out-door labor or in heated exposures, and cornmeal with the drinking water of horses. In New York city these simple preventatives are used on all the public works, and by most, if not all, the street railroad companies. The meal water soon becomes very palatable. Both man and beast will go through a hot day's work with more strength and comfort than by the use of simple cold water, the imprudent use of which so often causes sickness and death. Contractors would find it a paying investment to furnish their workmen with oatmeal water, and the same may be said of street railroad companies in regard to their poor, over-worked horses. Oatmeal water will add very much to their capacity of endurance, and save many a horse from dropping off prematurely.

HUMMING BIRD'S UMBRELLA.—In front of a window where I worked last summer was a butternut tree. A humming-bird built her nest on a limb that grew near the window, and we had an opportunity to watch her closely, as we could look right into the nest from the window. One day there was a very heavy shower coming up, and we thought we would see if she covered her young during the storm; but when the first drops fell she came and took in her bill one of two or three leaves growing close to the nest, and laid this leaf over so that it completely covered the nest; then she flew away. On looking at the leaf we found a hole in it, and in the side of the rest was a small stick that the leaf was fastened to or hooked on. After the storm was over the old bird came back and unhooked the leaf, and the nest was perfectly dry.—*Am. Sportsman.*

GREAT OLD OAKS.—The Wadsworth oak, at Genesee, N.Y., is said to be five centuries old, and twenty-seven feet in circumference at the base. The massive, slow-growing live oaks at Florida are worthy of notice on account of the enormous length of their branches. Bartram says: "I have stepped fifty paces in a straight line from the trunk of one of these trees to the extremity of the limbs." The oaks of Europe are among the grandest of trees. The Cowthorpe tree is seventy-eight feet in circuit at the ground, and is at least 1,800 years old. Another, in Dorsetshire, is of equal age. In Westphalia is a hollow oak which was a place of refuge in the troubled times of mediæval history. The great oak at Saintes, in Southern France, is ninety feet in girth, and has been ascertained to be 2,000 years old. This monument, still or recently flourishing, commemorates a period which antedates the first campaign of Julius Cæsar.—*Science Monthly.*

SENSIBLE.—Despise not the town, oh man of gaiters, corduroys, and short cut-away, whose face is stereotyped into perpetual jollity by Nature's wholesome merry hand, whose talk is of Swedes, superphosphate and red Lammas; nor do thou despise the country, oh frock-coated, sleek-hatted, umbrellaed town-dweller, whose face is blanched and thoughtful, and mayhap a little wrinkled, and whose talk is of prices current, scrip, cargoes, and consols. For you are each other's customers and brothers; the iron artery of locomotive traffic, and the electric nerve of flying thought, have brought you into a new and closer bond of reciprocity and fellowship: it matters little at which end of the wire your place and life task are appointed; your hearts and heads were cast in the same human mould, and it is hard but such a tie as now unites their throbs and thoughts shall strike out some results and combinations that you scarcely dream of yet, from the twin realities of agriculture and commerce.—*Chronicles of a Clay Farm.*

THE FISHING FROG.—Writers on natural history describe a hideous reptile known as the fishing frog, which angles for its game as expertly and with as great success as the most adroit fly-fisher. He is a clumsy, awkward swimmer, but nature has compensated him for his unwieldiness by furnishing him with an equivalent for a rod and line, with bait always ready for use. Two elongated tentacles spring from his nose, which taper away like actual fishing rods. To the end of them is attached by a slender filament, which serves the purpose of a line, a bait in the form of a shiny bit of membrane. The hooks are set in the mouth of the fisherman down below, and in order to induce the fish to venture within reach of them, the angler stirs up the mud at the bottom with his fins and tail. This attracts the fish and conceals him from their observation. He then plies his rod; the glittering bait glows in the water like a living insect. The dazed fish are taken in great numbers, perfectly incumbered by the trick of the crafty angler.—*Galaxy.*

THEY ORW in beauty side by side,
They filled one home with laughter;
Their urns are scattered far and wide
On sideboard, shelf and rafter

Hark, from the gas works comes a sound,
Sinners, inebriate!
Ye mortals, come and view the flog
Where ye must soon cremate.

A WESTERN EDITOR announces that in consequence of having had an interview with a man about whom he had a "personal" last week, this issue is edited standing up."

GRANGEY. A youthful Pennsylvania granger, about to be christened by his father the other day, called for his grandfather to protect him from the millitman.

WE NOTICE that the *Proy Times* has invented a new system of premiums far ahead of any variety of chromo. We received last evening's edition with a bed-bug in it. We can't get up clubs here on any such inducement as that; try a cockroach for this latitude. —*Rutland Herald.*

YE FROG he is a pretty fowle,
And wondrous good to eate,
Hys hum is good, s'ke wyc hys howle,
And eke hys little feete.

But though you try a thousand years,
I trow you still shal fytle
To make a silk purse of hys eare,
Or wissel of hys tayle.

The following amusing petition is addressed to the inhabitants of England:

"Whereas by you I have been driven
From 'ouse, from 'ome, from 'ope, from 'eaven,
And placed by your most learned society
In Hexile, Hanguish and Hanxiety,
Nay, charged, without one just pretence,
With Harrogance and Himpuudence—
I here demand full restitution,
And beg you'll mend your Helocation."

A LARGE SHEEP OWNER.—The largest sheep owner perhaps that the Highlands ever knew was Cameron of Corrichollie, now dead. He was once examined before a Committee of the House of Commons, and came to be questioned on the subject of his ownership of sheep. "You have some fifteen hundred sheep probably, sir?" said the interrogating Member. "Aibhns," was Corrichollie's quiet reply, as he took a pinch of snuff—"aibhns I have a few more nor that." "Two thousand, then?" "Yes, I believe I have that, and a few more forpye," calmly responded the Highlander, with another pinch. "Five thousand?" "Oh, ay, and a few more." "Twenty thousand, sir," capping with a burst his precious bid. "Oh, ay, and some more forpye," was the imperturbable response of Corrichollie. In heaven's name, how many sheep have you, man?" burst out the astonished catechist. "I'm no very sure to a 'housan' or two," replied Corrichollie, in his dry, laconic way, and with an extra big pinch. "but I'm owner of forty thousand sheep at the lowest reckoning."

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Aug 1, 1874.

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